May 8, 2013 Update

a SPECIES DISTRIBUTION LISTING for

TOWNSHIP 14 SOUTH, RANGE 13 EAST PIMA COUNTY, ARIZONA
Gila and Salt River Baseline and Meridian

Record Created and Maintained by William T. Kendall

"An increasing need for careful husbandry of the earth's natural resources has renewed interest in the classification and mapping of ecosystems. The inventory of our remaining biotic entities is particularly urgent because the increased aspirations of a constantly growing world population are placing ever greater stress on these generous, but finite, living resources."

United States Department of Agriculture, Forest Service, General Technical Report RM-73

The Pima County Courthouse, Tucson, Arziona. This photograph was taken by William T. Kendall, 2002

"To know the desert involves an acquaintance with all its aspects, and all its physical features, as well as all of the animals and plants that have learned how to find in it a congenial place to live. The most significant lesson that the desert dweller can learn from a familiarity with its plant and animal life is to regard himself not as an exile from some better place, but as a man at home in an environment to which his life can be adjusted without physical or intellectual loss."

Forest Shreve, The Cactus and Its Home, located in *Discovering the Desert*, by William G. McGinnies

MAJOR CONTRIBUTORS AND SOURCES OF INFORMATION

Philip D. Jenkins, Assistant Curator of the University of Arizona Herbarium *PDJ*

Matthew B. Johnson, Program Manager and Curator of the Desert Legume Program - Boyce Thompson Southwestern Arboretum *MBJ (date of observation)*

William T. Kendall *WTK (date of observation)*

Arizona Daily Star *ADS (date of article)*

Arizona Game and Fish Department, Heritage Data Management System - Special Status Species Reports *8*

Southwest Environmental Information Network (SEINet) *85 (a date of a search for information on the species)*

Janice E. Bowers, notes titled "Plants listed by J.J. Thornber from Zones I and II of the Desert Laboratory Domain", dated June 21, 1989.

J.E. Bowers and R.M. Turner "A Revised Vascular Flora of Tumamoc Hill", Madrano, Vol. 32, No. 4, pp. 225-252, 20 December 1985 *16*

Kathryn Maus, Arid Lands Resource Sciences, University of Arizona, "Plants of the West Branch of the Santa Cruz River" 12 October 2001 *56* and 9 September 2002 Update *57*

Philip C. Rosen, "Biological Values of the West Branch of the Santa Cruz River, With an Outline for a Potential River Park or Reserve", 15 October 2001 *78*

J.J. Thornber, Professor of Botany in the Arizona Experiment Station, 1909, Vegetation Groups in the Desert Laboratory Domain *89*

E. Lendell Cockrum. 1960. The Recent Mammals of Arizona: Their Taxonomy and Distribution, The University of Arizona Press, Tucson, Arizona. This inclusion is based on the general distribution maps and statements. *118 (distribution note, map - Figure Number and Page Number)*

Charles H. Lowe. 1964. The Vertebrates of Arizona with Major Section on Arizona Habitats, The University of Arizona Press, Tucson, Arizona. *55*

SPECIES DISTRIBUTION LISTINGS

Species Distribution Listings are being developed to encourage and promote the conservation of local native animals and plants. The listings are developed for legally defined geographic areas, and larger bodies of water. The listings include species reported as having been observed in or reported from the described area. Exotic and non-local landscaped plants are not included in the listings unless they have become naturalized into the surrounding native environment. Neither "Man" nor our domesticated animals, except for feral animals, have been included in the listings of species; however, they have had an impact on all natural areas, the future degree of this impact must be managed in order to restore and provide for the continuation of the natural interrelationships between all species.

Due to the continuing addition of species, the listings should be considered works in progress. In the listings, and most often in the listing of animals, species may have been included based on general distribution mapping and/or statements and not on an observation made in a specific location. It is recommended that we consider a species "confirmed" as occurring in a township or general listing area only after we have at least three recorded sightings cited in the footnotes with no more than one of those records being based on general distribution mapping for the species. Note that the Southwest Environmental Information Network (SEINet) *85* may have several collections recorded for a species within any given township or listing area, and that the date shown in parentheses is a date of the search of their records and not a date of recorded sighting. Note also that many of the individual species collection records found in SEINet include additional associated species. For assistance with the

identification of a plant, contact the University of Arizona Herbarium (520-621-7243; FAX: 520-621-7186; P.O. Box 210036 Herring Hall, 1130 East South Campus Drive, Tucson, Arizona 85721).

The species are presented alphabetically by division, class, family and genus within their kingdoms. Unlike the usage by most authors, all common names have been capitalized, to normalize simply return uppercase letters, except for those used in proper names, to lowercase letters. Common names presented in languages other than English may lack the inclusion of certain characters/phonetic symbols because of an inability to be reproduce them. The vernacular names included by Daniel F. Austin in his book Baboquivari Mountain Plants: Identification, Ecology, and Ethnobotany are noted "(140)" with synonyms (dialectic variants or alternate transcriptions) printed in angle brackets <> and/or variations printed in brackets []. An attempt has been made to identify the range in mature heights reported for the plants. Whenever possible the flowering period is reported to early month (1st-10th), mid-month (11th-20th) and late month (21st-end of the month). The individual species records include a general description of the habitat which is provided to help visualize the types of natural habitats the species may be found in. These descriptions have been developed, in part, from herbarium records and general descriptions of habitat found in literature, and should not be considered limiting as to the type of habitat that a plant might occupy. The terms "streambed", "creekbed", "riverbed" or "lakebed" refer to their dry aspects. Plants reported as occurring in recently burned areas were observed in that area within one year following a fire. The range in elevation has been rounded off to the nearest 100 feet up for the higher elevation, or down for the lower elevation. Species reported as being within 0 to 100 feet are recorded as occurring "from sea level". The reporting of the ecological formations generally follows the mapping presented in the "Biotic Communities of the Southwest" by David E. Brown and Charles H. Lowe, August 1980, with the exception of the "wetlands" which are being reported as an ecological formation in the listings; footnotes: Species not considered to be native to Arizona are shown as being EXOTIC, printed in red. Exotic plants are not recommended for use in landscaping or restoration projects. Plants that may be an attractive component of a restored native habitat are so noted. Plants reported as having been used by native peoples of North America and which might be investigated to determine their value as a home garden or commercial crop may be so noted, much of this information is based on the records of the Native American Ethnobotany website [University of Michigan - Dearborn], footnote *127*, the inclusion of these plants in the listings is not a recommendation for their use and should not serve as an inference that they are in any way safe to use. When describing the "native range" of plants in North America northwestern refers to Alaska, northern refers to northern Canada (the Yukon Territory, Northwest Territories and Nunavut), northeastern refers to Greenland, central refers to southern Canada (north-central: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Newfoundland and Labrador, New Brunswick, Nova Scotia and Prince Edward Island) and the United States (south-central), and southern refers to Mexico, below which is Central America and South America. In the footnotes, the source(s) used for the inclusion of the species in the listing is printed in either green ***00*** (indicating that the entry is based on an actual sighting) or blue ***00*** (indicating that the entry is based on a general distribution description and/or mapping). Plants listed in the book "Livestock-Poisoning Plants of Arizona" by Ervin M. Schmutz, Barry M. Freeman and Raymond E. Reed and published in 1968 (80) as being either "Major Poisonous Range Plants" or "Secondary Poisonous Range Plants" are further identified by their listing heading being printed in red in the footnotes; plants considered to be "Rarely Poisonous and Suspected Poisonous Range Plants" and "Poisonous Cropland and Garden Plants" have also been noted.

Local native plants are recommended for use in landscape and restoration projects. Once established many native species require little, if any, irrigation. The inclusion of a plant in the township listing does not necessarily mean that the plant is suitable for the site in which you want to plant it. Ideally restoration should include those species of plants that were native to the property. The source material, of plants and seed, used in the project should be as local as possible. In order to determine what plants were native try to locate photographs of the area prior to clearing or look for natural areas and remnant populations and plants adjacent to where the restoration is to take place. Plants should be planted in their approximate original habitat and density and taking into consideration the original local native site and elevation of occurrence.

The use of local native plants in landscape and restoration projects encourages native animals to remain in the area and helps us to retain the area's natural beauty and unique identity and heritage.

A NOTE TO RANCHERS: The development of the Species Distribution Listings has been made, in part, with the hope that they will enhance the body of information you are using to assist you in your efforts to improve on the management of native rangelands, bringing about a more productive rangeland, enhanced wildlife management, and an economically and ecologically stable environment.

The Species Distribution Listings have been created and maintained by William T. Kendall. Any questions, concerns, corrections and/or comments, including the reporting of unrecorded species and information relating to historical distributions, may be sent to the following address: Kendall Environmental Surveys, P.O. Box 86091, Tucson, Arizona 85754-6091

DISCLAIMER: The information presented under "Township Notes" has been obtained from large scale mapping and should be used only as a general guide. The listings are not meant to take the place of on-site surveys for species. Information used in the listings is accepted from biologists and individuals interested in helping to promote the conservation of our natural resources. Mistakes are made in the identification of species, the interpretation of data and in the recording of information, and changes in nomenclature occur. For these reasons I can not and do not warrant the accuracy of these listings. Attempts are made to keep the

information contained in the Species Distribution Listings as accurate as possible; however, I disclaim any implied warranty or representation about its accuracy, completeness, or appropriateness for any particular purposes. Users of the information found in the listings assume full responsibility for their use of the information and understand that Kendall Environmental Surveys is not responsible or liable for any claim, loss, or damage resulting from its use.

CAUTION: Many native desert plants have sharp thorns and spines. Care should be given when handling these plants and consideration should be given to public safety at sites where they are to be planted. Range plants having a known toxic or poisonous property may be so noted. Footnotes for plants whose sources may have cautionary statements, comments and information on rarely poisonous or suspected poisonous properties may be shown in red *00*. Many poisonous plants are similar in appearance to edible ones. No field collected plant should be eaten unless you know for a fact that it is safe for you to do so.

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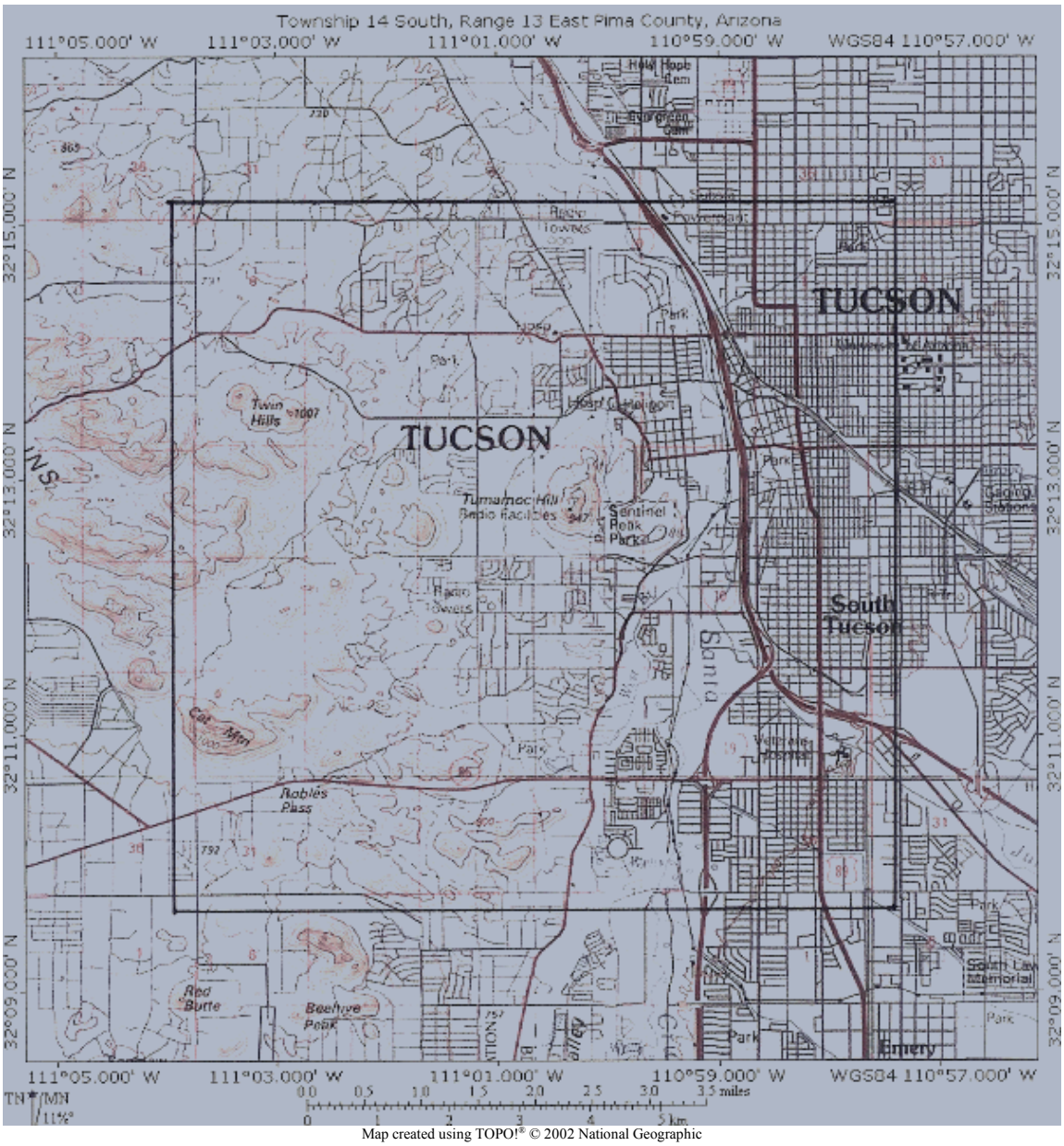

Map created using TOPO!® © 2002 National Geographic

Map of Township, shown with adjacent sections

TOWNSHIP NOTES

LOCATION: This township is located in east-central Pima County in south-central Arizona. Portions of the City of Tucson and the City of South Tucson are located in this township. This township is bounded on the north by the alignment for Grant Road and Ironwood Hills Drive, on the south by the alignment for Irvington Road, on the east by the alignment of 1st Avenue and on the west by the alignment for Camino de Oeste. Parks with large natural areas include Greasewood Park, Sentinal Peak Park, portions of the Santa Cruz River Park and Tucson Mountain County Park.

Historic Neighborhoods: Historic Neighborhoods include “A” Mountain, Armory Park, Barrio Anita, Barrio Blue Moon, Barrio Hollywood, Barrio Santa Rosa, Barrio Viejo, Dunbar Spring, El Presidio, Jollyville, Kroger Lane, Menlo Park, Sin Nombre, Sovaco and West University.

Historic Ranching Activities: Named historic ranches include the Davidson Ranch and the Ryland Ranch (MIX FM, December 9, 2010, the Bobby Rich Morning Mix news). Additional activities include the Tucson Rodeo “La Fiesta de los Vaqueros” (The Celebration of the Cowboys) and the Tucson Rodeo Parade.

Historic Mining Activities: A tungsten processing mill was operated in this township during World War II *ADS (August 30, 2006, Section A, Page 1).*

Cowboys line up for the early morning trials of the Slack Competition at the Tucson Rodeo.
This photograph was taken by William T. Kendall, February 21, 2006

LANDMARKS: Southeastern foothills of the Tucson Mountains are located in the southwest half of the west half of this township. Named peaks include Sentinel Peak (A Mountain), Tumamoc Hill (Tohono O’odham for “Horned Toad Hill”, also historically referred to as Flat Top Mountain), Twin Hills, and Cat Mountain (eastern portion). Named passes include Robles Pass. Named springs include the Santa Cruz Springs (at the base of Sentineal Peak). Named rivers and washes (possibly portions of) include the Ajo Wash, Anklam Wash, Arroyo Chico, Enchanted Hills Wash, Globeberry Wash, Greasewood Wash, Julian Wash, Maxwell Wash, Morado Wash, Oeste Wash, Powderhorn Wash, San Juan Wash, Silvercroft Wash, Speedway Wash, Tucson Park Wash, and the Santa Cruz River and West Branch of the Santa Cruz River.

ELEVATION: Elevations range from approximately 2,300 feet at Grant Road and the Santa Cruz River to approximately 3,852 feet at Cat Mountain (1).

PHYSIOGRAPHIC PROVINCE: This township is located within the Sonoran Desert Section of the Basin and Range Physiographic Province (2).

SOILS: Soils have been described as being Thermic (hot) Arid Soils (soils with mean annual temperatures of 59 degrees to 72 degrees Fahrenheit (15 degrees to 22 degrees Centigrade) and 5 to 10 inches (13 to 25 cm) mean annual precipitation) and/or Thermic (hot) Semiarid Soils (soils with mean annual temperatures of 59 degrees to 72 degrees Fahrenheit (15 degrees to 22 degrees Centigrade) and 10 to 16 inches (25 to 41 cm) mean annual precipitation) of the Grabe-Gila-Pima Association (deep soils

of the floodplains), Pinaleno-Nickel-Palos Verdes Association (deep, arid, gravelly soils on deeply dissected uplands), Rillino-Latene-Cave Association (deep to very shallow, calcareous soils on uplands) and the Rock Outcrop-Lampshire -Cellar Association (rock outcrop and very shallow and shallow semiarid soils of the mountains and foothills) (3).

BIOTIC COMMUNITY: This township is located within the Arizona Upland Subdivision of the Sonoran Desertscrub Regional Formation of the Desertscrub Formation and associated Wetlands (4).

LISTED BELOW ARE A FEW OF THE NATIVE PLANTS REPORTED AS OCCURRING IN THIS TOWNSHIP THAT MIGHT BE CONSIDERED FOR USE IN LANDSCAPE AND RESTORATION PROJECTS

Common Name (Family Name: Scientific Name - range in reported mature heights)

Trees and Large Shrubs (over 7 feet maximum height)

Fremont Cottonwood (Salicaceae: *Populus fremontii* subsp. *fremontii* - 10' to 112' in height, see NOTES)
Fremont Cottonwood (Salicaceae: *Populus fremontii* subsp. *mesetae* - 10' to 112' in height, see NOTES)
Western Black Willow (Salicaceae: *Salix gooddingii* - 4' to 98' in height, see NOTES)
Arizona Black Walnut (Juglandaceae: *Juglans major* - 5' to 66' in height, see NOTES)
Velvet Ash (Oleaceae: *Fraxinus velutina* - 40" to 65' in height, see NOTES)
Saguaro (Cactaceae: *Carnegiea gigantea* - 5' to 60' in height)
Netleaf Hackberry (Ulmaceae: *Celtis laevigata* var. *reticulata* - 40" to 60' in height)
Velvet Mesquite (Fabaceae: *Prosopis velutina* - 2' to 56' in height)
Coyote Willow (Salicaceae: *Salix exigua* - 20" to 56' in height)
Western Soapberry (Sapindaceae: *Sapindus saponaria* var. *drummondii* - 7' to 50' in height, see NOTES)
Blue Paloverde (Fabaceae: *Parkinsonia florida* - 40" to 40' in height)
Desert Elderberry (Caprifoliaceae: *Sambucus nigra* subsp. *canadensis* - 7' to 36' in height)
Desert Ironwood (Fabaceae: *Olneya tesota* - 10' to 33' in height)
Desert Willow (Bignoniaceae: *Chilopsis linearis* subsp. *arcuata* - 5' to 33' in height)
Ocotillo (Fouquieriaceae: *Fouquieria splendens* - 5' to 33' in height)
Common Buttonbush (Rubiaceae: *Cephalanthus occidentalis* - 3' to 33' in height)
Screwbean Mesquite (Fabaceae: *Prosopis pubescens* - 3' to 33' in height, see NOTES)
Soaptree Yucca (Agavaceae: *Yucca elata* - acaulescent to 30' in height)
Foothill Paloverde (Fabaceae: *Parkinsonia microphylla* - 40" to 26' in height)
Catclaw Acacia (Fabaceae: *Acacia greggii* var. *greggii* - 40" to 25' in height)
Desert Olive (Oleaceae: *Forestiera shrevei* - 40" to 25' in height)
Desert Hackberry (Ulmaceae: *Celtis pallida* - 3' to 20' in height)
Rosary Babybonnets (Fabaceae: *Coursetia glandulosa* - 3' to 20' in height)
Whitethorn Acacia (Fabaceae: *Acacia constricta* var. *constricta* - 1' to 20' in height)
Whitethorn Acacia (Fabaceae: *Acacia constricta* var. *paucispina* - 2' to 18' in height)
Arrowweed (Asteraceae: *Pluchea sericea* - 3' to 16½' in height)
Longleaf Joint-fir (Ephedraceae: *Ephedra trifurca* - 20" to 16½' in height)
Chain-fruit Cholla (Cactaceae: *Cylindropuntia fulgida* var. *fulgida* - 3' to 15' in height)
Staghorn Cholla (Cactaceae: *Cylindropuntia versicolor* - 3' to 15' in height)
Seep Willow (Asteraceae: *Baccharis salicifolia* - 1' to 15' in height)
Desert Lavender (Lamiaceae: *Hyptis emoryi* - 8" to 15' in height)
Prairie Acacia (Fabaceae: *Acacia angustissima* var. *suffructescens* - 8" to 14' in height)
Desert Broom (Asteraceae: *Baccharis sarothroides* - 3' to 13' in height, see NOTES)
Southern Cattail (Typhaceae: *Typha domingensis* - 3' to 13' in height)
Greythorn (Rhamnaceae: *Ziziphus obtusifolia* var. *canescens* - 3' to 13' in height)
Kearney Snakewood (Rhamnaceae: *Condalia warnockii* var. *kearneyana* - 20" to 13' in height)
Creosote Bush (Zygophyllaceae: *Larrea tridentata* - 20" to 13' in height)
Arizona Desert-thorn (Solanaceae: *Lycium exsertum* - 20" to 13' in height)
Fremont Lycium (Solanaceae: *Lycium fremontii* - 20" to 13' in height)
Arrow-wood (Asteraceae: *Hymenoclea monogyra* - 1' to 13' in height)
Jojoba (Simmondsiaceae: *Simmondsia chinensis* - 8" to 13' in height)
Pencil Cholla (Cactaceae: *Cylindropuntia arbuscula* - 20" to 12' in height)
Fishhook Barrel Cactus (Cactaceae: *Ferocactus wislizeni* - 8" to 11' in height)
Torrey Lycium (Solanaceae: *Lycium torreyi* - 3' to 10' in height)

Crown of Thorns (Capparaceae: *Koeberlinia spinosa* var. *wivagii* - 2' to 10' in height)
Berlandier Lycium (Solanaceae: *Lycium berlandieri* var. *longistylum* - 20" to 10' in height)
Cane Cholla (Cactaceae: *Cylindropuntia spinosior* - 16" to 10' in height)
Wright Lycium (Solanaceae: *Lycium andersonii* var. *wrightii* - 1' to 10' in height)
Smooth Chain-fruit Cholla (Cactaceae: *Cylindropuntia fulgida* var. *mamillata* - 2' to 9' in height)
Desert Honeysuckle (Acanthaceae: *Anisacanthus thurberi* - 3' to 8' in height)
Wright Beebrush (Verbenaceae: *Aloysia wrightii* - 20" to 8' in height)
Engelmann Pricklypear Cactus (Cactaceae: *Opuntia engelmannii* var. *engelmannii* - 20" to 8' in height)
Fourwing Saltbush (Chenopodiaceae: *Atriplex canescens* var. *canescens* - 1' to 8' in height)
Four-spined Klein's Cholla (Cactaceae: *Cylindropuntia* x *tetracantha* - 1' to 8' in height)

Shrubs (2 to 7 feet maximum height)

Major Cholla (Cactaceae: *Cylindropuntia acanthocarpa* var. *major* - 2' to 7' in height)
Canyon Ragweed (Asteraceae: *Ambrosia ambrosioides* - 1' to 7' in height see NOTES)
Narrow-leaf Saltbush (Chenopodiaceae: *Atriplex canescens* var. *linearis* - 1' to 7' in height)
California Brickellbush (Asteraceae: *Brickellia californica* var. *californica* - 1' to 7' in height)
Limberbush (Euphorbiaceae: *Jatropha cardiophylla* - 1' to 7' in height)
Tulip Pricklypear Cactus (Cactaceae: *Opuntia phaeacantha* - 10" to 7' in height)
Desert Rosemallow (Malvaceae: *Hibiscus coulteri* - 3" to 7' in height)
Desert Saltbush (Chenopodiaceae: *Atriplex polycarpa* - 12" to 78" in height)
Fairyduster (Fabaceae: *Calliandra eriophylla* - 4" to 78" in height)
Allthorn (Capparaceae: *Koeberlinia spinosa* var. *spinosa* - 3' to 6' in height)
Desert Christmas Cactus (Cactaceae: *Cylindropuntia leptocaulis* - 1' to 6' in height)
White Brittlebush (Asteraceae: *Encelia farinosa* - 1' to 6' in height)
American Threefold (Asteraceae: *Trixis californica* - 10" to 6' in height)
Coulter Brickellbush (Asteraceae: *Brickellia coulteri* - 1' to 5' in height)
Scarlet Bouvardia (Rubiaceae: *Bouvardia ternifolia* - 8" to 5' in height)
White Rantany (Krameriaceae: *Krameria grayi* - 8" to 5' in height)
Desert Mistletoe (Viscaceae: *Phoradendron californicum* - 8" to 5' in height, see NOTES)
Threadleaf Snakeweed (Asteraceae: *Gutierrezia microcephala* - 2" to 4½' in height)
Turpentine Bush (Asteraceae: *Ericameria laricifolia* - 10" to 50" in height)
Triangleleaf Bursage (Asteraceae: *Ambrosia deltoidea* - 1' to 4' in height)
Mariola (Asteraceae: *Parthenium incanum* - 1' to 4' in height)
Arizona Cockroach Plant (Apocynacaeae: *Haplophyton crooksii* - 7" to 40" in height)
Burroweed (Asteraceae: *Isocoma tenuisecta* - 6" to 40" in height)
White Bursage (Asteraceae: *Ambrosia dumosa* - 4" to 40" in height)
Arizona Wrightwort (Acanthaceae: *Carlowrightia arizonica* - 2" to 40" in height)
Range Ratany (Krameriaceae: *Krameria erecta* - 2" to 40" in height)

Grasses

Common Reed (Poaceae: *Phragmites australis* - 40" to 20' in height, see NOTES)
Wright Sacaton (Poaceae: *Sporobolus wrightii* - 36" to 100" in height)
Alkali Sacaton (Poaceae: *Sporobolus airoides* - 14" to 100" in height)
Spidergrass (Poaceae: *Aristida ternipes* var. *ternipes* - 16" to 79" in height)
Sourgrass (Poaceae: *Digitaria insularis* - 24" to 78" in height)
Spike Dropseed (Poaceae: *Sporobolus contractus* - 16" to 78" in height)
California Brome (Poaceae: *Bromus carinatus* - 12" to 72" in height)
False Rhodes Grass (Poaceae: *Trichloris crinita* - 24" to 60" in height)
Cane Bluestem (Poaceae: *Bothriochloa barbinodis* - 20" to 60" in height)
Carolina Canarygrass (Poaceae: *Phalaris caroliniana* - 10" to 60" in height)
Tanglehead (Poaceae: *Heteropogon contortus* - 8" to 60" in height, see NOTES)
Witchgrass (Poaceae: *Panicum capillare* - 6" to 60" in height)
Red Sprangletop (Poaceae: *Leptochloa panicea* subsp. *brachiata* - 4" to 60" in height)
Bearded Sprangletop (Poaceae: *Leptochloa fusca* subsp. *fascicularis* - 2" to 60" in height)
Whiplash Pappusgrass (Poaceae: *Pappophorum vaginatum* - 16" to 52" in height)
Sideoats Grama (Poaceae: *Bouteloua curtipendula* - 3" to 52" in height)
Beardless Wildrye (Poaceae: *Leymus triticoides* - 16" to 50" in height)
Arizona Cottontop (Poaceae: *Digitaria californica* - 12" to 48" in height)
Mexican Lovegrass (Poaceae: *Eragrostis mexicana* subsp. *mexicana* - 12" to 48" in height)

Sand Dropseed (Poaceae: *Sporobolus cryptandrus* - 12” to 48” in height)
Mesa Dropseed (Poaceae: *Sporobolus flexuosus* - 12” to 48” in height)
Spidergrass (Poaceae: *Aristida ternipes* var. *gentilis* - 8” to 48” in height)
Streambed Bristlegrass (Poaceae: *Setaria leucopila* - 8” to 48” in height)
Plains Bristlegrass (Poaceae: *Setaria vulpiseta* - 8” to 48” in height)
Tapertip Cupgrass (Poaceae: *Eriochloa acuminata* var. *acuminata* - 6” to 4’ in height)
Tapertip Cupgrass (Poaceae: *Eriochloa acuminata* var. *minor* - 6” to 4’ in height)
Grisebach’s Bristlegrass (Poaceae: *Setaria grisebachii* - 4” to 48” in height)
Bush Muhly (Poaceae: *Muhlenbergia porteri* - 10” to 44” in height)
Mexican Sprangletop (Poaceae: *Leptochloa fusca* subsp. *uninervia* - 6” to 44” in height)
Bearded Cupgrass (Poaceae: *Eriochloa aristata* - 12” to 40” in height)
Browntop Signalgrass (Poaceae: *Urochloa fusca* - 12” to 40” in height)
Cotta Grass (Poaceae: *Cottea pappophoroides* - 10” to 40” in height)
Poverty Threeawn (Poaceae: *Aristida divaricata* - 7” to 40” in height)
Blue Threeawn (Poaceae: *Aristida purpurea* var. *nealleyi* - 6” to 40” in height)
Liebmann’s Bristlegrass (Poaceae: *Setaria liebmannii* - 6” to 40” in height)
Parish Threeawn (Poaceae: *Aristida purpurea* var. *parishii* - 4” to 40” in height)
Arizona Brome (Poaceae: *Bromus arizonicus* - 4” to 40” in height)
Littleseed Muhly (Poaceae: *Muhlenbergia microsperma* - 4” to 40” in height)
Sixweeks Threeawn (Poaceae: *Aristida adscensionis* - 1¼” to 40” in height)
Feather Fingergrass (Poaceae: *Chloris virgata* - ½” to 40” in height)
Tobasa (Poaceae: *Pleuraphis mutica* - 12” to 36” in height)
Sonoran Panicgrass (Poaceae: *Panicum hirticaule* var. *stramineum* - 6” to 36” in height)
Purple Grama (Poaceae: *Bouteloua radicosa* - 12” to 32” in height)
Vine Mesquite Grass (Poaceae: *Panicum obtusum* - 6” to 32” in height with short rhizomes and 1’ to 10’ long stolons)
Slender Grama (Poaceae: *Bouteloua repens* - 4” to 32” in height)
Rothrock Grama (Poaceae: *Bouteloua rothrockii* - 8” to 30” in height)
Gulf Lovegrass (Poaceae: *Eragrostis pectinacea* var. *miserrima* - 4” to 28” in height)
Bigelow Bluegrass (Poaceae: *Poa bigelovii* - 1” to 28” in height)
Arizona Signalgrass (Poaceae: *Urochloa arizonica* - 6” to 26” in height)
Knotgrass (Poaceae: *Paspalum distichum* - 2” to 26” in height)
Fendler Threeawn (Poaceae: *Aristida purpurea* var. *longiseta* - 6” to 24” in height)
Desert Saltgrass (Poaceae: *Distichlis spicata* - 4” to 24” in height)
Little Barley (Poaceae: *Hordeum pusillum* - 4” to 24” in height)
Sixweeks Fescue (Poaceae: *Vulpia octoflora* var. *hirtella* - 2” to 24” in height)
Sixweeks Fescue (Poaceae: *Vulpia octoflora* var. *octoflora* - 2” to 24” in height)
Slim Tridens (Poaceae: *Tridens muticus* var. *muticus* - 8” to 20” in height)
Squirreltail (Poaceae: *Elymus elymoides* subsp. *elymoides* - 6” to 20” in height)
Spike Pappusgrass (Poaceae: *Enneapogon desvauxii* - 4” to 20” in height)
Red Grama (Poaceae: *Bouteloua trifida* - 2” to 16” in height)
Curly Mesquite (Poaceae: *Hilaria belangeri* var. *belangeri* - 2” to 14” in height)
Curly Mesquite (Poaceae: *Hilaria belangeri* var. *longifolia* - 2” to 12” in height)
Desert Fluffgrass (Poaceae: *Dasyochloa pulchella* - ½” to 6” in height)

Vines and Climbers

Drummond Clematis (Ranunculaceae: *Clematis drummondii* - 10’ to 40’ in length)
Fingerleaf Gourd (Cucurbitaceae: *Cucurbita digitata* - 3’ to 40’ in length)
Woodbine (Vitaceae: *Parthenocissus vitacea* - 10’ to 33’ in length)
Canyon Grape (Vitaceae: *Vitis arizonica* - 16” to 33’ in length)
Fringed Twinevine (Asclepiadaceae: *Funastrum cynanchoides* subsp. *cynanchoides* - 40” to 20’ in length)
Hartweg Twinevine (Asclepiadaceae: *Funastrum cynanchoides* subsp. *heterophyllum* - 20” to 20’ in length)
Schott Yellowhood (Fabaceae: *Nissolia schottii* - 9’ to 16’ in length)
Slimlobe Globeberry (Cucurbitaceae: *Ibervillea tenuisecta* - 6’ to 12’ in length)
Redstar (Convolvulaceae: *Ipomoea coccinea* - 5” to 10’ in length)
Slender Janusia (Malpighiaceae: *Janusia gracilis* - 16” to 10’ in length)
Little Snapdragon Vine (Scrophulariaceae: *Maurandella antirrhiniflora* - 1’ to 8’ in length)
Tumamoc Globeberry (Cucurbitaceae: *Tumamoca macdougalii* - 28” to 5’ in length)
Watson Indian Root (Aristolochiaceae: *Aristolochia watsoni* - 4” to 5’ in length)

Shrubs (under 2 feet maximum height), Subshrubs, Herbs and Small Succulents

Hoary Indian Mallow (Malvaceae: *Abutilon incanum* - 8" to 7' rarely to 13' in height)
New Mexico Thistle (Asteraceae: *Cirsium neomexicanum* - 16" to 9½' in height)
Emory Globemallow (Malvaceae: *Sphaeralcea emoryi* - 2¼" to 98" in height)
Desert Night-blooming Cereus (Cactaceae: *Peniocereus greggii* - 1' to 8' in height)
Southern Annual Saltmarsh Aster (Asteraceae: *Symphyotrichum divaricatum* - 14" to 79" in height)
Shrubby Indian Mallow (Malvaceae: *Abutilon abutiloides* - 12" to 78" in height)
Copper Globemallow (Malvaceae: *Sphaeralcea angustifolia* - 10" to 78" in height)
Prairie Sunflower (Asteraceae: *Helianthus petiolaris* - 6" to 78" in height)
Cosmopolitan Bulrush (Cyperaceae: *Schoenoplectus maritimus* - 18" to 6' in height)
Sonoran Pricklypoppy (Papaveraceae: *Argemone gracilenta* - 1' to 6' in height)
Coulter Globemallow (Malvaceae: *Sphaeralcea coulteri* - 6" to 6' in height)
Tansyleaf Tansyaster (Asteraceae: *Machaeranthera tanacetifolia* - 2" to 6' in height)
Apricot Globemallow (Malvaceae: *Sphaeralcea ambigua* subsp. *ambigua* - 18" to 63" in height)
Parry Penstemon (Scrophulariaceae: *Penstemon parryi* - 2' to 5' in height)
Shrubby Thoroughwort (Asteraceae: *Koanophyllon solidaginifolium* - 18" to 5' in height)
Crested Pricklypoppy (Papaveraceae: *Argemone polyanthemos* - 16" to 5' in height)
Brownfoot (Asteraceae: *Acourtia wrightii* - 1' to 5' in height)
Pineneedle Milkweed (Asclepiadaceae: *Asclepias linaria* - 1' to 5' in height)
Mexican Fireplant (Euphorbiaceae: *Euphorbia heterophylla* - 8" to 5' in height)
Yellow Monkeyflower (Scrophulariaceae: *Mimulus guttatus* - 2" to 5' in height)
Rock Hibiscus (Malvaceae: *Hibiscus denudatus* - 8" to 56" in height)
Canaigre (Polygonaceae: *Rumex hymenosepalus* - 10" to 52" in height)
Fragrant Flatsedge (Cyperaceae: *Cyperus odoratus* - 2" to 52" in height)
Parry False Prairie-clover (Fabaceae: *Marina parryi* - 8" to 50" in height)
Bluestem Pricklepoppy (Papaveraceae: *Argemone pleiacantha* subsp. *pleiacantha* - 20" to 4' in height)
Spectacle Fruit (Capparaceae: *Wislizenia refracta* subsp. *refracta* - 16" to 4' in height)
Horsetail Milkweed (Asclepiadaceae: *Asclepias subverticillata* - 8" to 4' in height)
Bladdermallow (Malvaceae: *Herissantia crispa* - 8" to 4' in height)
Spreading Fanpetals (Malvaceae: *Sida abutifolia* - 8" to 4' in length)
Parish Larkspur (Ranunculaceae: *Delphinium parishii* var. *parishii* - 6½" to 4' in height)
Tall Mountain Larkspur (Ranunculaceae: *Delphinium scaposum* - 6" to 4' in height)
Yellow Menodora (Oleaceae: *Menodora scabra* - 6" to 4' in height)
Distant Phacelia (Hydrophyllaceae: *Phacelia distans* - 3" to 44" in height)
Desert Tobacco (Solanaceae: *Nicotiana obtusifolia* var. *obtusifolia* - 12" to 42" in height, see NOTES)
American Germander (Lamiaceae: *Teucrium canadense* var. *canadense* - 26" to 40" in height)
Violet Ruellia (Acanthaceae: *Ruellia nudiflora* var. *nudiflora* - 12" to 40" in height)
Longflowered Tubetongue (Acanthaceae: *Justicia longii* - 8" to 40" in height)
Desert Marigold (Asteraceae: *Baileya multiradiata* - 6" to 40" in height)
Hoary Tansyaster (Asteraceae: *Machaeranthera canescens* subsp. *canescens* var. *incana* - 6" to 40" in height)
Perennial Rockcress (Brassicaceae: *Arabis perennans* - 4" to 40" in height)
Covena (Liliaceae: *Dichelostemma capitatum* subsp. *capitatum* - 4" to 40")
Prairie Flax (Linaceae: *Linum lewisii* var. *lewisii* - 4" to 40" in height)
Purplestem Phacelia (Hydrophyllaceae: *Phacelia crenulata* var. *ambigua* - 4" to 40" in height)
Sandyseed Clammyweed (Capparaceae: *Polanisia dodecandra* subsp. *trachysperma* - 4" to 40" in height)
Chia (Lamiaceae: *Salvia columbariae* var. *columbariae* - 4" to 40" in height)
Mesa Tansyaster (Asteraceae: *Machaeranthera tagetina* - 2" to 40" in height)
Rose Evening-primrose (Onagraceae: *Oenothera rosea* - 3" to 39" in height)
White Heath Aster (Asteraceae: *Symphyotrichum ericoides* var. *ericoides* - 12" to 36" in height)
American Water-pimpernel (Primulaceae: *Samolus valerandi* subsp. *parviflorus* - 4" to 34" in height)
Arizona Foldwing (Acanthaceae: *Dicliptera resupinata* - 12" to 32" in height)
Desert Senna (Fabaceae: *Senna covesii* - 10" to 32" in height)
Texas Toadflax (Scrophulariaceae: *Nuttallanthus texanus* - 8" to 32" in height)
Arizona Centaury (Gentianaceae: *Centaurium arizonicum* - 5" to 32" in height)
Whitestem Paperflower (Asteraceae: *Psilostrophe cooperi* - 4" to 32" in height)
Yerba Mansa (Saururaceae: *Anemopsis californica* - 3" to 32" in height)
Texas Desertrue (Rutaceae: *Thamnosma texana* - 3" to 32" in height)
Abert Buckwheat (Polygonaceae: *Eriogonum abertianum* - 2" to 32" in height)
Covena (Liliaceae: *Dichelostemma capitatum* subsp. *pauciflorum* - 4" to 30" in height)
Caliche Globemallow (Malvaceae: *Sphaeralcea laxa* - 12" to 28" in height)
Slender Goldenweed (Asteraceae: *Machaeranthera gracilis* - 4" to 28" in height)

Spreading Fleabane (Asteraceae: *Erigeron divergens* - 2¾" to 28" in height)
Slender Dwarf Morning-glory (Convolvulaceae: *Evolvulus alsinoides* var. *angustifolius* - 2¼" to 28" in height)
Flaxflowered Ipomopsis (Polemoniaceae: *Ipomopsis longiflora* subsp. *longiflora* - 12" to 24" in height)
Bearded Prairie Clover (Fabaceae: *Dalea pogonathera* var. *pogonathera* - 8" to 24" in height)
Davis Mountain Mock Vervain (Verbenaceae: *Glandularia bipinnatifida* var. *ciliata* - 6" to 24" in height)
Goodding Mock Vervain (Verbenaceae: *Glandularia gooddingii* - 6" to 24" in height)
Rose Bladderpod (Brassicaceae: *Lesquerella purpurea* - 6" to 24" in height)
Mojave Milkweed (Asclepiadaceae: *Asclepias nyctaginifolia* - 4" to 24" in height)
Hairyseed Bahia (Asteraceae: *Bahia absinthifolia* - 4" to 24" in height)
Desert Mariposa Lily (Liliaceae: *Calochortus kennedyi* - 4" to 24" in height)
Golden Fumewort (Fumariaceae: *Corydalis aurea* - 4" to 24" in height)
New Mexico Plumeseed (Asteraceae: *Rafinesquia neomexicana* - 4" to 24" in height)
Twinleaf Senna (Fabaceae: *Senna bauhinioides* - 4" to 24" in height)
Gordon Bladderpod (Brassicaceae: *Lesquerella gordonii* var. *gordonii*) - 3" to 24" in height)
Golden Dogweed (Asteraceae: *Thymophylla pentachaeta* - 3" to 24" in height)
Pebble Pincushion (Asteraceae: *Chaenactis carphoclinia* var. *carphoclinia* - 2" to 24" in height)
Flatcrown Buckwheat (Polygonaceae: *Eriogonum deflexum* var. *deflexum* - 2" to 24" in height)
Texas Stork's Bill (Geraniaceae: *Erodium texanum* - 2" to 24" in height)
Mexican Gold Poppy (Papaveraceae: *Eschscholzia californica* subsp. *mexicana* - 1" to 24" in height)
Mojave Lupine (Fabaceae: *Lupinus sparsiflorus* subsp. *mojavensis* - 8" to 20" in height)
Orange Flameflower (Portulacaceae: *Phemeranthus aurantiacus* - 6" to 20" in height)
Desert Windflower (Ranunculaceae: *Anemone tuberosa* var. *tuberosa* - 4" to 20" in height)
Curvepod Fumewort (Fumariaceae: *Corydalis curvisiliqua* subsp. *occidentalis* - 4" to 20" in height)
Lobed Fleabane (Asteraceae: *Erigeron lobatus* - 4" to 20" in height)
Arizona Poppy (Zygophyllaceae: *Kallstroemia grandiflora* - 4" to 20" in height, stems to 4' in length)
Skyblue Phacelia (Hydrophyllaceae: *Phacelia coerulea* - 4" to 20" in height)
Desert Zinnia (Asteraceae: *Zinnia acerosa* - 3" to 20" in height)
Arrowleaf Mallow (Malvaceae: *Malvella sagittifolia* - 6" to 18" in height)
Plains Flax (Linaceae: *Linum puberulum* - 4" to 18" in height)
Bajada Lupine (Fabaceae: *Lupinus concinnus* - 3" to 18" in height)
Esteve's Pincushion (Asteraceae: *Chaenactis stevioides* - 2" to 18" in height)
Bundle Hedgehog Cactus (Cactaceae: *Echinocereus fasciculatus* - 2" to 18" in height)
Spiny Cliffbrake (Pteridaceae: *Pellaea truncata* - 3" to 16½" in height)
Lacy Tansyaster (Asteraceae: *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida* - 6" to 16" in height)
Common Owl's Clover (Scrophulariaceae: *Castilleja exserta* subsp. *exserta* - 4" to 16" in height)
Dwarf False Pennyroyal (Lamiaceae: *Hedeoma nana* - 4" to 16")
Desert Broomrape (Orobanchaceae: *Orobanche cooperi* - 4" to 16" in height)
Pricklyleaf Dogweed (Asteraceae: *Thymophylla acerosa* - 4" to 16" in height)
California Goldfields (Asteraceae: *Lasthenia californica* subsp. *californica* - 3" to 16" in height)
Arizona Blanketflower (Asteraceae: *Gaillardia arizonica* - 2" to 16" in height)
Toad Rush (Juncaceae: *Juncus bufonius* - 1" to 16" in height)
Arizona Phacelia (Hydrophyllaceae: *Phacelia arizonica* - 1" to 16" in height)
Beaded Lip Fern (Pteridaceae: *Cheilanthes wootonii* - 3" to 15½" in height)
Shaggyfruit Pepperweed (Brassicaceae: *Lepidium lasiocarpum* var. *lasiocarpum* - 8" to 15" in height)
Creamcups (Papaveraceae: *Platystemon californicus* - 2" to 14" in height)
Pinkflower Hedgeflower Cactus (Cactaceae: *Echinocereus fendleri* - 1½" to 14" in height)
Miniature Woollystar (Polemoniaceae: *Eriastrum diffusum* - 1½" to 14" in height)
Fairyswords (Pteridaceae: *Cheilanthes lindheimeri* - 3" to 13½" in height)
Star Cloakfern (Pteridaceae: *Notholaena standleyi* - 2" to 13" in height)
White Tackstem (Asteraceae: *Calycoseris wrightii* - 10" to 12" in height)
Desert Unicorn-plant (Pedaliaceae (Martyniaceae): *Proboscidea althaeifolia* - 7" to 12" in height)
Indian Rushpea (Fabaceae: *Hoffmannseggia glauca* - 4" to 12" in height)
Largeflower Onion (Liliaceae: *Allium macropetalum* - 3" to 12" in height)
Cochise Scaly Cloakfern (Pteridaceae: *Astrolepis cochisensis* subsp. *cochisensis* - 3" to 12" in height)
Desert Holly (Asteraceae: *Acourtia nana* - 2" to 12" in height)
Sand Bells (Hydrophyllaceae: *Nama hispidum* - 2" to 12" in height)
Prairie Zinnia (Asteraceae: *Zinnia grandiflora* - 2" to 12" in height)
Graham Pincushion Cactus (Cactaceae: *Mammillaria grahamii* - 1" to 12" in height)
Mohave Desertstar (Asteraceae: *Monoptilon bellioides* - 1" to 12" in height)
Wright's Lipfern (Pteridaceae: *Cheilanthes wrightii* - 1½" to 10" in height)
Running Fleabane (Asteraceae: *Erigeron colomexicanus* - 1" to 10" in height)
Tufted Evening-primrose (Onagraceae: *Oenothera caespitosa* subsp. *marginata* - 4" to 8" in height)

Woolly Crinklemat (Boraginaceae: *Tiquilia canescens* var. *canescens* - 4" to 8" in height)
California Caltrop (Zygophyllaceae: *Kallstroemia californica* - 2" to 8" in height, stems to 5' in length)
Rose Heath (Asteraceae: *Chaetopappa ericoides* - 1" to 8" in height)
Manybristle Chinchweed (Asteraceae: *Pectis papposa* var. *papposa* - ½" to 8" in height)
Pringle's Lipfern (Pteridaceae: *Cheilanthes pringlei* - 1½" to 7" in height)
Sonoran Pricklyleaf (Asteraceae: *Thymophylla concinna* - 2" to 5" in height)
Yellow Desert Evening-primrose (Onagraceae: *Oenothera primiveris* subsp. *primiveris* - to 4" in height)
Whitemargin Sandmat (Euphorbiaceae: *Chamaesyce albomarginata* - ½" to 3" in height)

CONSERVATION RELATED AGENCIES AND ORGANIZATIONS

Arizona Department of Agriculture

http://www.azda.gov/

Native Plant Crimes HOTLINE: 602-364-0907

The mission statement of the Arizona Department of Agriculture is to regulate and support Arizona agriculture in a manner that encourages farming, ranching, and agribusiness while protecting consumers and natural resources.

NOTICE OF INTENT TO CLEAR LAND

The Arizona Department of Agriculture enforces the sections of the Arizona Revised Statutes commonly referred to as the "Arizona Native Plant Law". The statutes require, in part, that anyone who is clearing land notify the State of Arizona in advance of the clearing. Some land owners involved in the clearing of land allow for nurseries and people who are interested in salvaging plants to do so prior to the clearing. The Arizona Department of Agriculture posts these notifications in their county offices. You may also contact the Arizona Department of Agriculture and, for a fee, be put on a mailing list of people receiving copies of the Notices of Intent to Clear Land.

Contact Information: Arizona Department of Agriculture, 1688 West Adams Street, Phoenix, Arizona 85007. Telephone number: 602-542-4373.

Arizona Game and Fish Department

http://www.gf.state.az.us/

Operation GAME THIEF: 602-942-3000

The mission statement of the Arizona Game and Fish Department is to conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use

As part of their conservation program the Arizona Game and Fish Department provides ideas on how to learn to live with, and landscape for, wildlife:

LIVING WITH WILDLIFE
http://www.azgfd.gov/w_c/urban_wildlife.shtml

Contact Information: Arizona Game and Fish Department, 5000 West Carefree Highway, Phoenix, Arizona 85086-5000. Telephone number: 602-942-3000

Arizona Native Plant Society

http://www.aznativeplantsociety.org/

The Arizona Native Plant Society is a statewide nonprofit organization devoted to Arizona's native plants. Its mission is to promote knowledge, appreciation, conservation, and restoration of Arizona native plants and their habitats. They work with the

Southwest Rare Plant Task Force to develop strategies for protecting rare species and their habitats; they keep abreast of conservation issues concerning native plants species and responds to those through their Conservation Committee; they promote the use of native species in residential and commercial landscapes; they publish the Plant Press, support the publication of scholarly works and maintains a website with information and links about native plant, and they host a series of statewide events that provide forums to learn from professionals. Member activities and benefits include chapter and statewide gatherings; field trips and educational presentations; conservation through education, outreach and restoration; habitat restoration projects; informative website, newsletters and journals, and interactions with plant experts and enthusiasts.

LISTING OF SOURCES FOR NATIVE PLANTS AND SEEDS

The Arizona Native Plant Society maintains a listing of Native Plant and Seed Sources at:
http://www.aznativeplantsociety.org/sources.php

Contact Information: Arizona Native Plant Society, PO Box 41206, Tucson, Arizona 85717.

Tucson Cactus and Succulent Society

http://www.tucsoncactus.org/

The Tucson Cactus and Succulent Society is a non-profit organization dedicated to educating, teaching and learning about cacti and succulent plants. Their monthly programs feature knowledgeable individuals who can educate you and help you understand more about these fascinating plants. They conduct and sponsor native cactus and succulent rescue operations, plant sales, field trips, nursery and garden visits, conventions and conferences as well as other activities throughout the year.

NATIVE PLANT RESCUE NOTICE

Members of the Tucson Cactus and Succulent Society expend a tremendous amount of time and effort in organizing and overseeing their native plant rescue events. The native plant rescues carried out by the dedicated members of the Society provide an immeasurable service to our community. Members of the Tucson Cactus and Succulent Society organize native plant rescues in areas being cleared for development. If interested in rescuing plants and/or obtaining local native plants for your landscaping or restoration project join the Society and become a rescue crew member.

Contact Information: Tucson Cactus and Succulent Society, PO Box 64759, Tucson, Arizona 85728-4759. Telephone number: 520-885-6367.

Desert Survivors Native Plant Nursery

http://www.desertsurvivors.org/nursery.asp

The Desert Survivors Native Plant Nursery maintains a large selection of local native plants and is willing to consider growing any native plant for which there is a buyer.

Contact Information: Desert Survivors Native Plant Nursery, 1020 West Starr Pass Boulevard, Tucson, Arizona 85713. Telephone number: 520-791-9309.

Native Seeds/SEARCH

http://www.nativeseeds.org

The Native Seeds/SEARCH is a nonprofit conservation organization that seeks to preserve the crop seeds that connect the Native American cultures to their lands. The mission of the Native Seeds/SEARCH is to conserve, distribute and document the adapted and diverse varieties of agricultural seeds, their wild relatives and the role these seeds play in the cultures of the American Southwest and Northwest Mexico.

Contact Information: Native Seeds/SEARCH, 526 North Fourth Avenue, Tucson, Arizona 85705. Telephone number: 520-622-5561 or toll free at 866-622-5561; FAX 520-622-5561; e-mail: info@nativeseeds.org

LISTING OF PLANTS

STRICTLY ENFORCED LAWS PROTECT MANY OF ARIZONA'S
NATIVE PLANTS FROM COLLECTION, MUTILATION AND DESTRUCTION

Native Plant Crimes HOTLINE: 602-364-0907

Kingdom Plantae: The Plant Kingdom
Subkingdom Tracheobionta: The Vascular Plants

Division Pteridophyta: The Ferns

CLASS FILICOPSIDA: The FERNS

Pteridaceae: The Maidenhair Fern Family

***Astrolepis cochisensis* (L.N. Goodding) D.M. Benham & M.D. Windham subsp. *cochisensis*: Cochise Scaly Cloakfern**

SYNONYMY: *Notholaena cochisensis* L.N. Goodding; *Notholaena sinuata* (M. Lagasca y Segura ex O. Swartz) G.F. Kaulfuss var. *cochisensis* (L.N. Goodding) C.A. Weatherby. COMMON NAMES: Cloak Fern (Cloak-fern is a name also applied to other species and the genus *Astrolepis*); Cochise Scaly Cloakfern Cochise's Cloak Fern; Helechillo ("Little Fern")[140]; Jimmy Fern; Jimmyfern; Narrow Cloakfern; Scaly Cloak Fern; Scaly Star Fern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 3 to 12 inches in length); the leaf blades are olive green or green above and reddish-brown beneath with brown to reddish-brown stipes; sporulation generally takes place summer through fall. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cliffs; bouldery-sandy and rocky canyons; rocky and sandy canyon walls; talus slopes; bases of cliffs; crevices in rocks; buttes; rocky ledges; rocky and silty-loamy ridges; foothills; hills; rocky and gravelly-loamy hillsides; rocky, stony, gravelly-loamy and clayey-loamy slopes; rocky outcrops; amongst boulders and rocks; on boulders; flats; basins; valley floors; arroyos; rocky draws; along streams; in bouldery streambeds; in rocks along creeks; along and in sandy washes, and riparian areas growing in dry bouldery, bouldery-sandy, rocky, stony and sandy ground and gravelly loam, clayey loam and silty loam ground, occurring from 1,100 to 8,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Astrolepis cochisensis* subsp. *cochisensis* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Notholaena cochisensis* Goodding), **16** (recorded as *Notholaena cochisensis* Goodding), 28 (recorded as *Notholaena cochisensis*, color photograph 9), 43 (081009), 44 (031811 - no record of species or subspecies; genus record), 46 (recorded as *Notholaena sinuata* (Lag.) Kaulf. var. *cochisensis* (Goodding) Weatherby, Page 41), 51 (recorded as *Notholaena cochisensis*, Page 155, color photograph 171), 63 (081009), 77 (recorded as *Notholaena cochisensis* Goodd.), 80 (*Notholaena sinuata* var. *cochisensis* is listed as a Secondary Poisonous Range Plant. "Apparently only the variety *cochisensis* is poisonous. The nature of the poison is unknown but it is excreted in the milk and is not destroyed by drying of the plant. Sheep are most susceptible, especially pregnant ewes, but goats and cattle may be poisoned. ... The danger is greatest from the middle of November through February when other forage is dry and the evergreen fern remains succulent and relatively palatable. ... Losses may be prevented by deferring infested ranges during the danger period or by feeding supplements." See text for additional information.), **85** (082911 - color presentation), **89** (reported as being a perrenial herb located on Tumamoc Hill, recorded as *Notholaena sinuata* (Sw.) Kaulf.), 115 (color presentation of species), 122, 124 (031811), 140 (Pages 230 (species) & 303 - recorded as *Astrolepis cochisensis* (Goodding) D.M. Benham & Windham subsp. *cochisensis* [*Notholaena cochisensis* Goodding])*

***Cheilanthes lindheimeri* W.J. Hooker: Fairyswords**

Canaguala (a name also applied to other species); Fairy Sword; Fairy Swords; Fairy-swords; Fairyswords; Hierba de la Pena ("Sorrow Herb", Spanish: San Luis Potosí); Kalawala; Lindheimer Lip Fern; Lindheimer Lipfern; Lindheimer's Lip Fern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 3 to 13½ inches in length); the leaf blades are gray-green or light green above with a brown underside and black-brown, purplish-black or dark reddish-brown stipes; sporulation generally takes place summer through fall. HABITAT: Within the range of this species it has been reported from mountains; bouldery, bouldery-rocky-gravelly and rocky mountainsides; rocky mesas; along rocky cliff; rock walls; along rocky bases of cliffs and

rock walls; rocky and gravelly-loamy canyons; rocky canyon walls; rocky canyon bottoms; talus slopes; crevices in boulders and rocks; rocky buttes; rock ledges; under ledges; bedrock and rocky ridges; ridgetops; rocky foothills; rocky hills; bouldery-gravelly and rocky hilltops; bouldery, rocky, rocky-gravelly, rocky-sandy-loamy and gravelly hillsides; rocky and stony slopes; rocky outcrops; amongst and on boulders and rocks; along bases of boulders and rocks; rocky banks; flats; along roadsides; gulches; springs; along streams; along rocky creeks; along and in creekbeds; along and in rocky washes; within rocky, rocky-gravelly and rocky-gravelly-clayey drainages; (rocky) edges of arroyos; rock shelves; around and in stock tanks; rocky riparian areas and waste places growing in moist, damp and dry bouldery, bouldery-rocky, bouldery-rocky-gravelly, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, stony and gravelly ground; rocky-sandy loam and gravelly loam ground, rocky-gravelly clay and clay ground, often reported growing in the shade occurring from 600 to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Cheilanthes lindheimeri* is native to southwest-central and southern North America. *5, 6, 15 (color photograph, Page 93 in habitat with associated species), 28 (color photograph 4), 43 (052610), 44 (031811 - no record of species; genus record), 46 (Page 39), 51 (Pages 145-146, color photographs 156), 58, 63 (052610 - color presentation), 77, **85** (082911 - color presentation including habitat), 122, 124 (032411), 140 (Pages 231 & 303)*

Cheilanthes myriophylla (see footnote 89 under *Cheilanthes wootonii*)

***Cheilanthes pringlei* G.E. Davenport: Pringle's Lipfern**

SYNONYMY: *Cheilanthes sonorensis* L.N. Goodding. COMMON NAMES: Helecho (a name also applied to other species, Spanish: "Fern"); Pringle Lip Fern; Pringle Lipfern; Pringle's Lip Fern; Pringle's Lipfern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 1½ to 7 inches in length); the leaf blades are bright green on both sides with red-brown stipes; sporulation generally take place between late spring and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; cliffs; cliff faces; bases of cliffs; rocky canyons, canyon walls; bouldery and rocky canyon bottoms; crevices in bedrock, boulders and rocks; rocky knolls; rocky ledges; under rock ledges; ridges; stony hills; rocky hillsides; rocky slopes; bajadas; around rocks; bases of boulders and rocks; rocky banks; seeps; streambeds; along creekbeds; along rivers; along washes; bottomlands, and riparian areas growing in moist and dry bouldery, rocky and stony ground often reported as growing in shaded areas, occurring from below sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This delicate fern may be an attractive component of a restored native habitat. This plant may be confused with *Cheilanthes wrightii*; however, *C. pringlei* has scales on the pinnae. *Cheilanthes pringlei* is native to southwest-central and southern North America. *5, 6, **8**, 42 (050813 - no data found for *Cheilanthes sonorensis*), 43 (081109), 44 (031811 - no record of species; genus record), 46 (Page 40), 51 (Pages 141-142, color photograph 145), 63 (050813), 77, 85 (050813 - color presentation of dried material), 122, 124 (031811 - no record of species; genus record), 140 (Pages 231 & 303)*

Cheilanthes sonorensis (see *Cheilanthes pringlei*)

Cheilanthes standleyi (see *Notholaena standleyi*)

***Cheilanthes wootonii* W.R. Maxon: Beaded Lipfern**

COMMON NAMES: Beaded Lip Fern; Beaded Lip-fern; Beaded Lipfern; Lip Fern (a name also applied to other species and the genus *Cheilanthes*); Wooton Lace Fern; Wooton Lip Fern; Wooton Lip-fern; Wooton Lipfern; Wooton's Lace Fern; Wooton's Lacefern; Wooton's Lip Fern; Wooton's Lip-fern; Wooton's Lipfern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 3 to 15½ inches in length); the leaf blades are yellow-green (when young) or dark green (with age) with pale brown stipes; sporulation generally takes place between summer and fall. HABITAT: Within the range of this species it has been reported from mountains; cliffs; cliff faces; rocky walls; bases of rock walls; rocky canyons; along rocky canyon walls; bedrock and rocky canyon bottoms; gorges; loamy crevices in boulders and rocks; rocky ledges; under rock ledges; bouldery foothills; rocky hills; rocky hillsides; bouldery, bouldery-rocky, rocky, gravelly, gravelly-loamy and silty-loamy slopes; bouldery bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders and rocks; banks; draws; gulches; along bedrock, bouldery-gravelly and rocky ravines; seeps; springs; along streams; bouldery and gravelly streambeds; along and in creeks; along and in rocky washes; along and in bouldery drainages; (rocky) banks of streams and creeks; rock shelves; around and in stock tanks, and riparian areas growing in dry bouldery, bouldery-rocky, bouldery-rocky-gravelly, bouldery-gravelly, rocky and gravelly ground; rocky loam, gravelly loam and silty loam ground, and on rotting logs often growing in shaded and sheltered areas, occurring from 1,300 to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant may be difficult to distinguish from *Cheilanthes yavapensis*. *Cheilanthes wootonii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (081109 - presents an alternate spelling: *Cheilanthes wootoni* Maxon), 44 (031811), 46 (Page 39), 51 (Page 146, color photographs 158), 58, 63 (081109 - color presentation), **77**, **85** (083011 - color presentation), **89** (reported as being a perrenial herb located on Tumamoc Hill, recorded as *Cheilanthes myriophylla* Desv.), 122, 124 (031811), 127, 140 (Pages 231 & 303)*

***Cheilanthes wrightii* W.J. Hooker: Wright's Lipfern**

COMMON NAMES: Wright Lipfern; Wright's Lip Fern; Wright's Lipfern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 1½ to 10 inches in length); the leaf blades are green with brown to dark brown stipes; sporulation generally takes place between summer and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rock cliffs; bases of cliffs; rocky canyons; rocky canyon walls; bouldery and rocky canyon bottoms; chasms; talus slopes; soil filled crevices in rocks; rocky ledges; rocky ridges; ridgetops; foothills; rocky hills; hilltops; bouldery and rocky hillsides; along bouldery, rocky and rocky-gravelly-clayey slopes; bouldery and rocky outcrops; amongst rocks; on boulders; bases of boulders and rocks; rocky nooks; shady and mossy banks; within bedrock and rocky arroyos; draws; rocky ravines; along streams; streambeds; within rocky washes; rocky-gravelly drainages; soil pockets in depressions; rocky shelves; bottomlands, and rocky riparian areas growing in moist and dry bouldery, rocky, rocky-gravelly and gravelly ground; gravelly-sandy loam and sandy-clayey loam ground, and rocky-gravelly clay and gravelly clay ground, occurring from 900 to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Cheilanthes wrightii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (081109), 44 (031911 - no record of species; genus record), 46 (Page 40), 51 (Page 141, color photograph 144), 58, 63 (081109 - color presentation), 77, **85** (083011 - color presentation of dried material), **89** (reported as being a perrenial herb located on Tumamoc Hill), 122, 124 (031911 - no record of species; genus record), 140 (Page 303)*

Notholaena cochisensis (see *Astrolepis cochisensis* subsp. *cochisensis*)

Notholaena hookeri (see footnote 89 under *Notholaena standleyi*)

Notholaena sinuata (see footnote 89 under *Astrolepis cochisensis* subsp. *cochisensis*)

Notholaena sinuata var. *cochisensis* (see *Astrolepis cochisensis* subsp. *cochisensis*)

***Notholaena standleyi* W.R. Maxon: Star Cloak Fern**

SYNONYMY: *Cheilanthes standleyi* (W.R. Maxon) J.T. Mickel. COMMON NAMES: Cloak Fern (a name also applied to the genus *Notholaena*); [Star] Cloak Fern (English)[140]; Cloak-fern; Hehe Quina ("Hairy Plant", Seri)[140]; Helecho ("Fern", Spanish)[140]; Rock Fern (English)[140]; Standley Cloak Fern; Standley's Cloak Fern; Star Cloak Fern; Star Cloak-fern; Star Cloakfern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 2 to 13 inches in length with the star-shaped laminae being 1 to 4 inches in width; one clump was observed and described as being up to 8 inches in width); the leaf blades are a shiny dark green above (with a cream-white, gold, silvery-yellow, yellow or yellow-green waxy-looking glandular exudate below) with brown or reddish-brown stipes; sporulation generally takes place between late spring and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mountainsides; rocky cliffs; along bases of cliffs; bouldery and rocky canyons; canyon walls; bouldery canyon bottoms; rocky gorges; along crevices in rimrock, boulders and rocks; buttes; bouldery-gravelly knobs; rocky knolls; rocky and sandy ledges; under rocky ledges; rocky ridges; foothills; hills; rocky hilltops; bouldery and rocky hillsides; bouldery, bouldery-gravelly, rocky, rocky-gravelly-clayey, rocky-sandy-clayey-loamy, rocky-loamy-silty, sandy-loamy and loamy slopes; bajadas; boulder and rocky outcrops; amongst boulders, broken rocks and rocks; bases of boulders and rocks; hidden beneath overhanging rocks; sandy lava flows; bouldery lava beds; shaded pockets; bouldery prairies; along rocky arroyos; within rocky draws; gulches; rocky ravines; creekbeds; in bouldery-sandy and sandy washes; drainages; rocky banks of washes, and riparian areas growing in dry rimrock; bouldery, bouldery-gravelly, bouldery-sandy, rocky and sandy ground; rocky-sandy-clayey loam, gravelly loam, sandy loam, silty loam and loam ground; rocky-gravelly clay ground, and rocky-loamy silty ground, occurring from 900 to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it is commonly found growing in clumps. *Notholaena standleyi* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 11), 43 (081109), 44 (031911 - no record of species; genus record), 46 (Page 42), 51 (Page 157, color photograph 174), 58, 63 (081109 - color presentation), **85** (083011 - color presentation), **89** (reported as being a perrenial herb located on Tumamoc Hill, recorded as *Notholaena hookeri* D.C. Eaton,), 115 (color presentation), 124 (031911), 140 (Pages 229, 231-232 &303)*

Pellaea longimucronata (see *Pellaea truncata*)

***Pellaea truncata* L.N. Goodding: Spiny Cliffbrake**

SYNONYMY: *Pellaea longimucronata* auct. non W.J. Hooker. COMMON NAMES: Calaguala (Spanish: Mexico)[140]; Cliff Brake (a name that is also applied to the genus *Pellaea*); Cliff-brake Fern (a name also applied to the genus *Pellaea*); Spiny Cliff Brake (English)[140]; Spiny Cliff-brake; Spiny Cliffbrake. DESCRIPTION: Terrestrial perennial evergreen forb/herb (ascending fronds are 3 to 16½ inches in length); the leaf blades are blue-green or gray-green with chestnut-brown, reddish or red-brown stipes; sporulation generally takes place from late spring to fall. HABITAT: Within the range of this species it has been reported from mountains; crags; mountainsides; rocky cliffs; cliff walls; niches and crevices in rock cliffs; along bases of cliffs; bouldery and rocky canyons; along canyon walls; along rocky canyon bottoms; rocky gorges; talus slopes; crevices in boulders and rocks; pockets of sandy soil in boulders; rocky bluffs; rock ledges; under rocky ledges; ridgelines; foothills; rocky hills; bouldery-rocky and rocky hillsides; bouldery, bouldery-rocky, bouldery-gravelly, rocky, gravelly, gravelly-loamy, sandy,

sandy-clayey-loamy and clayey slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; along bases of boulders and rocks; basins; rocky arroyos; rocky draws; gulches; ravines; seeps; along streams; bouldery, rocky and sandy streambeds; along creeks; along rivers; along and in bouldery-sandy and sandy washes; within drainages; bog-like areas; gravelly swales; banks of creeks; edges of streambeds and rivers; sandy benches; silty-loamy terraces, and bouldery riparian areas growing in dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; bouldery loam, bouldery-rocky loam, rocky loam, rocky-gravelly loam, gravelly-sandy loam and silty loam ground, and rocky clay and clay ground, occurring from 600 to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Pellaea truncata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 13), 43 (081209), 44 (090311), 46 (recorded as *Pellaea longimucronata* Hook., Page 38), 51 (Page 169, color photograph 201), 63 (081209 - color presentation), 77, **85** (090311 - color presentation including habitat), **89** (reported as being a perrenial herb located on Tumamoc Hill, recorded as *Pellaea wrightiana* Hook.), 115 (color presentation), 124 (090311 - no record of species; genus record), 140 (Pages 232-234 & 303)*

Pellaea wrightiana (see footnote 89 under *Pellaea truncata*)

Superdivision Spermatophyta: The Seed Plants

Division Coniferophyta: The Conifers

CLASS PINOPSIDA: The CONIFERS

Cupressaceae: The Cypress Family

***Cupressus sempervirens* C. Linnaeus: Italian Cypress**

COMMON NAMES: Ciprés Común (Spanish); Ciprés Italiano (Spanish); Common Cypress; Cyprès Commun (French); Cyprès D'Italie (French); Echte Zypresse (German); Graveyard Cypress; Italian Cypress; Italienische Zypresse (German); Mediterranean Cypress; Pencil Pine; Tuscan Cypress. DESCRIPTION: Terrestrial perennial evergreen tree (35 (commonly 40 - 60 feet) to 108 feet in height with a foliage diameter of 5 to 10 feet in width in "*C.s.* var. *sempervirens*" (the form commonly sold as nursery stock but not known in the wild), and 10 to 20 feet in width in "*C.s.* var. *horizontalis*" (the form found in the wild and generally not sold as nursery stock); the trunk bark is gray; the scale-like leaves are dark gray-green or dark green; the inconspicuous flowers appear in early spring; pollen is released in late winter; the mature fruiting cones (1 to 1½ inches in diameter) are brown. HABITAT: Within the range of this species it has been reported from mountains; along roadsides; arroyos; ditches, and disturbed areas growing in moist sandy loam ground, occurring from 500 to 2,500 feet in the elevation in the desertscrub ecological formation. NOTES: EXOTIC Plant. This plant may reportedly live to be over 1,000 years of age. *Cupressus sempervirens* is native to northern Africa; western Asia, and southeastern Europe. *5, 6, **16**, 18, 26 (color photograph), 43 (081209), 44 (031911 - no record of genus or species), 63 (081209 - color presentation), 85 (090311 - color presentation of dried material), 106 (081209 - color presentation), 124 (031911 - no record of genus or species), 131, 132*

Division Gnetophyta: The Gnetophytes

CLASS GNETOPSIDA: The GNETOPS

Ephedraceae: The Mormon-tea Family

***Ephedra trifurca* J. Torrey ex S. Watson: Longleaf Joint-fir**

COMMON NAMES: Brigham Young Tea (a name also applied to other species and the genus *Ephedra*); Cañatilla [Canatilla] ("Cane or Little Pipe", Spanish: Arizona and Texas)[140]; Canutillo (a name also applied to other species); Canutillo [del Campo] ("[Wild] Cane or Little Pipe", Spanish: New Mexico, Sonora)[140]; Desert Ephedra; Desert Joint-fir; Desert Jointfir;

Ephedra Tea; Hierba de la Coyuntura ("Jointed Herb", Spanish: Mexico)[140]; ʔI:šíw (Yuman: Cocopa)[140]; Itama Real; Itamo Real ("Royal Spurge" a name also applied to other species, Spanish: Coahuila)[140]; Joint Fir (English)[140]; Joint Fir (a name also applied to other species and the genus *Ephedra*); Jumway (Yuman: Walapai)[140]; Kanutio (Yaqui); Ku:pag (Uto-Aztecan: Tohono O'odham)[140]; Ku:pag <ku'upok> (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Kuupag (Uto-Aztecan: Akimel O'odham)[140]; Kuuvid Nonovi <koovit nawnov> ("Pronghorn's Foreleg", Uto-Aztecan: Akimel O'odham)[140]; Long Leaf Ephedra; Long-leaf Ephedra; Long-leaf Jointfir; Long-leaf Mormon Tea; Long-leaf Mormon-tea; Long-leafed Ephedra; Long-leafed Joint-fir; Long-leaved Ephedra; Long-leaved Joint Fir; Long-leaved Joint-fir; Long-leaved Jointfir; Longleaf Desert Tea; Longleaf Ephedra; Longleaf Joint-fir; Longleaf Jointfir; Longleaf [Ephedra, Desert, Mexican, Mormon, Teamster's] Tea (English)[140]; Mexican Tea (a name also applied to other species and the genus *Ephedra*); Mexican-tea (a name also applied to other species); Mexican Mormon Tea; Mexican Mormon-tea; Mexican-tea; Mormon Tea (a name also applied to other species and the genus *Ephedra*); Mountain Rush (English)[140]; Ösvi <'ɜ́sivi> (Uto-Aztecan: Hopi)[140]; Popotilla (Hispanic); Popotillo (a name also applied to other species and the genus *Ephedra*, Spanish: Chihuahua, New Mexico, Texas)[140]; Sudupi (Uto-Aztecan)[140]; Tepopote (Spanish: northeastern Baja California, Chihuahua, Coahuila, Sonora, Texas)[140]; Teposote (Hispanic); Three-fork Ephedra (English)[140]; Three-forked Ephedra; Threefork Ephedra; Tł'oh 'azihii (Athapascan: Navajo)[140]; Tułbái <tułbil bida> ("Gray Water", Athapascan: Western Apache)[140]; Tuttumpi (Uto-Aztecan: Panamint)[140]; Tuttumpin (Uto-Aztecan: Shoshoni)[140]; Tutut (Uto-Aztecan: Cahuilla)[140]; Tụtụpụvụ (Uto-Aztecan: Ute)[140]; Túvūt (Uto-Aztecan: Cupeño, Luiseño)[140]; U'us Ti <oo-oosti> ("Sticks Tea", Uto-Aztecan: Akimel O'odham)[140]. DESCRIPTION: Terrestrial perennial evergreen shrub (20 inches to 16½ feet in height; one plant was observed and described as being 3 feet in height with a crown 5 feet in width); the stems are blue-green, green, olive-green or yellow-green; the twigs are light green turning yellow and finally gray with age; the leaves have been reduced to scales in whorls of three located at the nodes; the tiny flowers are pale yellow with male and female flowers occurring on separate plants; the production of the tan-brown strobili (female and male cones) generally takes place between early February and early June (additional records: one for mid-January and one for late July). HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; gravelly mesas; canyons; clayey ridges; rocky ridgetops; foothills; rocky and gravelly hills; hilltops; rocky hillsides; knolls; rocky, rocky-gravelly, gravelly, gravelly-loamy and sandy slopes; rocky-sandy and gravelly-sandy alluvial fans; sandy bajadas; rocky outcrops; gravelly lava hills; sand hills; sand dunes; ridges of sand dunes; inter-dune swales; rocky, rocky-gravelly and sandy plains; rocky, gravelly and sandy flats; sandy basins; valley floors; roadcuts; along rocky, rocky-sandy, gravelly, gravelly-clayey-loamy and sandy roadsides; within sandy arroyos; riverbeds; along and in rocky, sandy and sandy-silty washes; within drainages; (rocky, gravelly-sandy-loamy and sandy) banks of arroyos, rivers and washes; edges of rivers and swales; (sandy) margins of lakes; gravelly terraces; bottomlands; floodplains; lowlands; along canals; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and gravelly-clayey loam ground; clay ground, and sandy silty ground, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may live to be 50 years of age. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is valuable as a soil binder. This plant is browsed by Bighorn Sheep. *Ephedra trifurca* is native to southwest-central and southern North America. *5, 6, 13 (Pages 379-380), 15, **16**, 18, 28 (color photograph 483 A&B), 43 (081209), 44 (031911), 46 (Page 61), 48 (genus), 58, 63 (081209 - color presentation), 77, **85** (082911 - color presentation), **89** (reported as being a shrub on the Mesa-like Mountain Slopes), 91 (Pages 196-197), 124 (031911 - no record of species; genus record), 127, 140 (Pages 130-131 & 291)*

Division Magnoliophyta: The Flowering Plants

CLASS LILIOPSIDA: The MONOCOTS

Agavaceae: The Century-plant Family

Agave americana C. Linnaeus: American Century Plant

COMMON NAMES: Agave (a name also applied to other species and the genus *Agave*); American Agave; American Aloe; American-aloe; American Century Plant; Century-plant (a name also applied to other species and the genus *Agave*); Centuryplant (a name also applied to other species and the genus *Agave*); Galime (Hispanic); Garingboom (Afrikaans); L´gok (Tepehuán); Maguey (a name also applied to other species and the genus *Agave*); Maguey Amarillo (Hispanic). DESCRIPTION: Terrestrial perennial evergreen leaf-succulent forb/herb, subshrub or shrub (40 inches to 6½ feet in height and 6½ to 13 feet in diameter with a flowering stem 5 to 40 feet in height; one plant was observed and described as being 4 feet in height and 4 feet in width); the leaves may be gray, gray-green, grayish-blue-green, bright green or green-blue; the flowers may be greenish, greenish-yellow or yellow; flowering generally takes place between early June and early August (additional records: one for mid-February and one for late September). HABITAT: Within the range of this species it has been reported from mountains; rocky hills; rocky and sandy slopes; rocky-sandy alluvial fans; flats; bottoms of arroyos; along and in washes; along sandy banks of

streams, and disturbed areas growing in dry bouldery, rocky, rocky-sandy and sandy ground and rocky clay ground, occurring from 1,200 to 5,100 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: EXOTIC Plant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop. The flowers are visited by hummingbirds. *Agave americana* is native to southwest-central and southern North America. *5, 6, **16**, 17, 18, 26 (color photograph), 30, 43 (081209), 44 (032011 - no records listed under Common Names; genus record, color photograph), 63 (042108), **85** (090411), 97 (Avoid letting the sap come into contact with your skin or eyes.), 124 (032011 - no record of genus or species), 127*

***Agave americana* C. Linnaeus subsp. *americana* var. *expansa* (G.A. von Jacobi) H.S. Gentry: American Century Plant**

SYNONYMY: *Agave americana* C. Linnaeus var. *expansa* (G.A. von Jacobi) H.S. Gentry, *Agave expansa* G.A. von Jacobi. COMMON NAMES: Agave (a name also applied to other species and the genus *Agave*); American Agave (a name also applied to the species and the genus *Agave*); American Aloe (a name also applied to the species); American-aloe (a name also applied to the species); American Century Plant (a name also applied to the species and the genus *Agave*); Century-plant (a name also applied to the species and the genus *Agave*); Galime (a name also applied to the species, Hispanic); Garingboom (a name also applied to the species, Afrikaans); L´gok (a name also applied to the species, Tepehuán); Maguey (a name also applied to the species and the genus *Agave*); Maguey Amarillo (a name also applied to the species, Hispanic). DESCRIPTION: Terrestrial perennial evergreen leaf-succulent forb/herb, subshrub or shrub (to 6 feet in height and to 10 to 13 feet in diameter with a flowering stem 15 to 40 feet in height); the color of the leaves is bluish gray-green; the flowers are yellow; flowering generally takes place between June and August. HABITAT: Within the range of this species it has been reported from rocky slopes; flats, and along washes growing in dry rocky ground, occurring from 2,400 to 2,500 feet in elevation in the grassland and desertscrub ecological formation. NOTES: EXOTIC Plant. The species, *Agave americana*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop. The flowers are visited by hummingbirds. *Agave americana* subsp. *americana* var. *expansa* may be native to southwest-central and southern North America. *5, 6, 17 (recorded as *Agave expansa* Jacobi), 18, 26 (color photograph of species), 30 (species), 43 (081209), 44 (032011 - no records listed under Common Names; genus record), 63 (081209), **77** (recorded as *Agave americana* L. var. *expansa* (Jacobi) Gentry), 85, (090411), 97 (Avoid letting the sap come into contact with your skin or eyes.), 124 (032011 - no record of genus, species or variety), 127 (species)*

Agave americana var. *expansa* (see *Agave americana* subsp. *americana* var. *expansa*)

Agave expansa (see *Agave americana* subsp. *americana* var. *expansa*)

***Yucca elata* (G. Engelmann) G. Engelmann: Soaptree Yucca**

SYNONYMY: *Yucca elata* (G. Engelmann) G. Engelmann var. *elata*; *Yucca elata* (G. Engelmann) G. Engelmann var. *utahensis* (S.A. McKelvey) J.L. Reveal; *Yucca elata* (G. Engelmann) G. Engelmann var. *verdiensis* (S.A. McKelvey) J.L. Reveal; *Yucca utahensis* S.A. McKelvey; *Yucca verdiensis* S.A. McKelvey. COMMON NAMES: Amole (a name given to the roots); Datil; Palmella; Palmilla ("Small Palm", Spanish); Palmlilja Jukka; Palmilla; Palmella; Seifen-palmlilie (German); Soap-tree Yucca; Soaptree; Soaptree Yucca; Soap Weed (a name also applied to the genus *Yucca*); Soap-weed Yucca; Soapweed (a name also applied to the genus *Yucca*); Soapweed Yucca; Spanish Bayonet (a name also applied to other species and the genus *Yucca*); Takui (Tohono O'odham); Utah Yucca; Verde Yucca. DESCRIPTION: Terrestrial perennial evergreen leaf-succulent shrub or tree (acaulescent (rarely) and/or caulescent erect stems to 30 feet in height and 8 to 10 feet in diameter with a flowering stalk reaching 2 to 8 feet in height); the narrow leaves may be gray-green, pale green or green with dried leaves adhering to the stem; the bell-shaped flowers may be cream, cream-white with a light green (on outer tepals) and light yellow-green (on inner tepals) midstripe, creamish-white, creamy-white (often tinged with green or pink), greenish-white, white or yellowish-white; the anthers are yellow; the styles and stigmas may be cream-white, cream-light green-white, light green or white; flowering generally takes place between mid-April and early August (additional records: two for late February, one for late August, one for mid-September, one for early October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy-clayey-loamy and sandy mesas; plateaus; hanging gardens; rocky canyons; rocky canyon walls; canyon bottoms; meadows; rocky foothills; bases of foothills; hills; rocky and gravelly hillsides; along rocky, rocky-sandy-clayey-loamy, shaley-gravelly-sandy, sandy and loamy slopes; sandy bajadas; sand dunes; prairies; sandy plains; shaley esplanades; gravelly, sandy, sandy-loamy and clayey-loamy flats; basins; gravelly-silty-loamy and sandy valley floors; along rocky-sandy, gravelly gravelly-sandy-clayey-loamy, sandy and sandy-loamy roadsides; along clayey arroyos; rocky draws; along creeks; along rivers; along and in gravelly and sandy washes; within drainages; within drainage ways; inter-dune swales; edges of rivers; benches; terraces; floodplains; lowlands, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly-sandy, gravelly and sandy ground; rocky-sandy-clayey loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam and loam ground, and silty clay and clay ground, occurring from 900 to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used in toys or in games, as ceremonial drug or medication, as a decoration and as a commodity used in personal hygiene. The growth rate of wild growing plants is about 1 inch in height each year with taller plants

being 200 to 300 years of age. *Yucca elata* is native to southwest-central and southern North America. *5, 6, 13 (placed in the Liliaceae, Pages 48-49, color photograph including habitat: Plate G.1., Page 395), 15, **16**, 18, 26 (color photograph), 28 (color photograph 146), 43 (081309), 44 (032511 - no record of species; genus record), 45 (color photograph), 46 (recorded as *Yucca elata* Engelm., Page 188; *Yucca utahensis* McKelvey, Page 188, and *Yucca verdiensis* McKelvey, Page 188, genus *Yucca* placed in the Liliaceae), 53 (placed in the Liliaceae), 58, 63 (081309 - color presentation), **77**, **85** (090411 - color presentation), **89** (reported as being a shrub located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (032111 - no record of species; genus record), 127, 134*

Yucca elata var. *elata* (see *Yucca elata*)

Yucca elata var. *utahensis* (see *Yucca elata*)

Yucca elata var. *verdiensis* (see *Yucca elata*)

Yucca utahensis (see *Yucca elata*)

Yucca verdiensis (see *Yucca elata*)

Aloeaceae: The Aloe Family

Aloe barbadensis (see *Aloe vera* - note authority)

***Aloe vera* (C. Linnaeus) N.L. Burman: Barbados Aloe**

SYNONYMY: *Aloe barbadensis* P. Miller. COMMON NAMES: Acibar (Spanish); Aloe (Spanish); Aloe Vera; Aloès Vulgaire (French); Babosa (Portuguese: Brazil); Babosa-medicinal (Portuguese: Brazil); Barbados Aloe; Burn Plant; Curaçao Aloe; Echte Aloe (German); Erva-babosa (Portuguese: Brazil); Humpetskinci (Maya); Maguey Morado (Hispanic); Medicinal Aloe; Sábila (Hispanic); Sávila (Spanish); True Aloe; Zábila (Hispanic); Unguentine Cactus; West Indian Aloe; Zats (Oax). DESCRIPTION: Terrestrial perennial leaf- and stem-succulent forb/herb (12 to 32 inches in height and 3 to 4 feet in width, the flowering stems are 40 inches to 5 feet in height); the leaves (12 to 18 inches in length) are green with small white markings; the flowers are orange & yellow, pink-orange, red-orange, yellow or yellowish; flowering generally takes place in winter, spring and/or summer (flowering records: one for late April and one for late March; flowering from spring to winter and occasionally at other times has also bee reported). HABITAT: Within the range of this species it has been reported from plateaus; sandy ledges; hummocks; flats; coastal plains; roadsides; along washes; edges of streams, and disturbed areas growing in moist and dry rocky and sandy ground, occurring from sea level to 4,300 feet in elevation in the forest, woodland and desertscrub ecological formations. NOTES: EXOTIC Plant. *Aloe vera* is native to coastal islands in the North Atlantic Ocean. *5, 6, 18, 26 (color photographs), 30, 43 (080210 - *Aloe vera* (L.) Burm.f.), 44 (032111 - no record of species; no records listed under Common Names for the genus), 63 (090511 - color presentation), 85 (090511), 124 (032111 - no record of genus or species), **HR***

Cyperaceae: The Sedge Family

Bolboschoenus maritimus (see *Schoenoplectus maritimus*)

Cyperus alternifolius auct. non C. Linnaeus (see *Cyperus involucratus*)

Cyperus aristatus (see *Cyperus squarrosus*)

***Cyperus esculentus* C. Linnaeus: Yellow Nutsedge**

COMMON NAMES: Amande de Terre (French); Amandes de Terre (French); ʾAráwp <kwarao> (Yuman: Cocopa)[140]; Bebollin; Cebollín (Spanish); Choufa (French); Chufa (a name also applied to other species, Portuguese); Chufa Flat Sedge; Chufa Flat-sedge; Chufa Flatsedge; Chufa Grass; Chufa Nut Grass; Chufa Nut-grass; Chufa Nutgrass; Chufa Nut Sedge; Chufa Nut-sedge; Chufa Nutsedge; Chufa Umbrella Sedge; Chufa Umbrella-sedge; Coquillo (Hispanic); Coquillo Amarillo (Hispanic); Earth Almond; Earth-almond; Earth-nut (a name also applied to other species); Edible Cyperus; Edible Galingale; Erdmandel (German); Field Nut Sedge; Field Nut-sedge; Galingale (a name also applied to other species and to the genus *Cyperus*, Indiana); Ground Almond (a name also applied to other species); Juncia Avellanada (Spanish); Northern Nut Grass; Northern Nut-grass; Northern Nutgrass; Nut Grass (a name also applied to other species and the genus *Cyperus*); Nut-grass (a name also applied to other species and the genus *Cyperus*); Peonía [Pieoneo] (a name also applied to other species, Spanish: Valley of Mexico)[140]; Rush Nut; Rush-nut; Sai´ (Hispanic); Souchet Comestible (French); Straw Sedge (a name also applied to other species); Straw-sedge (a name also applied to other species); Taboose; Taboose Grass; Tiger Nut; Tiger-nut; Tigernut; Tiririca (Portuguese: Brazil); Tiririca-amarela (Portuguese: Brazil); Tiririca-mansa (Portuguese: Brazil); Water-grass (a name also applied to other species); Yellow Nut Grass (a name also applied to other species); Yellow Nut-grass (a name also applied to other species);

Yellow Nutgrass (a name also applied to other species); Yellow Nut Sedge (a name also applied to other species); Yellow Nut-sedge (a name also applied to other species); Yellow Nutsedge (a name also applied to other species); Zacate (a name also applied to other species, Hispanic). DESCRIPTION: Terrestrial perennial graminoid (2½ to 40 inches in height); the leaves are yellow-green or bright green above and whitish below; the spikelets may be dark brown, golden-brown, golden-tan, reddish, yellow-brown, yellowish or yellowish-brown; flowering generally takes place between mid-June and early November (additional records: two for early May, two for late May and one for late December). HABITAT: Within the range of this species it has been reported from mountains; sandy pockets of soils on top of cliffs; canyons; canyon walls; rocky, rocky-sandy, gravelly and sandy canyon bottoms; pockets of soil amongst rocks; bluffs; sandy-loamy, loamy and clayey meadows; foothills; hills; bouldery hillsides; rocky, sandy, loamy and clayey slopes; bouldery and rocky outcrops; amongst boulders and rocks; along marshy banks; plains; rocky, gravelly, gravelly-loamy, sandy-clayey-loamy and clayey flats; basins; silty valley bottoms; along rocky and gravelly-loamy roadsides; arroyos; sandy arroyo bottoms; seeps; along streams; along and in sandy streambeds; along sandy creeks; along creekbeds; along rivers; sandy riverbeds; along and in clayey washes; drainages; along drainage ways; palm oases; sandy-loamy ephemeral ponds; playas; bogs; marshes; gravelly-sandy and sandy depressions; sandy-loamy sinks; along (sandy-silty) banks of arroyos, streams, creeks, rivers and washes; (muddy and sandy) edges of rivers, pools, ponds, lakes and playas; along (sandy) shorelines of lakes; gravel bars; sandy benches; rock shelves; bottomlands; sandy floodplains; around stock tanks (charcos); dikes of reservoirs; along canals; along and in ditches; cobbly and gravelly riparian areas, and disturbed areas growing in muddy and wet, moist or damp bouldery, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, humusy-clayey loam and loam ground; clay ground, and sandy silty and silty ground, occurring from sea level to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC, no varieties have been reported as being native to Arizona. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Cyperus esculentus* var. *esculentus* is native to the Old World. *5, 6, 15, 30, 43 (081309), 44 (032111), 46 (Page 150), **57**, 58, 63 (081309 - color presentation), 68, 77, **85** (090511 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 101 (color photograph), 124 (022111), 127, 140 (Pages 128, 141 & 290 - recorded as *Cyperus esculentus* Linnaeus [*Cyperus esculentus* Linnaeus var. *leptostachyus* Boeckeler])*

Cyperus ferax (see footnote 89 under *Cyperus odoratus*)

***Cyperus involucratus* C.F. Rottbøll: Umbrella Plant**

SYNONYMY: *Cyperus alternifolius* auct. non C. Linnaeus. COMMON NAMES: ʻAhuʻawa haole (Hawaiian); Alternate-leaf Flat Sedge (Alternate-leaf Flatsedge is a name applied to other species); Dwarf Papyrus Grass (a name also applied to other species); Galingale (a name also applied to other species and the genus *Cyperus*); Juncia de Estanque (Spanish); Large Garden Cyperus; Puʻukaʻa Haole (Hawaiian); Quitasol Chino (Spanish); Sedge; Souchet à Feuilles Alternes (French); Umbrella Flatsedge (a name also applied to other species); Umbrella Palm; Umbrella Papyrus; Umbrella Plant (a name also applied to other species); Umbrella-plant (a name also applied to other species); Umbrella Sedge (a name also applied to other species). DESCRIPTION: Terrestrial or semi-aquatic perennial graminoid (1 to 6½ feet in height and spreading to an indefinite width); the tiny flowers may be pale green; greenish-brown or yellowish; flowering generally takes place between early February and early October (additional records: four for early January, two for mid-November and two for late November). HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; bouldery-rocky-sandy and bouldery-gravelly-sandy canyon bottoms; gorges; meadows; foothills; hills; along rocky, sandy and clayey slopes; alluvial fans; amongst rocks, sandy and clayey flats; basins; valley floors; coastal dunes; railroad right-of-ways; roadsides; arroyos; bottoms of arroyos; seeps; springs; along streams; along sandy streambeds; rocky-gravelly-sandy soil along creeks; sandy riverbeds; along sandy washes; along drainage ways; ponds; marshlands; (gravelly-sandy) banks of streams and rivers; edges of streams; sandy benches; floodplains; along canals; along ditches; banks of canals; muddy riparian areas, and disturbed areas usually reported as growing in shallow water; muddy; wet, moist and damp areas, and less often in dry areas in bouldery-rocky-sandy, rocky-gravelly-sandy, rocky-sandy, gravelly-sandy and sandy ground; clay ground, and silty ground, occurring from sea level to 3,700 feet in elevation in the forest, woodland, scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant, often misidentified as being *Cyperus alternifolius*. *Cyperus involucratus* is native to Africa and southwestern Asia. *5, 6, **16** (recorded as *Cyperus alternifolius* L.), 18, 26 (color photograph), 43 (081309), 44 (032211), 63 (081309), **77** (recorded as *Cyperus alternifolius* L.), **85** (090511 - color presentation of dried material), 124 (032211 - no record of species; genus record), 132*

***Cyperus odoratus* C. Linnaeus: Fragrant Flatsedge**

COMMON NAMES: Coarse Cyperus (a name also applied to other species); Engelmann Flatsedge; Engelmann's Cyperus; Engelmann's Sedge; False Rusty Flat Sedge; False Rusty Flat-sedge; Fragrant Cyperus; Fragrant Flat Sedge; Fragrant Flat-sedge; Fragrant Flatsedge; Fragrant Umbrella Sedge; Fragrant Umbrella-sedge; Galingale (a name also applied to other species and the genus *Cyperus*); Large Head Flat Sedge; Long Spike Flatsedge; Long-spike Flatsedge; Longspike Flatsedge; Michaux's Cyperus; Odorous Flatsedge; Rusty Cyperus; Rusty Flat Sedge; Rusty Flat-sedge; Rusty Flatsedge; Rusty Umberella-sedge; Rusty-flatsedge; Scented Flatsedge; Slender Flatsedge (a name also applied to other species). DESCRIPTION: Terrestrial annual or perennial graminoid (2 to 52 inches in height; plants were observed and described as being 10 inches in height and 8 inches in width); the foliage is yellow-green; the spikelets may be green, red-brown, yellow-brown or yellow-green; flowering generally takes place between mid-May and late November (additional records: four for mid-January, one for late January, one

for early February, eight for mid-March, two for late March and one for mid-April). HABITAT: Within the range of this species it has been reported from mountains; gravelly canyons; sandy canyon bottoms; chasms; foothills; rocky and clayey slopes; amongst rocks; sandy prairies; sandy and clayey flats; valley bottoms; along arroyos; draws; bottoms of gullies; around springs; along streams; gravelly streambeds; along creeks; along sandy creekbeds; along rivers; along sandy and sandy-loamy riverbeds; sandy washes; drainages; along sandy drainage ways; around pools; clayey rain pools; around lakes; ciénegas; marshes; silty swamps; along (rocky, sandy, clayey, silty and silty-clayey) banks of springs, streams, creeks, rivers and lakes; along (sandy and silty-clayey) edges of rivers; pools, poolbeds, ponds, lakes and lagoons; margins of ponds and lakes; shorelines of rivers, ponds and lakes; mudflats; sandbanks; gravel and sand bars; beaches; sandy benches; terraces; sandy floodplains; around sandy-silty tanks; sandy-silty shorelines of reservoirs; banks of levees; canal banks; along ditches; ditch banks; gravelly, sandy and muddy riparian areas, and disturbed areas growing in shallow water; muddy, and wet and moist rocky, stony, gravelly and sandy ground; sandy loam and silty-clayey loam ground; clay ground, and sandy silty and silty ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it forms large dense bunches. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Ducks use this plant for cover and feed on the seeds, shoots and roots. *Cyperus odoratus* is native to Australia; western and southeastern Asia and coastal islands in the North Pacific Ocean; central and southern Africa and coastal islands in the West Indian Ocean; east-central, southwest-central and southern North America and coastal islands in the North Atlantic Ocean; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 43 (081309), 44 (090511), 46 (Page 149), 58, 63 (081309 - color presentation), **85** (090511 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain, recorded as *Cyperus ferax* Rich.), 124 (090511), 127, 140 (Page 290)*

Cyperus rotundus C. Linnaeus: Nutgrass

COMMON NAMES: Alho-bravo (Portuguese: Brazil); Almendra de Tierra (Spanish); Balisanga (Ilocano); Boto-botonis (Bicolano); Capim-alho (Portuguese: Brazil); Capim-dandá (Portuguese: Brazil); Castañuela (Spanish); Cebollín (Spanish); Chaguan Humatag (Chamorro); Chufa (a name also applied to other species, Spanish); Coco (Spanish); Coco Grass; Coco Nut-grass; Coco Nutsedge; Coco Sedge; Coco-grass; Cocograss; Coquillo Purpura (Spanish); Coquito (Spanish); Cortadera (Spanish); Hamasuge (Japanese); Herbe à Oignons (French); Ivako (Fijian); Juncia Real (Spanish); Kili‘o‘Opu (Hawaiian); Kili’o’Opu; Mala-apulid (Pampangan); Malanga (Fijian); Matie ‘Ōniāni (Maori); Mauku ‘Ōniāni (Maori); Mau‘u Mokae (Hawaiian); Mot Ha (Fijian); Mumuta (Samoan and Tokelauan); Mutha (Tagalog); Nut Grass (a name also applied to other species and the genus *Cyperus*); Nut Sedge; Nut-grass (a name also applied to other species and the genus *Cyperus*); Nut-grass Flatsedge; Nutgrass (a name also applied to other species); Nutgrass Flatsedge; Nutgrass Galingale; ‘Ōniāni Lau (Maori); ‘Ōniāni Rau (Maori); ‘Ōniāni Tita (Maori); Pakopako (Tongan); Purple Flat Sedge; Purple Flat-sedge; Purple Flatsedge; Purple Nut Grass; Purple Nut Sedge; Purple Nut-grass; Purple Nut-sedge; Purple Nutgrass; Purple Nutsedge; Red Nut Sedge; Red Nut-sedge; Red Nutsedge; Round Root; Round-root; Sedge; Soranakambani (Fijian); Soro ni Kabani (Fijian); Soronakambani (Fijian); Souchet à Tubercules (French); Souchet d'Asie (French); Souchet en Forme d'Olive (French); Souchet Rond (French); Southern Nut Grass; Southern Nut-grass; Southern Nutgrass; Suo Cao (transcribed Chinese); Sur-sur (Pampangan); Tamanengi (Palauan); Te Mumute (I-Kiribati); Tiririca (Portuguese: Brazil); Tiririca-vermelha (Portuguese: Brazil); Tuteoneon (Marshallese); Vucesa (Fijian); Vuthesa (Fijian); Xiang Fu Zi (transcribed Chinese); Yellow Nutgrass. DESCRIPTION: Terrestrial perennial graminoid (1 to 24 inches in height); the spikelets may be dark brown-purple, purplish, reddish or reddish-brown; flowering generally takes place between mid-May and late November (additional records: two for early March, four for mid-March and one for late April). HABITAT: Within the range of this species it has been reported from sandy clearings; slopes; dunes; sandy flats; valley floors; railroad right-of-ways; along gravelly-sandy-clayey and sandy roadsides; clayey creekbeds; in gravel along rivers; sandy riverbeds; along banks of arroyos, streams and rivers; along (gravelly and sandy) shorelines; benches; mesquite bosques; canal banks; ditches; ditch banks; sandy riparian areas; waste places, and disturbed areas growing in shallow water and wet and moist gravelly, gravelly-sandy and sandy ground; sandy loam ground, and gravelly-sandy clay ground, occurring from sea level to 7,500 feet in elevation in the forest, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. Nutgrass (*Cyperus rotundus*) is generally acknowledged as being the world’s worst weed. *Cyperus rotundus* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea; South America; central and southern Europe; western, central eastern and southern Asia and coastal islands in the Indian and Pacific Oceans; Africa and coastal islands in the western Indian Ocean, and Australia, some authors consider this plant to be an Exotic that is native to the Old World. *5, 6, 43 (081409), 44 (040411), 46 (Page 150), 63 (040411 - color presentation), 68, **77**, **85** (090511 - color presentation of dried material), 101 (color photograph), 106 (090511 - color presentation), 124 (040411), 127, 132*

Cyperus squarrosus C. Linnaeus: Bearded Flatsedge

SYNONYMY: *Cyperus aristatus* C.F. Rottbøll. COMMON NAMES: Apoyamate (Spanish)[140]; Awned Cyperus; Awned Flat Sedge; Awned Flat-sedge; Awned Galingale; Awned Nut-grass; Awned Nut-sedge; Awned Nutsedge; Awned Sedge; Awned Umbrella Sedge; Awned Umbrella-sedge; Beard Flatsedge; Bearded Flat Sedge; Bearded Flat-sedge (English)[140]; Bearded Flatsedge; Bearded Nutgrass; Curve-tip Flatsedge (Colorado); Dwarf Odorous Galingale; Dwarf Sedge; <grulla> (Spanish: Mountain Pima)[140]; Incurved Umbrella Sedge; Incurved Umbrella-sedge; Marsh Sedge; [Dwarf] Marsh Sedge (English)[140]; Nut-sedge (English)[140]; Rice-field Flatsedge; Ricefield Flatsedge; Squarrose Cyperus; Squarrose Flat-sedge; Squarrose Flatsedge; Squarrose Umbrella Sedge; Squarrose Umbrella-sedge; Teeł Níyiz <te.l ni’izi> (“Round Cattail” a name

also applied to other species, Athapascan: Navajo)[140]; Tłołiyesze ("Plants That Stand Next To Horses", Athapascan: Chiricahua and Mescalero Apache)[140]; To'ora (Uto-Aztecan: Mountain Pima)[140]; Tule (a name also applied to other species, Spanish)[140]; Tulillo ("Little Sedge", Spanish)[140]; Umbrella Sedge; Vashai S-uuv ("Scented Grass", Uto-Aztecan: Akimel O'odham)[140]; Waṣai S-u:w (Uto-Aztecan: Tohono O'odham)[140]. DESCRIPTION: Terrestrial annual tufted graminoid (½ to 4 inches in height); the spikelets are reddish-bronze to yellowish with green margins; flowering generally takes place between late June and late October (additional records: one for late May and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mountain summits; rocky crags; mountainsides; mesas; along canyon rims; along sandy canyons; along rocky-sandy, gravelly and loamy canyon bottoms; sand-filled crevices; shallow pockets of soil; rocky ridgetops; clayey meadows; foothills; hills; rocky hillsides; rocky, rocky-loamy, sandy-loamy and loamy slopes; rocky outcrops; amongst boulders; sandy prairies; sandy plains; salty flats; bedrock basins; bouldery-silty valley floors; along gravelly roadsides; arroyos; bottoms of arroyos; rocky draws; seeps; springs; along spring seeps; along seeping streams; along sandy streams; along sandy streambeds; along creeks; gravelly and silty creekbeds; along rivers; gravelly riverbeds; along and in rocky, gravelly and sandy washes; drainages; along bedrock and sandy drainage ways; waterholes; playas; bogs; ciénegas; marshes; sandy depressions; sandy swales; along (sandy and silty) banks of arroyos, streams, creeks, rivers and washes; edges of rivers, puddles, pools, lakes, playas and marshes; margins of washes, depressions, ponds and lakes; along (gravelly-loamy, pebbly-sandy and sandy) shorelines of ponds and lakes; mudflats; areas of drawdown; gravel, gravelly-sandy and sand bars; benches; coves; rock shelves; along bottomlands; sandy-clayey floodplains; lowlands; around and in stock tanks; sandy shores of reservoirs; along canal banks; riparian areas, and disturbed areas growing in wet, moist, damp and dry (seasonally wet) bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, rocky-stony loam, gravelly loam, sandy loam and loam ground; sandy clay and clay ground, and bouldery silty, gravelly silty and silty ground, occurring from 100 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Cyperus squarrosus* is native to central and southern North America; Central America and coastal islands in the Caribbean Sea, South America; Australia; southern Asia, and Africa and coastal islands in the Indian Ocean. *5, 6, 43 (081409), 44 (040511), 46 (recorded as *Cyperus aristatus* Rottb., Page 149), **57**, 58, 63 (081409 - color presentation), 77, 85 (081509 - color presentation), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain, recorded as *Cyperus aristatus* Rottb.), 124 (040511), 127, 140 (Pages 127-128 & 290)*

***Schoenoplectus maritimus* (C. Linnaeus) K.A. Lye: Cosmopolitan Bulrush**

SYNONYMY: *Bolboschoenus maritimus* (C. Linnaeus) E. Palla, *Scirpus maritimus* C. Linnaeus var. *paludosus* (A. Nelson) G. Kükenthal, *Scirpus paludosus* A. Nelson. COMMON NAMES: Alkali Bulrush; Bayonet Grass; Bayonet-grass; Cosmopolitan Bulrush; Fernald's Bulrush; Junco-da-praia (Portuguese: Brazil); Maritime Bulrush; Maritime Scirpus; Prairie Bulrush; Prairie Rush; Purua Grass; River Bulrush; Salt Marsh Club Rush; Salt Marsh Club-rush; Salt-marsh Bulrush; Salt-marsh Club-rush; Saltmarsh Bulrush; Saltmarsh Club-rush; Saltmarsh Clubrush; Scirpe Maritime (French); Sea Bulrush; Sea Club-rush (South Dakota); Seacoast Bulrush; Seaside Bulrush; Slough Grass (South Dakota); Spurt Grass; Tuber Bulrush (Wyoming); Vak (a name also applied to other species, Pima). DESCRIPTION: Semi-aquatic or terrestrial perennial graminoid (18 inches to 6 feet in height); the foliage may be bright green; parts of the spikelets may be brown, orange-brown or yellow; the anthers may be orange (rarely) or yellow; flowering generally takes place between late March and early December (additional records: two for early January, one for late January, two for early February and two for late December). HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; along canyon bottoms; gravelly-clayey knolls; meadows; shaley, sandy and silty-loamy slopes; prairies; sandy plains; bouldery-gravelly-sandy and silty flats; clayey-loamy uplands; basins; valley floors; coastal marshes; along gravelly roadsides; shaley-silty and clayey draws; springs; along and in clayey streams; in clayey streambeds; in sand along creeks; creekbeds; in sand along rivers; mucky-clayey, rocky, sandy-clayey, sandy-silty and clayey riverbeds; along and in sandy washes; within rocky-clayey and gravelly-sandy-clayey drainages; mucky drainage ways; along waterways; freshwater pozos (waterholes); in pools; around shallow vernal pools; in poolbeds; in ponds; clayey playas; bogs; freshwater and saltwater marshes; clayey and silty depressions; sloughs; swales; (muddy, shaley, sandy, clayey, clayey-silty and silty) banks of draws, streams, streambeds, creeks, rivers and ponds; around (muddy, loamy-clayey and clayey) edges of creeks, rivers, pools, ponds, lakes, marshes, swamps and sloughs; along (muddy) margins of streams, rivers, drainage ways, ponds, lakes and marshes; along (muddy and sandy) shores of creeks, ponds and lakes; mudflats; sand bars; sandy beaches; sandy benches; rocky bottomlands; sandy floodplains; lowlands; around edges of stock ponds; around and in reservoirs; silty canals; along and in ditches; ditch banks; sandy riparian areas, and disturbed areas growing in shallow water (up to 9 inches in depth reported); mucky or muddy, and wet, moist and dry (seasonally wet) bouldery-gravelly-sandy, rocky, shaley, gravelly and sandy ground; clayey loam and silty loam ground; rocky clay, gravelly clay, gravelly-sandy clay, sandy clay, loamy clay, silty clay and clay ground, and shaley silty, sandy silty, clayey silty and silty ground, occurring from sea level to 9,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. This plant may be useful in erosion control and soil stabilization, the restoration of riparian and wetland areas and providing wildlife food and cover. This is reported to be a valuable food plant for ducks. *Schoenoplectus maritimus* is native to Europe; Asia; Africa and coastal islands in the North Atlantic Ocean; islands in the North Pacific Ocean; northern, northwestern, central and southern North America, and South America. *5, 6, **16** (*Scirpus maritimus* L. var. *paludosus* (A. Nels.) Kükenthal), 43 (081509), 44 (090611 - color photograph), 46

(recorded as *Scirpus paludosus* A. Nels., Page 152), 63 (081509 - color presentation), **77** (*Scirpus maritimus* L. var. *paludosus* (A. Nels.) Koyama), **85** (090611 - color presentation of dried material), 124 (090611), 127*

Scirpus maritimus var. *paludosus* (see *Schoenoplectus maritimus*)

Scirpus paludosus (see *Schoenoplectus maritimus*)

Juncaceae: The Rush Family

***Juncus bufonius* C. Linnaeus: Toad Rush**

COMMON NAMES: Bog Rush (a name also applied to the genus *Juncus*); Coe Grass; Coe-grass; Common Toad Rush; Common Toad-rush; Common Toadrush; Frog Grass; Frog Weed; Frog-grass; Frog-weed; Frogweed; Juncus Palustris Humilior Erectus Etiam Repens; Salt Weed; Salt-weed; Saltweed; Toad Rush; Toad-grass; Toadweed. DESCRIPTION: Semi-aquatic and terrestrial annual graminoid (decumbent, ascending and/or erect stems 1 to 16 inches in height); the foliage may be dark red-purple or yellow-green; the flowers are green or greenish; flowering generally takes place between early March and mid-October (additional records: one for early November, one for late November, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; plateaus; bases of cliffs; rocky canyons; bouldery-gravelly-sandy, rocky-sandy, rocky-silty and sandy canyon bottoms; buttes; rock ledges; sandy-silty, clayey-loamy and loamy meadows; foothills; rocky hills; rocky hillsides; bouldery, bouldery-sandy, rocky, shaley, sandy and clayey slopes; amongst boulders; prairies; plains; sandy, clayey and silty flats; basins; valley floors; valley bottoms; along roadsides; along arroyos; sandy bottoms of arroyos; within sandy draws; bottoms of draws; ravines; along and in sandy and loamy seeps; along and in springs; along and in streams; along and in gravelly-sandy and sandy streambeds; along and in creeks; in rocky-sandy and cobbly creekbeds; in sandy-clay along rivers; rocky, rocky-clayey, sandy and sandy-clayey riverbeds; along and in rocky-sandy, gravelly, sandy and sandy-silty washes; within rocky and loamy drainages; palm oases; mudholes; around pools; around clayey vernal pools; poolbeds; around ponds; along lakes; bogs; clayey-loamy ciénegas; freshwater and saltwater marshes; swamps; clayey and clayey-loamy depressions; swales; along (muddy, sandy, sandy-clayey, sandy-silty and clayey) banks of streams, streambeds, creeks, rivers, poolbeds, ponds and lakes; edges of seeps, springs, streams, creeks, rivers and lakes; along (sandy and silty-loamy) margins of streamlets, streams, creeks, creekbeds, pools and ponds; along (sandy, sandy-clayey and clayey) along shorelines of rivers, lakes, lakebeds and lagoons; areas of drawdown; mudflats; rocky-sand, clayey-sand and sand bars; sandy beaches, benches; sandy bottomlands; rocky-sandy-clayey and silty-clayey floodplains; lowlands; around stock tanks; along edges of reservoirs; along and in gravelly ditches; stony-loamy, gravelly, gravelly-sandy, sandy, sandy-loamy and silty-loamy riparian areas, and disturbed areas growing in shallow water and mucky, muddy and wet, moist, damp and dry (seldom reported) bouldery, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-sandy, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; stony loam, sandy loam, clayey loam, silty loam and loam ground; rocky-sandy clay, sandy clay, silty clay and clay ground, and rocky silty, sandy silty and silty ground, occurring from sea level to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Juncus bufonius* is native to North America; Central America and coastal islands in the Caribbean Sea; northern, western and southern South America; Europe; Asia and coastal islands in the western Pacific Ocean; northern and eastern Africa and coastal islands in the western Indian Ocean, and Australia. *5, 6, 15, 43 (040511), 44 (040511), 46 (Page 171), 58, 63 (040511 - color presentation), 80 (Species of the genus *Juncus* are listed as a Rarely Poisonous and Suspected Poisonous Range Plant, based on the report that a species of this genus has caused loss of cattle in Europe, but no losses have been reported from American species.), **85** (090611 - color presentation), 101 (color photographs), 124 (040511), 127, 140 (Page 294)*

Liliaceae: The Lily Family

***Allium macropetalum* P.A. Rydberg: Largeflower Onion**

COMMON NAMES: Arizona Onion; Cebollin; Desert Onion; Largeflower Onion; Largeflower Wild Onion; Large-petal Onion; Wild Onion (a name also applied to other species and the genus *Allium*). DESCRIPTION: Terrestrial perennial forb/herb (3 inches to 1 foot in height); 1 to 5 bulbs growing without basal bulbets; the leaves are green; the flowers (in umbels of 10 to 20) may be cream with maroon midribs, lavender-pink, magenta, orchid-pink, pale pink with a red-violet midribs, pink sometimes reported with a red-violet midribs, pink-lavender, pink-purple, pink-white, rose-white, white with green-violet or red-violet midribs, white-purple with dark purple veins or white with red-brown midribs; the anthers may be yellow or purple with yellow pollen; flowering generally takes place between late February and mid-June (additional records: one for late July, three for mid-August and one for late October). HABITAT: Within the range of this species it has been reported from rocky mountains; along rocky, stony-sandy-clayey, gravelly-sandy, sandy and loamy mesas; rocky plateaus; along rocky and sandy canyons; sandy canyonsides; sandy canyon bottoms; sandy pockets of soil in rock; buttes; clayey bases of buttes; along rocky and sandy ridges; rocky ridgetops; meadows; gravelly-sandy-clayey-loamy and sandy foothills; rocky, rocky-gravelly, shaley-gravelly, shaley-clayey, gravelly, gravelly-sandy, sandy and clayey-loamy hills; rocky, cobbly-sandy-loamy hilltops; rocky,

rocky-gravelly-clayey-loamy and stony hillsides; rocky, rocky-gravelly, rocky-sandy, cobbly-gravelly, gravelly, gravelly-sandy, sandy and clayey slopes; shaley alluvial fans; gravelly bajadas; rock outcrops; amongst rocks; clayey outwash fans; sandy lava flows; grassy benches; blow-sand deposits; prairies; grassy plains; gravelly, sandy and loamy flats; grassy valley floors; valley bottoms; along two-tracks; along rocky, gravelly-sandy-loamy and gravelly-loamy roadsides; along and in arroyos; bottoms of draws; along bottoms of gullies; along creeks; along and in cobbly and sandy washes; along drainages; clayey swales; rocky and sandy benches; bouldery-gravelly-silty-clayey and gravelly terraces; clayey floodplains, and riparian areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony, cobbly, cobbly-gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; bouldery-gravelly-silty clay, shaley clay, stony-sandy clay, sandy clay and clay ground, and sandy silty and silty ground, occurring from 900 to 11,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Allium macropetalum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph 575), 43 (081509), 44 (090711 - no record of species; genus record, *Allium* placed in the Alliaceae), 46 (Page 179), 58, 63 (090711 - color presentation), 77 (color photograph #54), **85** (090711 - color presentation of dried material), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Allium reticulatum* Don.), 124 (090711 - no record of species; genus record), 127*

Allium reticulatum (see footnote 89 under *Allium macropetalum*)

Brodiea capitata (see footnote 85 under *Dichelostemma capitatum*)

Brodiaea capitata (see *Dichelostemma capitatum* subsp. *capitatum*)

Brodiaea pulchella (see *Dichelostemma capitatum* subsp. *capitatum*)

Brodiaea pulchella var. *pauciflora* (see *Dichelostemma capitatum* subsp. *pauciflorum*)

***Calochortus kennedyi* Porter: Desert Mariposa Lily**

COMMON NAMES: Cobena Amarilla (Spanish); Desert Mariposa; Desert Mariposa Lily; Desert Mariposa-lily; Desert Mariposa Tulip; Desert Mariposa-tulip; Flame Mariposa (for *C.k.* var. *kennedyi*); Kennedy Mariposa; Kennedy Mariposa Lily; Kennedy Mariposa-lily; Kennedy Mariposa Tulip; Kennedy Mariposa-tulip; Kennedy's Mariposa; Kennedy's Mariposa Lily; Kennedy's Mariposa-lily; Kennedy's Mariposa Tulip; Kennedy's Mariposa-tulip; Mariposa Lily (a name also applied to the genus *Calochortus*); Munz's Desert Mariposa Lily (for *C.k.* var. *munzii*); Red Mariposa (for *C.k.* var. *kennedyi*); Red Mariposa Lily (for *C.k.* var. *kennedyi*); Red Mariposa-lily (for *C.k.* var. *kennedyi*); Yellow Desert Mariposa (for *C.k.* var. *munzii*); Yellow-flowered Mariposa Lily (for *C.k.* var. *munzii*). DESCRIPTION: Terrestrial perennial forb/herb (4 inches to 2 feet in height); the leaves (4 to 8 inches in length) are grayish-green; the bell-shaped flowers (1 to 2 inches in diameter) may be golden, bright orange, orange, dark orange, orange-red, orange-yellow, reddish, reddish-orange, vermilion, light yellow or yellow often with a dark brown-purple or dark purple basal blotch; the anthers are purplish; flowering generally takes place between early March and mid-June. HABITAT: Within the range of this species it has been reported from mountains; boulder mesas; rocky and gravelly canyons; rocky canyon bottoms; rocky ledges; rocky ridges; rocky ridgetops; foothills; rocky and stony hills; hilltops; rocky and rocky-clayey hillsides; rocky, rocky-sandy, rocky-loamy, stony, sandy and clayey slopes; bajadas; amongst rocks; rocky, rocky-sandy and gravelly-sandy flats; basins; valley floors; along rocky roadsides; along creeks; benches, and riparian areas growing in dry bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky loam ground, and rocky clay, gravelly clay and clay ground, occurring from 1,300 to 5,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Calochortus kennedyi* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photographs 319 & 529), 43 (081509), 44 (100211), 46 (Page 185), 48 (genus), 63 (081509 - color presentation), 77 (color photograph #55), **85** (100211 - color presentation), 86 (color photograph), **89** (reported as being a perennial herb located on Tumamoc Hill), 106 (081509), 115 (color presentation), 124 (100211 - no record of species; genus record)*

***Dichelostemma capitatum* (G. Bentham) A. Wood subsp. *capitatum*: Bluedicks**

SYNONYMY: *Brodiaea capitata* G. Bentham; *Brodiaea pulchella* (R.A. Salisbury) E.L. Greene; *Dichelostemma pulchellum* (R.A. Salisbury) A.A. Heller; *Dichelostemma pulchellum* (R.A. Salisbury) A.A. Heller var. *capitatum* (G. Bentham) J.L. Reveal. COMMON NAMES: Blue Dicks (a name also applied to the species and genus *Dichelostemma*); Bluedicks (a name also applied to the species and genus *Dichelostemma*); Brodiaea (a name also applied to the species); Covena (a name also applied to the species); Covenna (a name also applied to the species); Coveria (a name also applied to the species); Crow Poison (a name also applied to the species and other species); Desert Hyacinth (a name also applied to the species and other species); Few-flowered Covena (a name also applied to the species); Fool's Onion (a name also applied to the species and other species); Fool's-onion (a name also applied to the species and other species); Grass Nuts (a name also applied to the species and other species); Grass-nuts (a name also applied to the species and other species); Hahd (a name also applied to the species, Pima); Indian Hyacinth (not recommended, a name also applied to the species); Papago Lily (a name also applied to the species);

Purplehead (a name also applied to the species); Typical Beautiful Blue Dicks; Typical Beautiful Blue-dicks; Typical Beautiful Bluedicks; Typical Blue-dicks California-hyacinth; Typical Capitate Blue Dicks; Typical Capitate Blue-dicks (a name also applied to the genus *Dichelostemma*); Typical Capitate Bluedicks; Typical Chester Lily; Typical Common Blue Dick; Typical Common Blue Dicks; Typical Common Blue-dick; Typical Common Blue-dicks; Typical Common Bluedicks; Typical Common Brodiaea; Typical Common Saitas; Typical Covenna; Typical Desert Hyacinth Blue Dicks; Typical Desert Hyacinth Blue-dicks; Typical Desert Hyacinth Bluedicks; Typical Hyacinth Blue Dicks; Typical Hyacinth Blue-dicks; Typical Hyacinth Bluedicks; Typical Papago Lily; Typical Vernal Pool Bluedicks; Typical Wild Hyacinth Blue Dicks; Typical Wild Hyacinth Blue-dicks; Typical Wild Hyacinth Bluedicks (a name also applied to the species); Wild Hyacinth (a name also applied to the species and other species). DESCRIPTION: Terrestrial perennial forb/herb (4 to 40 inches in height); the leaves are dark green; the flowers may be light blue, blue, dark blue, blue-purple, bluish-purple, lavender, dark lavender, pink, pinkish-purple, pale purple, purple, dark purple, purple-blue, violet or white; flowering generally takes place between early February and early June (additional records: two for late June, one for mid-July, one for late August; flowering beginning as early as December and ending as late as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; gravelly plateaus; along canyon rims; canyons; canyon walls; gravelly-sandy canyon bottoms; talus; sandy pockets of soil on rocky banks; bluffs; rocky ridges; ridgetops; meadows; rocky foothills; cobbly-sandy-loamy hills; rocky hilltops; bouldery, rocky, rocky-sandy, gravelly-clayey-loamy and sandy hillsides; bouldery, rocky, cobbly-sandy-loamy, gravelly, gravelly-sandy-clayey-loamy, sandy and sandy-loamy slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; rocky banks; rocky, rocky-clayey-loamy, gravelly, sandy and sandy-loamy flats; valley floors; in gravelly roadbeds; bouldery roadcuts; along rocky, rocky-clayey, stony-clayey and sandy roadsides; draws; gravelly streambeds; creekbeds; along and in stony-gravelly and sandy washes; depressions; (sandy) banks of rivers; sandy benches; sandy terraces; riparian areas; waste places, and disturbed areas growing in dry (one record for a wet sandy wash) desert pavement; bouldery, rocky, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, cobbly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and loam ground; rocky clay, stony clay and clay ground, and silty ground, occurring from sea level to 9,800 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Dichelostemma capitatum* subsp. *capitatum* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Dichelostemma pulchellum* (Salisb.) Heller), 28 (recorded as *Dichelostemma pulchellum*, color photograph 680), 43 (081609), 44 (100311), 46 (recorded as *Dichelostemma pulchellum* (Salisb.) Heller, Page 182), 63 (081609 - color presentation), **85** (100311 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Brodiea capitata* Benth.), 115 (color presentation of the species), 124 (100311 - no record of genus, species), 140 (Page 306 - recorded as *Dichelostemma pulchellum* (Salisbury) Heller, placed in the Themidaceae)*

Dichelostemma capitatum **(G. Bentham) A. Wood subsp.** ***pauciflorum*** **(J. Torrey) G. Keator: Bluedicks**

SYNONYMY: *Brodiaea pulchella* (R.A. Salisbury) E.L. Greene var. *pauciflora* (J. Torrey) C.V. Morton, *Dichelostemma pulchellum* (R.A. Salisbury) A.A. Heller var. *pauciflorum* (J. Torrey) R.F. Hoover. COMMON NAMES: Blue Dicks (a name also applied to the species and genus *Dichelostemma*); Bluedicks (a name also applied to the species and genus *Dichelostemma*); Brodiaea (a name also applied to the species); Covena (a name also applied to the species); Covenna (a name also applied to the species); Coveria (a name also applied to the species); Crow Poison (a name also applied to the species and other species); Desert Blue-dicks (a name also applied to the species); Desert Hyacinth (a name also applied to the species and other species); Few Flower Blue Dicks; Few Flowered Blue Dicks; Few-flower Blue Dicks; Few-flowered Blue Dicks; Few-flower Blue-dicks; Few-flowered Blue-dicks; Few-flowered Bluedicks; Few-flowered Covena; Fewflowered Blue Dicks; Fool's Onion (a name also applied to other species); Fool's-onion (a name also applied to other species); Grass Nuts (a name also applied to the species and other species); Grass-nuts (a name also applied to the species and other species); Hahd (a name also applied to the species, Pima); Indian Hyacinth (not recommended, a name also applied to the species); Papago Lily (a name also applied to the species); Purplehead (a name also applied to the species); Wild Hyacinth (a name also applied to the species and other species). DESCRIPTION: Terrestrial perennial forb/herb (4 to 30 inches in height); the leaves are dark green; the flowers may be pale blue, blue, blue-lavender-purple, blue-purple, bluish-lavender, lavender, pink, pink-purple, purple or white; flowering generally takes place between late January and mid-June (additional records: one record for early January, one record for mid-July, one record for mid-September and one record for early November). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; gravelly and sandy mesas; plateaus; along rocky canyons; rocky canyon bottoms; buttes; gravelly ridges; rocky ridgetops; foothills; rocky hills; sandy hilltops; rocky, gravelly hillsides; rocky and sandy slopes; rocky-sandy alluvial fans; bajadas; rocky outcrops; amongst rocks; prairies; plains; gravelly, gravelly-loamy and sandy flats; basins; sandy valley floors; along roadsides; rocky arroyos; along draws; gulches; ravines; along streams; silty creekbeds; rivers; riverbeds; along and in rocky and sandy washes; sandy beaches; gravelly terraces; sandy lowlands; ditches; around stock tanks; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-sandy, cindery, gravelly and sandy ground; cobbly-silty loam, gravelly loam and sandy loam ground; rocky clay, stony clay and clay ground, and silty ground, occurring from 900 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. *Dichelostemma capitatum* subsp. *pauciflorum* is native to southwest-central and southern North America. *5, 6, 15, 28 (recorded as *Dichelostemma pulchellum*, color photograph 680), 43 (081609), 44 (100311), 46 (recorded as *Dichelostemma pulchellum* (Salisb.) Heller var. *pauciflorum* (Torr.) Hoover, Page 182), 58, 63 (081609 - color presentation), **77** (recorded as *Dichelostemma pulchellum* (Salisb.) Heller, color photographs #56 and #103), **85** (100411 - color presentation), 86 (note,

Dichelostemma pulchellum), 89 (see note under *Brodiea capitata* Benth., reported as being a perennial herb located on Tumamoc Hill), 115 (color presentation of the species), 124 (100311 - no record of genus, species or subspecies)*

Dichelostemma pulchellum (see *Dichelostemma capitatum* subsp. *capitatum*)

Dichelostemma pulchellum var. *capitatum* (see *Dichelostemma capitatum* subsp. *capitatum*)

Dichelostemma pulchellum var. *pauciflorum* (see *Dichelostemma capitatum* subsp. *pauciflorum*)

Najadaceae: The Waternymph Family

Najas major (see *Najas marina*)

***Najas marina* C. Linnaeus: Spiny Naiad**

SYNONYMY: *Najas major* C. Allioni. COMMON NAMES: Alkaline Water-nymph; Holly Leaved Naiad; Holly Leaved Water Nymph; Holly-leaf Naiad; Holly-leaf Water Naiad; Holly-leaf Water-naiad; Holly-leaf Water-nymph; Holly-leaf Waternymph; Holly-leafed Naiad; Holly-leaved Naiad; Holly-leaved Naias; Holly-leaved Water Nymph; Holly-leaved Water-nymph; Holly-leaved Waternymph; Hollyleaf Naiad; Large Naias; Marine Naiad; Marine Naias; Marine Water Nymph; Marine Water-nymph; Naiad (a name also applied to the genus *Najas*); Pond Naiad; Pond Weed (a name also applied to other species); Pondweed (a name also applied to other species); Prickly Naiad; Prickly Water-nymph; Prickly Waternymph; Sawtooth Naiad; Sawtooth Najas; Sea Naiad; Slender Naiad; Spiny Naiad (a name also applied to other species); Spiny Naias; Spiny Water Nymph; Spiny Water-naiad; Spiny Water-nymph; Spiny Waternymph; Spiny-leaf Naiad. DESCRIPTION: Aquatic annual forb/herb (2 to 18 inches in length); the herbage is bright green; the male and female flowers are born on separate plants; based on few records located, flowering generally takes place between early January and late October (flowering records: one for early January, one for late April, one for mid-July and one for late October). HABITAT: Within the range of this species it has been reported from springs; streams; rivers; ponds; lakes; lagoons; sloughs; swamps; edges of springs; along shores of lakes; mudflats; reservoirs, and ditches growing either as a submerged aquatic or on wet mud in sandy loam ground, occurring from sea level to 5,100 feet in elevation in wetland ecological formations within the grassland and desertscrub ecological formations. NOTES: The stems, leaves, flowers and seeds are fed on by ducks. *Najas marina* is nearly cosmopolitan and has been reported from south-central and southern North America; Central America and coastal islands in the Caribbean Sea; South America, and Eurasia. *5, 6, 43 (081609), 44 (100411), 46 (Page 67), 63 (100411 - color presentation of seed), **85** (100411 - color presentation of dried material), 124 (100411), **HR***

Poaceae (Gramineae): The Grass Family

Agrostis semiverticillata (see *Polypogon viridis*)

Agrostis verticillata (see footnote 89 under *Polypogon viridis*)

Andropogon barbinodis (see *Bothriochloa barbinodis*)

Andropogon contortus (see *Heteropogon contortus*)

Andropogon torreyanus (see footnote 89 under *Bothriochloa barbinodis*)

***Aristida* C. Linnaeus: Threeawn**

COMMON NAMES: Aristida; False Needle Grass (New Mexico); Needle Grass (New Mexico); Poverty Grass; Poverty-grass; Three Awn; Three Awn Grass; Three-awn; Three-awn Grass; Three-awned Grass; Threeawn; Tres Barbas; Triple Awn; Triple-awn Beard Grass; Triple-awn; Triple-awn Grass (Nebraska); Triple-awned Beard Grass; Triple-awned Beard-grass; Triple-awned Grass; Tripled Awn; Tripled-awn; Tripleawn; Tripleawn Grass; Wire Grass; 3-Awn; Zacate Tres Barbas. *33 (Pages 231-245), 43 (092909), 44 (100511), 46 (Pages 118-121), 63 (042608), **89** (reported as being a biennial herb located on Tumamoc Hill), 124 (100511)*

***Aristida adscensionis* C. Linnaeus: Sixweeks Threeawn**

COMMON NAMES: Annual Bristle Grass (a name also applied to other species); Dog-town Grass (a name also applied to other species); Flechilla (Spanish); Needle Grass (a name also applied to other species and to the genus *Aristida*); Plumilla (Spanish); Purple Beard Grass (a name also applied to other species); Six Weeks Three Awn; Six Weeks Three Awn Grass; Six Weeks Threeawn; Six-weeks Needle Grass; Six-weeks Needle-grass; Six-weeks Needlegrass; Six-weeks Three-awn; Six-weeks Three-awn Grass; Six-weeks Threeawn; Sixweeks Three Awn; Sixweeks Three-awn; Sixweeks Threeawn; Three-awn (a name also applied to other species and to the genus *Aristida*); Tres Barbas (Spanish), Triple-awn Beard Grass (a name also

applied to other species and to the genus *Aristida*); Triple-awned Beard Grass (a name also applied to other species and to the genus *Aristida*); Triple-awned Beard-grass (a name also applied to other species and to the genus *Aristida*); Zacate Cola de Zorra (Spanish); Zacate de Semilla (Spanish); Zacate Tres Barbas (a name also applied to other species and to the genus *Aristida*, Spanish); 6-Weeks 3-Awn. DESCRIPTION: Terrestrial annual tufted graminoid (ascending to erect culms 1¼ to 40 inches in height); the color of the foliage has been described as being bright green, purple or yellow curing to straw; the florets may be purple, purplish or red-purple; flowering may take place year-round between early January and late December; the seed heads may be purple. HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; mountainsides; bedrock, rocky, rocky-sandy-loamy, gravelly-sandy-clayey and sandy mesas; plateaus; rocky canyons; rocky and sandy canyon bottoms; rocky gorges; talus slopes; crevices in rocks; shallow pockets of soil; buttes; rocky ledges; rocky ridges; rocky ridgetops; meadows; foothills; rocky and sandy hills; rocky-gravelly and gravelly hilltops; rocky hillsides; escarpments; sandy bases of escarpments; bedrock, bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-clayey, stony, stony-clayey, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-clayey, sandy-clayey-loamy, sandy-silty, clayey and clayey-loamy slopes; rocky alluvial fans; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; sand hills; sandy dunes; sandy-loamy prairies; gravelly-sandy, sandy and clayey-loamy plains; rocky, rocky-sandy, gravelly, gravelly-loamy, gravelly-sandy-loamy, sandy, sandy-loamy and sandy-clayey-loamy flats; valley bottoms; along rocky railroad right-of-ways; along roadbeds; gravelly roadcuts; along rocky, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-loamy roadsides; along sandy arroyos; rocky draws; ravines; seeps; silty springs; along streams; streambeds; along creeks; creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy washes; bedrock drainages; within rocky drainage ways; silty depressions; swales; banks of draws; along (rocky) edges of washes; along margins of washes; mudflats; sandy benches; shelves; terraces; bottomlands; floodplains; ditches; gravelly-sandy riparian areas; sandy waste places, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-pebbly, rocky-sandy, shaley, stony, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and silty loam ground; rocky clay, stony clay, gravelly clay, gravelly-sandy clay, sandy clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from below sea level to 12,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant may be confused with *Aristida purpurea* var. *parishii*. *Aristida adscensionis* is native to south-central and southern North America; Central America; South America, and other tropic, sub-tropic and warm-temperate regions of the world. *5, 6, 15, **16**, 33 (Page 242), 43 (080109), 44 (032611 - color presentation including habitat), 46 (Page 120), 58, 63 (081709 - color presentation), 77, **85** (100811 - color presentation of dried material), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recorded as *Aristida americana* (Kunth) Griseb.), 105, 124 (032611), 140 (Pages 197 & 298)*

Aristida americana (see footnote 89 under *Aristida adscensionis*)

***Aristida divaricata* F.W. von Humboldt & A.J. Bonpland ex C.L. von Wildenow: Poverty Threeawn**

COMMON NAMES: Divaricate Aristida; Poverty Three Awn; Poverty Three-awn (a name also applied to other species); Poverty Three-awn Grass; Poverty Threeawn; Poverty Threeawn Grass; Spreading Triple-awn Grass; Spreading Triple-awned Grass. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass with 7 to 40 inches in height, one plant was described as being 40 inches in height and 4 inches in width at the base); the foliage is dark green curing to straw; flowering generally takes place between early June and late October (additional records: one for mid-February, two for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; gravelly-sandy and sandy mesas; cliffs; canyons; rocky canyon walls; crevices in rocks; knolls; ridges; ridgetops; meadows; foothills; rocky hills; sandy hilltops; rocky hillsides; rocky, rocky-gravelly-clayey, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey and clayey slopes; sandy bajadas; rocky outcrops; cindery sides of craters; bouldery-cindery lava flows; gravelly-sandy and sandy plains; llanos; rocky, sandy-loamy and clayey flats; valley floors; valley bottoms; along gravelly and gravelly-loamy roadsides; rocky draws; along streams; creekbeds; riverbeds; within washes; sink-holes; (clayey) banks of washes; along (gravelly-sandy) edges of ponds and lakes; cobbly-clayey, sandy and clayey benches; terraces, and disturbed areas growing in dry bouldery-cindery, rocky, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam and loam ground, and rocky-gravelly clay, cobbly clay, sandy clay and clay ground, occurring from 400 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is closely related to *Aristida barbata*. *Aristida divaricata* is native to southwest-central and southern North America and Central America. *5, 6, 30, 33 (Page 236), 43 (081709), 44 (100811), 46 (Page 120), 63 (081709), 85 (100811 - color presentation of dried material), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Aristida humboldtiana* Trin. & Rupr.), 105, 124 (100811), 127*

Aristida divergens (see footnote 89 under *Aristida ternipes*)

Aristida glauca (see *Aristida purpurea* var. *nealleyi*)

Aristida hamulosa (see *Aristida ternipes* var. *gentilis*)

Aristida humboldtiana (see footnote 89 under *Aristida divaricata*)

Aristida longiseta (see *Aristida purpurea* var. *longiseta*)

Aristida parishii (see *Aristida purpurea* var. *parishii*)

***Aristida purpurea* T. Nuttall: Purple Threeawn**

COMMON NAMES: Beard Grass; Blue Threeawn; Bunch Grass; Democrat Grass; Muskit Grass; Nealley Three-awn; No-eatum, O'gĭp [O'gwĭp, Toi'yaogwĭp, Yo'nĭp] (Uto-Aztecan: Shoshoni)[140]; Perennial Three-awn; Poverty Grass (a name also applied to other species and to the genus *Aristida*); Purple Aristida; Purple Beard Grass; Purple Needle Grass; Purple Needle-grass; Purple Three Awn; Purple Three-awn; Purple 3-awn; Purple Three-awn Grass; Purple Three-awned Grass; Purple Threeawn; Red Threeawn; Reverchon Three-awn; Purple Triple-awn Grass; Purple Triple-awned Grass; Red 3 Awn; Red Three Awn; Red Three Awn Grass; Red 3-awn; Red Three-awn; Red Three-awn Grass; Red Threeawn; Red Threeawn Grass; Reverchon Threeawn; Spear-grass; Three Awn (a name also applied to other species and to the genus *Aristida*); Three-awn (a name also applied to other species and to the genus *Aristida*); Threeawn (a name also applied to other species and to the genus *Aristida*); Tres Barbas (a name also applied to other species and to the genus *Aristida*); Tres Barbas Purpurea; Western Beard Grass; Western Beard-grass; Wire Grass (a name also applied to other species and to the genus *Aristida*); Wiregrass. DESCRIPTION: Terrestrial annual or perennial graminoid (a bunchgrass (clumpgrass) with erect culms 4 to 40 inches in height and up 4 to 12 inches in width at the base; plants were observed and reported as being 8 to 12 inches in height and 4 to 6 inches in width at the base, plants were observed and reported as being 14 inches in height and 2 to 6 inches in width at the base); the foliage is light to dark green curing to gray or straw; the inflorescence is green, purplish or dark red-purple; the awns are purple; flowering generally takes place between early January and mid-August; however, flowering may occur throughout the year under favorable conditions (additional records, including varieties: one for early September, six for mid-September, two for late September, four for early October, three for late October, two for mid-November and two for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky summits; gravelly-sandy, sandy and clayey-loamy mesas; plateaus; along canyon rims; rocky cliffs; chutes; along rocky and sandy canyons; rocky canyonsides; along bouldery-rocky-cobbly, rocky, rocky-gravelly, gravelly-sandy and sandy canyon bottoms; scree; talus slopes; crevices in boulders and rocks; gravelly bluffs; buttes; rocky knolls; ledges; bouldery and rocky, gravelly-sandy-clayey and sandy ridges; ridgetops; silty ridgelines; rocky openings in forests; along meadows; foothills; rocky, gravelly, sandy, loamy and clayey hills; rocky, rocky-gravelly and gravelly hillsides; sandy bases of escarpments; bedrock, bouldery, bouldery-gravelly-loamy, rocky, rocky-cobbly, rocky-sandy, rocky-sandy-loamy, shaley, cindery, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey, gravelly-clayey, sandy, loamy, clayey, clayey-loamy, silty-loamy and silty-clayey slopes; sandy alluvial fans; rocky, rocky-gravelly, gravelly and sandy bajadas; bedrock, bouldery, rocky and shaley outcrops; amongst boulders and rocks; sandy lava flows; sand hills; sand dunes; in blow sand; gravelly and silty banks; breaks; cobbly-sandy terraces; rocky-sandy and sandy steppes; rocky, sandy, sandy-clayey, clayey, clayey-loamy and silty-loamy prairies; bouldery-rocky, rocky, gravelly, gravelly-sandy and sandy plains; rocky, rocky-sandy, cindery, gravelly, gravelly-loamy, gravelly-clayey, sandy, loamy, clayey, clayey-loamy and silty-clayey flats; rocky, gravelly-sandy and sandy valley floors; valley bottoms; along railroad right-of-ways; two-tracks and roadbeds; along gravelly, gravelly-loamy, sandy, sandy-loamy and clayey roadsides; along and in rocky, gravelly, sandy and clayey-loamy arroyos; along sandy bottoms of arroyos; along and in sandy draws; gulches; gravelly-sandy bottoms of gulches; rocky gullies; rocky-gravelly ravines; springs; in rocks along streams; bouldery streambeds; along creeks; along and in creekbeds; riverbeds; along and in bouldery, bouldery-cobbly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in bedrock, rocky, gravelly-sandy and sandy drainages; bouldery-rocky, rocky and pebbly drainage ways; sandy lakebeds; swamps; depressions; (rocky, gravelly and sandy) banks of washes; (sandy) edges of rivers and washes; (gravelly) margins of washes; shorelines of lakes; mudflats; gravel bars; sandy beaches; rocky-clayey, gravelly and sandy benches; gravelly terraces; bottomlands; gravelly and sandy floodplains; mesquite bosques; along ditches; recently burned areas; riparian areas, and disturbed areas growing in moist (rarely reported) and dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-rocky-cobbly, bouldery-cobbly-sandy, bouldery-cindery, bouldery-gravelly, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; bouldery-gravelly loam, rocky loam, rocky-sandy loam, rocky-clayey loam, cobbly-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam, humusy loam and loam ground; rocky clay, rocky-sandy clay, gravelly clay, gravelly-sandy clay, sandy clay, silty clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant may be grazed by Black-tailed Prairie Dogs (*Cynomys ludovicianus*) and White-tailed Jackrabbits (*Lepus townsendii*). *Aristida purpurea* is native to central and southern North America. *5, 6, 15, 33 (Page 244), 43 (081709), 44 (032611), 46 (Page 120), 48, 58, 63 (081709 - color presentation), 85 (100911 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill), 105, 124 (032611), 140 (Page 197)*

Aristida purpurea var. *glauca* (see *Aristida purpurea* var. *nealleyi*)

***Aristida purpurea* T. Nuttall var. *longiseta* (E.G. von Steudel) G. Vasey: Fendler Threeawn**

SYNONYMY: *Aristida longiseta* E.G. von Steudel. COMMON NAMES: Dog Town Grass; Dog-town Grass (a name also applied to other species); Dogtown Grass (Dogtown-grass is a name also applied to other species); Fendler Threeawn (a name also applied to var. *fendleriana*); Fendler's Threeawn (a name also applied to var. *fendleriana*); Large Purple Aristida (Iowa); Long-awn Aristida; Long-awn Needle Grass (New Mexico); Long-awned Aristida; Long-awned Needlegrass (New Mexico); Long-awned Three-awn; Long-awned Three-awn Grass; Poverty Grass (a name also applied to the species, to other species and to the genus *Aristida*, South Dakota); Purple Aristida (Iowa, a name also applied to the species); Red Three Awn; Red Three-awn; Red Threeawn; Three-awn Grass (a name also applied to the species, to other species and to the genus *Aristida*); Tres Barbas Rojo (Spanish); Wire Grass (a name also applied to the species, to other species and to the genus *Aristida*). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with erect culms 6 to 24 inches in height and 4 to 8 inches in width at the base); the foliage is green curing to tan with older growth remaining on the plant from the prior growing season giving it a grayish-green color; the inflorescence is purple, red or red-purple; flowering generally takes place between early May and late October (additional records: one for late November; flowering beginning as early as April has been reported); the awns are purple or red-purple. HABITAT: Within the range of this species it has been reported from mountains; rocky-gravelly-silty, gravelly-sandy, sandy and clayey-loamy mesas; plateaus; along sandy canyon rims; rocky cliffs; canyons; rocky canyon walls; along rocky-gravelly and sandy canyon bottoms; talus slopes; shaley and sandy bluffs; rocky, rocky-gravelly and sandy-clayey buttes; rocky knolls; rocky, rocky-sandy, shaley, gravelly-sandy, gravelly-sandy-clayey and sandy ridges; rocky ridgetops; silty ridgelines; rocky openings in forests; along rocky meadows; gravelly foothills; rocky, gravelly, sandy, clayey and loamy hills; hilltops; rocky, rocky-sandy and gravelly hillsides; rocky, rocky-gravelly, rocky-loamy, rocky-clayey-loamy, shaley, stony, stony-gravelly, gravelly, gravelly-sandy-loamy, gravelly-sandy-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, loamy, clayey, clayey-loamy, silty-loamy and silty-clayey slopes; sandy bajadas; rocky, rocky-clayey and shaley outcrops; amongst boulders and rocks; lava flows; sand hills; sand dunes; breaks; sandy and clayey uplands; sandy steppes; rocky, gravelly, sandy, sandy-clayey, clayey, clayey-loamy, silty-loamy-clayey and silty-clayey prairies; rocky, stony, gravelly, gravelly-sandy, sandy and sandy-clayey plains; rocky, rocky-sandy, gravelly, sandy, sandy-clayey, loamy, clayey-loamy and silty-clayey flats; sandy basins; sandy valley floors; valley bottoms; along railroad right-of-ways; along gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and clayey roadsides; sandy and clayey-loamy arroyos; sandy bottoms of arroyos; within sandy, clayey and silty draws; bottoms of draws; gravelly-sandy bottoms of gulches; rocky gullies; within sandy ravines; along streams; streambeds; along creeks; sandy creekbeds; along rivers; riverbeds; along and in gravelly and sandy washes; along and in bedrock, rocky-sandy, gravelly-sandy, sandy and clayey drainages; drainage ways; blowouts; swales; (marshy, gravelly, sandy and silty) banks of streams, creekbeds, rivers, washes and drainages; (sandy) edges of rivers; (gravelly) margins of streams, washes, pools and lakes; gravelly benches; in river breaks; sandy terraces; bottomlands; sandy and clayey floodplains; lowlands; along fencerows; clayey catchments; sandy shorelines of reservoirs; ditches; clayey-loamy riparian areas; recently burned areas, and disturbed areas growing in muddy and wet, moist and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clay loam, sandy loam, clayey loam, silty loam, humusy loam and loam ground; rocky clay, gravelly-sandy clay, sandy clay, silty-loamy clay, silty clay and clay ground, and rocky-gravelly silty, gravelly silty, sandy silty and silty ground, occurring from 700 to 9,000 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Fendler Threeawn is a preferred grass of the Bison (*Bos bison*). *Aristida purpurea* var. *longiseta* is native to central and southern North America. *5, 6, 33 (recorded as *Aristida longiseta* Steud., Page 243), 43 (081809), 44 (040911), 46 (recorded as *Aristida longiseta* Steud., Page 120), 48 (species), **56**, **57**, 58 (recorded as *Aristida longiseta* Steud.), 63 (081809), **77**, **85** (101011 - color presentation of dried material), 105 (recorded as *Aristida longiseta* Steud.), 124 (040911)*

***Aristida purpurea* T. Nuttall var. *nealleyi* (G. Vasey) K.W. Allred: Blue Threeawn**

SYNONYMY: *Aristida glauca* (C.G. Nees von Esenbeck) W.G. Walpers; *Aristida purpurea* T. Nuttall var. *glauca* (C.G. Nees von Esenbeck) A.H. Holmgren & N.H. Holmgren. COMMON NAMES: Blue Three Awn; Blue Three-awn; Blue Threeawn; Nealley Three Awn; Nealley Three-awn; Nealley Three-awn Grass; Nealley Threeawn; Nealley's Three Awn; Nealley's Three-awn; Nealley's Three-awn Grass; Nealley's Threeawn; Purple Three-awn (a name also applied to the species); Reverchon Three Awn; Reverchon Three-awn; Reverchon Threeawn; Reverchon's Aristida; Reverchon's Three-awn; Reverchon's Threeawn; Tres Barbas (a name also applied to other species and to the genus *Aristida*, Spanish); Tres Barbas Púrpura (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) 6 to 40 inches in height and up to 4 to 12 inches in width at the base); the inflorescence is purple; the awns are purple; flowering generally takes place between early January and mid-October (additional records: one for mid-November and two for late November; however, flowering occurring throughout the year under favorable conditions has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; plateaus; chutes; rocky canyons; rocky canyonsides; along bouldery-rocky-cobbly, rocky and gravelly-sandy canyon bottoms; scree; talus slopes; rocky bases of cliffs; crevices in boulders and rocks; knolls; ledges; gravelly-sandy-clayey ridges; rocky ridgetops; foothills; rocky and clayey hills; rocky, rocky-gravelly and sandy hillsides; bedrock, bouldery, rocky, rocky-cobbly, rocky-sandy, rocky-sandy-loamy, rocky-clayey, shaley, stony, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, clayey-loamy and loamy slopes; alluvial fans; rocky, rocky-gravelly and gravelly bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; sand dunes; rocky banks; plains; sandy flats; rocky valley floors; along gravelly-loamy and sandy roadsides; along and in rocky, gravelly and sandy arroyos; along draws; rocky gullies; rocky-gravelly ravines; springs; sandy streambeds;

along and in creekbeds; riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; within drainages; bouldery-rocky drainage ways; sandy lakebeds; (sandy) banks of creeks; edges of washes; mudflats; gravel bars; sandy beaches; sandy benches; gravelly terraces; sandy bottomlands; floodplains; along ditches; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-rocky-cobbly, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, cobbly-gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, rocky-sandy clay, shaley clay, gravelly clay, gravelly-sandy clay and clay ground, and sandy silty ground, occurring from 800 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it reportedly has a "feathery" appearance. *Aristida purpurea* var. *nealleyi* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Aristida glauca* (Nees) Walp.), **16** (recorded as *Aristida purpurea* Nutt. var. *glauca* (Nees) A. Holmgren & N. Holmgren), 33 (recorded as *Aristida glauca* (Nees) Walp., Page 243), 43 (081809), 44 (101011), 46 (recorded as *Aristida glauca* (Nees) Walp., Page 120), 48 (species), **56**, **57**, 63 (081809), 77, **85** (101011 - color presentation), 105 (species), 124 (101011)*

***Aristida purpurea* T. Nuttall var. *parishii* (A.S. Hitchcock) K.W. Allred: Parish's Threeawn**

SYNONYMY: *Aristida parishii* A.S. Hitchcock. COMMON NAMES: Arizona Three-awn; Parish Aristida; Parish Three Awn; Parish Three-awn; Parish Three-awn Grass; Parish Threeawn; Parish's Aristida; Parish's Three Awn; Parish's Three-awn; Parish's Three-awn Grass; Parish's Threeawn; Threeawn (a name also applied to other species and to the genus *Aristida*). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with erect culms 4 to 40 inches in height); the spikelets (flowers) may be reddish-purple or reddish-violet; flowering generally takes place between mid-February and mid-November (flowering records: two for mid-February, two for early March, four for mid-March, two for early April, one for mid-April, four for early May, one for mid-May, one for mid-June, one for early July, two for mid-July, one for early August, one for early September, one for mid-September, three for late October and one for mid-November). HABITAT: Within the range of this species it has been range reported from mountains; bases of mountains; mesas; rocky cliffs; canyons; rocky and sandy canyon bottoms; crevices in rocks; ridges; ridgelines; foothills; bouldery-rocky and rocky hills, rocky hillsides; bouldery, rocky and sandy slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sandy plains; gravelly and sandy flats; silty valley floors; along gravelly railroad right-of-ways; along roadsides; arroyos; along bottoms of arroyos; gravelly-sandy-loamy draws; springs; around seeping streams; along streams; along streambeds; along and in bouldery, bouldery-cobbly-sandy, rocky, gravelly, gravelly-sandy and sandy washes; along and in rocky drainages; around pools; swales; banks of rivers and washes; along edges of washes and lakes; along margins of arroyos and washes; shorelines of lakes; beaches; floodplains; lowlands; riparian areas, and disturbed areas growing in moist (rarely reported) and dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-cobbly-sandy, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clay loam and gravelly-sandy loam ground; clay ground, and silty ground, occurring from 500 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Aristida purpurea* var. *parishii* is native to southwest-central North America. *5, 6, **16** (recorded as *Aristida parishii* Hitchc.), 33 (recorded as *Aristida parishii* Hitchc., Page 240), 43 (081809), 44 (032611 - color photograph), 46 (recorded as *Aristida parishii* Hitchc., Page 121), 48 (species), 63 (081809), 77 (recorded as *Aristida parishii* A.S. Hitch.), **85** (101011 - color presentation of dried material), 105 (species), 124 (032611 - no record of variety; genus and species records), 140 (Page 298)*

Aristida scheidiana (see footnote 89 under *Aristida ternipes*)

***Aristida ternipes* A.J. Cavanilles: Spidergrass**

COMMON NAMES: Aristida Grass (a name that could possibly be applied to any other species in the genus *Aristida*); Ba'aso (Uto-Aztecan: Mayo)[140]; Chak-suuk <tok-suuk> (Mayan: Maya)[140]; Guatoco (Uto-Aztecan: Guarijío)[140]; Hahay'iqalmongwa <hahaí'iqálmongwa> (Uto-Aztecan: Hopi)[140]; Otatillo (a name also applied to other species, Spanish: Mexico)[140]; Spider Grass; Spidergrass; Spider Three-awn; Spider Threeawn; Spider Three-awn Grass; Three Awn (a name also applied to other species and the genus *Aristida*); [Poverty, Six-weeks] Three Awn (English)[140]; Three-awn (a name also applied to other species and the genus *Aristida*); Three-awn Spidergrass; Threeawn (a name also applied to other species and the genus *Aristida*); Tl'oh ("Grass" a name applied to grasses, Athapascan: Western Apache)[140]; Tres Barbas Arqueado ("Arched Three Barbs", Spanish: Mexico)[140]; Wahá‡ ("Grass" a name applied to any grass, Uto-Aztecan: Northern Paiute)[140]; Waṣai ("Grass" a name applied to any grass, Uto-Aztecan: Tohono O'odham)[140]; Zacate (Spanish)[140]; Zacate Araña [de Tres Barbas] ("[Three-awn] Spider Grass" names also historically applied to other species, Spanish: Arizona, New Mexico, Sonora)[140]; Zacate Barba ("Barbed Grass", Spanish: Sonora)[140]; Zacate Barbón (Mexico: Sonora). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) 10 to 79 inches in height; one plant was observed and described as being 52 inches in height and 4 inches in diameter at the base); flowering generally takes place between mid-March and mid-December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bouldery-cobbly and rocky mesas; plateaus; rock cliffs; rocky canyons; rocky canyon walls; along rocky canyon bottoms; rocky talus; crevices in rocks; rock ledges; rocky ridges; rocky ridgetops; meadows; foothills; rocky, rocky-gravelly, gravelly-sandy, gravelly-clayey-loamy and sandy hills; rocky hillsides; bedrock, bouldery, rocky, rocky-gravelly, rocky-gravelly-clayey, rocky-loamy, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy and loamy slopes; alluvial fans; gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; cobbly and gravelly plains; bouldery-sandy, rocky-loamy, gravelly, gravelly-sandy, sandy and silty flats; valley floors; valley bottoms; coastal plains; in roadbeds; along bouldery-rocky and gravelly

roadsides; along rocky and sandy arroyos; rocky bottoms of arroyos; along draws; ravines; along streams; streambeds; along bouldery creeks; rocky creekbeds; along rivers; riverbeds; along and in rocky and sandy washes; within drainages; banks of creeks; along edges of washes; sandy beaches; benches; rocky terraces; bottomlands; sandy floodplains; mesquite bosques; along fencelines; stock tanks [charcos, repressos]; ditches; sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, bouldery-cobbly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, humusy loam and loam ground; sandy clay ground, and sandy silty and silty ground, occurring from sea level to 6,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Aristida ternipes* is native to southwest-central and southern North America; Central America, and northern South America. *5, 6, 15, **16**, 33 (Page 238), 43 (092709), 44 (033011), 46 (Page 119), 58, 63 (092709 - color presentation), 77, **85** (101011 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Aristida divergens* Vasey and *Aristida scheidiana* Trin. & Rupr.), 124 (033011 - no record of species; genus record), 140 (Pages 196-198 & 298 - recorded as *Aristida ternipes* Cavanilles var. *ternipes*)*

***Aristida ternipes* A.J. Cavanilles var. *gentilis* (J.T. Henrard) K.W. Allred: Spidergrass**

SYNONYMY: *Aristida hamulosa* J.T. Henrard; *Aristida ternipes* A.J. Cavanilles var. *hamulosa* (J.T. Henrard) J.S. Trent; *Aristida ternipes* A.J. Cavanilles var. *minor* (G. Vasey) A.S. Hitchcock. COMMON NAMES: Arizona Threeawn; Hook Three Awn; Hook Three-awn; Hook Three-awn Grass; Hook Threeawn; Mesa Threeawn; Poverty Threeawn (a name more commonly applied to *Aristida divaricata*); Spidergrass (a name also applied to the species); Three Awn (a name also applied to other species and to the genus *Aristida*); Threeawn Spider Grass (a name also applied to the species); Three-awn (a name also applied to the species, to other species and to the genus *Aristida*); Three-awn Grass (a name also applied to the species, to other species and the genus *Aristida*); Threeawn (a name also applied to the species, to other species and the genus *Aristida*); Wild Oat (a name also applied to other species); Zacate Araña de Tres Barbas (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with sprawling to erect culms 8 inches to 4 feet in height); the flowers are maroon-red; flowering generally takes place between mid-March and mid-December. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rock cliffs; canyons; rocky canyon bottoms; crevices in boulders; rocky and rocky-clayey ridges; foothills; rocky, gravelly-sandy, gravelly-clayey-loamy and sandy hills; hillsides; piedmonts; rocky, gravelly and sandy slopes; bajadas; amongst bedrock, boulders and rocks; sandy prairies; gravelly and sandy plains; sandy and silty flats; rocky valley floors; valley bottoms; railroad right-of-ways; along gravelly-loamy, sandy and clayey-loamy roadsides; shallow draws; along streambeds; along creeks; along and in sandy washes; drainages; within drainages; sandy and sandy-clayey-loamy swales; margins of washes; sandy beaches; benches; terraces; bottomlands; floodplains; mesquite bosques; along fencelines; stock tanks (charcos or represos); ditches; riparian areas, and disturbed areas growing in dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy-clayey loam and clayey loam ground, and silty ground, occurring from 600 to 7,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Aristida ternipes* var. *gentilis* is native to southwest-central and southern North America and Central America. *5, 6, 15 (recorded as *Aristida hamulosa* Henr.), 33 (recorded as *Aristida hamulosa* Henr., Page 239), 43 (092709), 44 (101211), 46 (recorded as *Aristida hamulosa* Henr., Page 120), **56**, **57**, 58 (recorded as *Aristida hamulosa* Henr.), 63 (092709), 77 (recorded as *Aristida hamulosa* Henr.), **85** (101211 - color presentation), 105 (note on page 15), 124 (032611 - no record of species; genus record), 140 (Page 197)*

Aristida ternipes var. *hamulosa* (see *Aristida ternipes* var. *gentilis*)

Aristida ternipes var. *minor* (see *Aristida ternipes* var. *gentilis*)

***Aristida ternipes* A.J. Cavanilles var. *ternipes*: Spidergrass**

COMMON NAMES: Ba'aso (a name applied to the species, Uto-Aztecan: Mayo)[140]; Chak-suuk <tok-suuk> (a name applied to the species, Mayan: Maya)[140]; Guatoco (a name applied to the species, Uto-Aztecan: Guarijío)[140]; Hahay'iqalmongwa <hahaí'iqálmongwa> (a name applied to the species, Uto-Aztecan: Hopi)[140]; Otatillo (a name also applied to the species and other species, Spanish: Mexico)[140]; Spider Grass (a name also applied to the species); Spidergrass (a name also applied to the species); Three Awn (a name also applied to the species, other species and to the genus *Aristida*); Three-awn (a name also applied to the species, other species and to the genus *Aristida*); Threeawn (a name also applied to the species, other species and to the genus *Aristida*); Tl'oh ("Grass" a name applied to grasses, Athapascan: Western Apache)[140]; Tres Barbas Arqueado ("Arched Three Barbs" a name applied to the species, Spanish: Mexico)[140]; Typical Spider Grass; Typical Spider Three-awn; Typical Spider Three-awn Grass; Typical Spider Threeawn; Typical Spidergrass; Typical Three-awn Spidergrass; Wahá‡ ("Grass" a name applied to any grass, Uto-Aztecan: Northern Paiute)[140]; Waṣai ("Grass" a name applied to any grass, Uto-Aztecan: Tohono O'odham)[140]; Zacate (Spanish)[140]; Zacate Araña (a name also applied to the species and other species); Zacate Araña [de Tres Barbas] ("[Three-awn] Spider Grass" names also historically applied to the species and other species, Spanish: Arizona, New Mexico, Sonora)[140]; Zacate Barba ("Barbed Grass" a name applied to the species, Spanish: Sonora)[140]; Zacate Barbón (a name also applied to the species, Mexico: Sonora). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) 16 to 79 inches in height, plants were observed that were 6½ feet in height and 8 inches in width at the base); flowering generally takes place between mid-March and mid-December. HABITAT: Within the range of this species it has been reported from

mountains; rocky mountainsides; rocky mesas; plateaus; rocky canyons; rocky canyon walls; along rocky canyon bottoms; rocky talus; crevices in rocks; rocky ridgetops; foothills; rocky, rocky-gravelly, gravelly-sandy and gravelly-clayey-loamy hills; rocky hillsides; bedrock, bouldery, rocky, rocky-gravelly, rocky-gravelly-clayey, gravelly and sandy slopes; gravelly and sandy bajadas; rocky outcrops; amongst boulders; cobbly plains; gravelly, gravelly-sandy and sandy flats; rocky valley floors; along bouldery-rocky and gravelly roadsides; rocky and sandy arroyos; rocky bottoms of arroyos; along draws; along streams; streambeds; along creeks; riverbeds; along and in sandy washes; within drainages; ciénegas; terraces; bottomlands; sandy floodplains; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-clayey loam and gravelly-clayey loam ground; rocky-gravelly clay ground, and sandy silty ground, occurring from 200 to 6,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Aristida ternipes* var. *ternipes* is native to southwest-central and southern North America; Central America, and northern South America. *5, 6, 33 (species, Page 238), 43 (092709), 44 (041211 - no record of the variety; genus and species record), 46 (species, Page 119), **56**, **57**, 63 (092709), **85** (101311 - color presentation of dried material), 124 (041311 - no record of species or variety; genus record), 140 (Page 197 & 298)*

Arundo donax C. Linnaeus: Giant Reed

COMMON NAMES: Arundo Grass (a name also applied to the genus *Arundo*); Caña (Spanish); Caña Común (Spanish); Caña de Castilla (Spanish); Cana Brava; Caña Hueca (Hispanic); Cana-do-brejo (Portuguese: Brazil); Cana-do-reino (Portuguese: Brazil); Cañaveral (Spanish); Canne de Provence (French); Canno-do-reino (Portuguese: Brazil); Canuto (Hispanic); Capim-plumoso (Portuguese: Brazil); Carricillo (Hispanic); Carrizo (a name also applied to other species, Spanish); Carrizo Cane; Carrizo de la Selva (Hispanic); Carrizo Grande; Carrizo Reed; Danube Reed; Danubian Reed; Donax; Donax Cane; Elephant Grass (a name also applied to other species); Giant Arundo Grass; Giant Cane (a name also applied to other species); Giant Cane Carrizo; Giant Carrizo; Giant Carrizo Reed; Giant Donax; Giant Donax Cane; Giant Reed (a name also applied to other species); Giant-reed; Giant River Reed; Giant Spanish Cane; Giant Spanish Reed; Grand Roseau (French); Gubaguih (Hispanic); Halal (Hispanic); Invasive Giant Reed; Italian Reed; Oboe Reed; Pakaab (Hispanic); Pfahlrohr (German); Provence Cane; Spaanse-riet; Spanish Cane; Spanish Reed; Spanish-reed; Tarro (Hispanic); Tekhalal (Hispanic); Variegated Donax; Weedy Giant Reed. DESCRIPTION: Terrestrial perennial graminoid, subshrub or shrub (a giant reed-like grass with erect culms 6 to 33 feet in height); the flowers are in cream or whitish plumes; flowering may take place throughout the year, but mostly between early spring and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; rocky canyon bottoms; bluffs; rocky slopes; plains; valleys; coastal basins; along sandy roadsides; arroyos; seeps; along seepage streams; springs; along streams; in sandy soils along creeks; along and in rivers; along and in sandy riverbeds; along sandy washes; along drainages; waterholes; along lakes; along (sandy) banks of streams, creeks and rivers; edges of rivers; margins of ponds and lakes; sandy terraces; floodplains; along canal banks; along culverts; along and in ditches; ditch banks; sandy riparian areas, and disturbed areas growing in shallow water and wet, moist and dry (periodically flooded) rocky, gravelly and sandy ground and sandy clay and clay ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used in the making of splints, yellow dyes, musical instruments and ceremonial items. Giant Reed was intentionally introduced into the Los Angeles, California area in the early 1800's; its clonal root masses (to over 3 feet thick) may extend to several acres. Giant Reed Grass may be confused with the native Common Reed Grass, so proper identification must be assured prior to implementing control measures. *Arundo donax* is native to western, central, eastern and southern Asia and coastal islands in the Pacific and Indian Oceans. *5, 6, 18, 22 (color photographs), 26 (color photograph), 30, 33 (Page 93), 43 (071209), 44 (041311 - color photograph), 46 (Page 89), **56**, **57**, 63 (041311 - color presentation including habitat), 77, **85** (101311 - color presentation including habitat), **89** (reported under Miscellaneous Introduced Species as being a shrub), 109, 115 (color presentation), 124 (041311 - no record of genus or species), 127, **WTK** (August 2, 2010)*

Avena fatua C. Linnaeus: Wild Oat

COMMON NAMES: Aveia-brava (Portuguese: Brazil); Aveia-fátua (Portuguese: Brazil); Aveia-selvagem (Portuguese: Brazil); Avena Cimarrona (Spanish); Avena Loca (a name also applied to other species, Spanish); Avena Silvestre (Spanish); Avoine Folle (French); Common Wild Oat; Common Wild Oats; Common Wildoat; Common Wildoats; Drake; Fat Oat; Fat Wild Oat; Flaver; Flax Grass; Flax-grass; Flaxgrass; Flughafer (German); Folle Avoine (French); Havercorn (a name also applied to other species); Hever; Oat Grass (a name also applied to other species and to the genus *Avena*); Oatgrass (a name also applied to other species); Pin Grass (a name also applied to other species); Poor Oat; Potato Oat; Potato Oats; Spring Wild Oat; Spring Wild-oat; Tartarean Oat (a name also applied to other species); Wheat Oat; Wheat Oats; Wild Oat (a name also applied to other species); Wild Oats (a name also applied to other species and to the genus *Bromus* in New Mexico); Windhafer (German). DESCRIPTION: Terrestrial annual graminoid (erect culms 3 to 79 inches in height); the foliage is green; the flowers are green; flowering generally takes place between early February and late August (additional records: two for mid-January, one for early October, one for late October, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky and rocky-sandy canyons; rocky canyon bottoms; pockets of soil in rocks; bluffs; ridgetops; openings in woodlands; meadows; hills; rocky, cobbly-sandy-loamy and clayey hillsides; rocky, rocky-loamy, rocky-clayey, sandy, sandy-loamy, loamy, loamy-clayey and clayey slopes; sandy bajadas; rocky outcrops; sandy plains; sandy, clayey and clayey-loamy flats; basins; valley floors; coastal flats; coastal hills; along railroad right-of-ways; along rocky,

rocky-gravelly-loamy, gravelly, gravelly-loamy and clayey-loamy roadsides; seeps; springs; along streams; sandy streambeds; along and in rocky-cobbly creeks; creekbeds; along rivers; along and in gravelly and sandy washes; drainages; freshwater marshes; depressions; swales; (rocky) banks of streams, rivers, riverbeds and washes; (rocky) edges of ponds and lakes; margins of washes; benches; terraces; bottomlands; floodplains; lowlands; stock tanks; canals; canal banks; along ditches; silty ditch banks; bouldery and sandy riparian areas; waste places and disturbed areas growing in wet, moist and dry bouldery, rocky, rocky-cobbly, rocky-sandy, gravelly and sandy ground; rocky loam, rocky-gravelly loam, cobbly-sandy loam, gravelly loam, sandy loam, clayey loam, silty loam and loam ground; bouldery clay, rocky clay, loamy clay and clay ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. Seed can remain dormant in soil for as long as 10 years. *Avena fatua* is native to Europe; Asia, and northern Africa. *5, 6, 15, **16**, 33 (Page 166), 43 (092709), 44 (032611 - color photograph), 46 (Page 100), **56**, **57**, 63 (092709 - color presentation), 68, 77, **85** (101311 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 101 (color photograph), 124 (032611), 127*

***Bothriochloa barbinodis* (M. Lagasca y Segura) W.G. Herter: Cane Bluestem**

SYNONYMY: *Andropogon barbinodis* M. Lagasca y Segura. COMMON NAMES: Algodoneso (Spanish: Mexico)[140]; Barbed Beard Grass (Oklahoma); Barbed Beard-grass (Oklahoma); Beard-grass (a name also applied to other species and the genus *Bothriochloa*); Bristlejoint Bluestem; Cane Beard Grass; Cane Beard-grass (English)[140]; Cane Beardgrass; Cane Bluestem; Cola de Coyote ("Coyote's Tail", Spanish: Nuevo León)[140]; Feather Bluestem; Feather Grass; Fuzzy Top; Fuzzy Top Beardgrass; Fuzzy-top; Palmer's Cane Bluestem; Perforated Bluestem; Pin-hole Beard Grass; Pinhole Beardgrass; Pinhole Bluestem; Pitted Beardgrass; Plains Beardgrass; Popotillo [Perforado, Plateado] ("[Perforated, Folded] Little Broom", Spanish: Sonora)[140]; Popotillo Algodonero (Spanish); Silver Beardgrass; Tl'oh ("Grass" a word used for any grass, Athapascan: Western Apache)[140]; Waháɨ ("Grass" a word used for any grass, Uto-Aztecan: Northern Paiute)[140]; Waṣai ("Grass" a word used for any grass, Uto-Aztecan: Tohono O'odham)[140]; Ya-jewel-g-ute (Havasupai); Zacate Popotillo ("Little Broom Grass", Spanish: Mexico)[140]; Zacatón (Hispanic). DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with decumbent and/or erect to spreading culms 20 inches to 5 feet in height; one plant was observed and described as being 4 inches in width at the base); the foliage is bluish-green or yellow-green curing to a dull red, reddish-brown or yellow; the spikelets (flowers) are tawny-green or tan; the silvery-white inflorescences are oblong to fan-shaped; flowering generally takes place between late March and early December (additional records: one for early February and one for mid-February). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky and gravelly mesas; plateaus; along cliff faces; rocky and gravelly-loamy canyons; along bedrock, bouldery-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy canyon bottoms; rocky chasms; rocky bases of cliffs; crevices in bedrock, boulders and rocks; buttes; ledges; rocky and sandy-loamy ridges; rocky ridgetops; clearings in woodlands; meadows; cinder cone peaks; rocky foothills; rocky hills; rocky and gravelly hillsides; escarpments; rocky, rocky-loamy, gravelly, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy and clayey-loamy slopes; bases of slopes; bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; sandy plains; gravelly, sandy, sandy-clayey and clayey flats; rocky valley floors; railroad right-of-ways; clayey roadbeds; along gravelly, gravelly-loamy, sandy and silty-clayey-loamy roadsides; along rocky, stony and sandy arroyos; sandy bottoms of arroyos; sandy-clayey-loamy draws; gullies; ravines; seeps; springs; along sandy streams; along and in bouldery streambeds; along creeks; along and in creekbeds; along rivers; within bouldery-cobbly-sandy riverbeds; along and in rocky, rocky-gravelly, cobbly-sandy-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey washes; within gravelly-sandy-loamy drainages; within rocky drainage ways; ciénegas; swales; rock tanks; along (sandy) banks of creeks, rivers, washes and lakes; (sandy) edges of creeks; bouldery-sandy and sandy beaches; benches; rocky and gravelly terraces; bottomlands; floodplains; mesquite bosques; stock tanks; along and in ditches; bouldery-cobbly-sandy, rocky and sandy riparian areas, and disturbed areas growing in moist and dry rocky desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty-clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and silty ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and is extremely drought-resistant and tolerant of coastal conditions. Pronghorn (*Antilocapra americana*) browse this plant. *Bothriochloa barbinodis* is native to southwest-central and southern North America; Central America, and western and southern South America. *5, 6, 15, **16**, 30, 33 (recorded as *Andropogon barbinodis* Lag., Page 306), 43 (092709), 44 (032711), 46 (recorded as *Andropogon barbinodis* Lag., Page 142), 48, 58, 63 (092709 - color presentation), 77, **85** (101511 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Andropogon torreyanus* Steud.), 105 (recorded as *Andropogon barbinodis* Lag.), 124 (032711), 140 (Pages 198-199 & 299)*

***Bouteloua aristidoides* (K.S. Kunth) A.H. Grisebach: Needle Grama**

COMMON NAMES: Aceitilla (Spanish); Navajita; Needle Grama; Needle Grama Grass; Needle Gramma; Needlegrama; Pasto de Cabra (Spanish); Six Weeks Grama Grass; Six Weeks Needle Grama; Six-weeks Needle Grama; Sixweeks Needle Grama; Tochite (Spanish); Zacate Saitillo. DESCRIPTION: Terrestrial annual tufted graminoid (decumbent and/or geniculate culms 2 to 24 inches in height); the foliage is light green or purple curing to straw; the flowers are purplish; the

anthers are yellow or yellow & red; flowering generally takes place between mid-July and late October (additional records: two for early January, one for late January, one for early February, one for early March, one for mid-March, five for early April, one for late April, one for early May, one for mid-November, two for late November and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; sandy mesas; cliffs; along rocky canyons; canyon bottoms; chasms; bluffs; ridges; meadows; rocky hills; rocky-gravelly hilltops; rocky hillsides; sandy bases of escarpments; rocky, rocky-gravelly, rocky-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey, sandy-silty and clayey-loamy slopes; gravelly bajadas; rocky coves; sand hills; sand dunes; sand hummocks; sand dunes; in blow sand; edges of dune fields; plains; rocky, gravelly, sandy and sandy-loamy flats, basins; clayey valley floors; loamy valley bottoms; coastal dunes; gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; within arroyos; sandy bottoms of arroyos; stony-sandy draws, seeps; springs; along streams; streambeds; creekbeds; along rivers; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy, sandy, clayey and silty-clayey washes; within drainages; ciénegas; depressions; (sandy-loamy) banks of washes; margins of washes; (rocky-sandy) shores of lakes; benches; gravelly deltas; sandy terraces; loamy bottomlands; sandy and silty floodplains; clayey lowlands; sandy mesquite bosques; riparian areas; waste places, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Six-weeks Needle Grama is a favored food of the Rufous-winged Sparrow (*Aimophila carpalis*). *Bouteloua aristidoides* is native to southwest-central and southern North America. *5, 6, 15, **16**, 30, 33 (Page 141), 43 (092809), 44 (032711), 46 (Page 128), **56**, **57**, 58, 63 (052809 - color presentation), 68, 77, **85** (101611 - color presentation), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes), 105, 124 (032711 - no record of species; genus record), 140 (Pages 200 & 299), **WTK** (October 23, 2009)*

***Bouteloua barbata* M. Lagasca y Segura: Sixweeks Grama**

SYNONYMY: *Bouteloua barbata* M. Lagasca y Segura var. *barbata*. COMMON NAMES: Annual Six Weeks Grama; Low Grama; Low Grama Grass; Low Gramma; Low Gramma Grass; Navajita (Spanish); Navajita Anual (Spanish); Sand Grama; Six Weeks Grama; Six-weeks Grama; Six-weeks Grass; Sixweeks Grama; Zacate Liebrero (Spanish). DESCRIPTION: Terrestrial annual tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect and spreading culms ½ to 18 inches in height); the foliage is light green or dark violet curing to straw; the spikelets (flowers) are purplish, red-green or reddish; flowering may take place throughout the year, but occurs mostly between late July and late November (additional records: one for mid-January, one for early February, two for mid-February, one for early March, one for mid-March, one for late March, two for late April, one for early July, two for mid-December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; gravelly mountainsides; gravelly and sandy mesas; sandy bases of cliffs; rocky canyons; canyon bottoms; talus; sandy crevices in bedrock; buttes; ledges; rocky ridgetops; meadows; along foothills; bouldery, rocky, rocky-sandy, gravelly and sandy hills; rocky-gravelly hilltops; rocky hillsides; sandy bases of escarpments; rocky, rocky-gravelly, gravelly, gravelly-sandy-clayey, gravelly-clayey, sandy, sandy-loamy, sandy-clayey, clayey and clayey-loamy slopes; rocky and gravelly alluvial fans; sandy bajadas; rocky outcrops; amongst rocks; sandy lava flows; sand hills; sand dunes; sand hummocks; margins of dunes; blow-sand deposits; gravelly debris fans; prairies; sandy plains; rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy, clayey and silty flats; basins; sandy and sandy-clayey valley floors; valley bottoms; beach dunes; sandy coastal plains; shell mounds; along railroad right-of-ways; rocky-gravelly roadbeds; along rocky-gravelly, cobbly, gravelly, sandy and sandy-clayey-loamy roadsides; along and in sandy arroyos; bottoms of arroyos; draws; gullies; along streams; streambeds; along sandy creeks; sandy riverbeds; along and in rocky, gravelly, sandy and silty-clayey washes; along and in sandy drainages; along waterways; pebbly-sandy waterholes; oases; sandy and silty lakebeds; sandy playas; depressions; swales; along (gravelly and sandy) banks of rivers and washes; edges of washes and lakebeds; (rocky-sandy) shores of lakes; mudflats; sand bars; sandy-clayey-loamy beaches; benches; gravelly terraces; bottomlands; sandy floodplains; mesquite bosques; around stock tanks (charcos/represos); silty ditches; sandy ditch banks; sandy riparian areas; gravelly waste places, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and clayey loam ground; gravelly clay, gravelly-sandy clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Sixweeks Grama (annual) may be confused with the short-lived perennial Rothrock Grama (*Bouteloua rothrockii*). *Bouteloua barbata* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Bouteloua barbata* Lag. var. *barbata*), 33 (Page 153), 43 (092909), 44 (032711), 46 (Page 127), **57**, 58, 63 (092809 - color presentation), 68, 77, **85** (101611 - color presentation), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recorded as *Boutloua polystachya* (Benth.), 105, 124 (032711), 140 (Page 299 - recorded as *Bouteloua barbata* Lagasca var. *barbata*)*

Bouteloua barbata var. *barbata* (see *Bouteloua barbata*)

Bouteloua barbata var. *rothrockii* (see *Bouteloua rothrockii*)

Bouteloua bromoides (see footnote 89 under *Bouteloua radicosa* and *Bouteloua repens*)

***Bouteloua curtipendula* (A. Michaux) J. Torrey: Sideoats Grama**

COMMON NAMES: Avenilla (Hispanic); Banderilla ("Little Flag", Spanish: Baja California, Chihuahua, Sonora); [Pasto] Banderilla ("Little Flag [Grass]", Spanish: Chihuahua, Sonora)[140]; Banderita (Hispanic); Dadpk Waṣai <da:pk washai, dadpk washai> ("Slippery Grass / Smooth Grass", Uto-Aztecan: Hiá Ceḍ O'odham, Tohono O'odham)[140]; Fall Grama Grass; Fall Gramma Grass; Grama (a name also applied to other species and the genus *Bouteloua*, Spanish: Oklahoma); Grama-azul (Portuguese: Brazil); Grama del Cerro (Hispanic); Grama Grass (a name also applied to other species and the genus *Bouteloua*, Nebraska); Gramilla ("Little Grass", Spanish: Mexico)[140]; Hairy Mesquite Grass (a name also applied to other species, New Mexico); Hairy Muskit (a name also applied to other species); Harushö (Uto-Aztecan: Hopi)[140], Isnáap Ic Is ("Whose Fruit Is On One Side" a name also applied to other species, Hokan: Seri); Mesquit Grass (a name also applied to other species); Mesquite Grass (a name also applied to other species [Nebraska] and the genus *Bouteloua*); Muskit (Nebraska, a name also applied to other species); Navaja Sa'i <sha'i> ("Grass" a word used for any grass, Uto-Aztecan: Mountain Pima)[140]; Navajita ("Little Knife" a name also applied to other species, Spanish: Baja California, Chihuahua, Sonora); Navajita Banderilla (Spanish: Baja California, Chihuahua, Sonora)[140]; Owiv ("Grass", Uto-Aztecan: Ute); Prairie Oats (Kansas)[140]; Qm-u-se'-a (Havasupai); Racemed Atheropogon; Racemed Boutelous; Side Oat Grama; Side Oats; Side Oats Grama (Nebraska); Side Oats Grama Grass; Side Oats Gramma Grass; Side Oats Grammagrass; Side-oat Grama; Sideoat Gramma; Side-oat Gramma; Side-oats; Side-oats Grama (a name also applied to the genus *Bouteloua* - Nebraska); Side-oats Grama Grass; Side-oats Grama-grass; Side-oats Gramina; Side-oats Gramma; Side-oats Gramma-grass; Side-oats Gramma Grass; Side-oats Grass; Sideoat Grama; Sideoat Gramma; Sideoats Grama (English)[140]; Sideoats Grama Grass; Sideoats Gramma-grass; Sideoats Grass; Ta Tăn Iŋ (Kiowa Tanoan: Tewa)[140]; Tall Grama (a name also applied to other species [Nebraska] and the genus *Bouteloua*); Tall Grama Grass; Tall Grama Oats (Iowa); Tall Grama-grass; Tall Gramma Grass; Tall Mesquite (a name also applied to other species); Tall Mesaquite Grass; Tap'eñita (Kiowa Tanoan: Tewa)[140]; Tł'oh ("Grass", a word used for grasses, Athapascan: Western Apache)[140]; Tł'oh Łichíí <y'oh lici> ("Red Grass", Athapascan: Navajo)[140]; Tł'oh Nástasí ("Grass That Bends Back Around", Athapascan: Navajo)[140]; Tłobindaiłkehntii ("Grass With Seeds Lying on Top of One Another", Athapascan: Chiricahua and Mescalero Apache)[140]; Uitsaku Juatarhu (Purépecha); Wahái ("Grass" a word used for grasses, Uto-Aztecan: Northern Paiute)[140]; Wiry Grama; Zacate de Navaja ("Knife Grass", Spanish: Sonora)[140]. DESCRIPTION: Terrestrial perennial (usually) tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 3 to 52 inches in height and up to 2 feet in width at the base; one plant was observed and described as being 12 to 16 inches in height and 16 inches in width at the base, one plant was observed and described as being 28 inches in height and 4 inches in width at the base); the foliage is bluish-green or purple-green curing to reddish-brown or straw; the flowers are bright purple; the anthers are orange, purple, red, yellow or dark yellow; flowering generally takes place between late April and mid-November (additional records: one for early April, one for early December); the mature fruits are red-brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bouldery, rocky, rocky-gravelly, gravelly, pebbly-sandy, sandy and clayey-loamy mesas; plateaus; cliffs; hanging gardens; sandy bases of cliffs; rocky and sandy canyon rims; along rocky and loamy canyons; stony canyon walls; in sand along canyon walls; along rocky and sandy canyon bottoms; rocky gorges; talus ridges; sandy crevices in rocks; rocky-gravelly and sandy bluffs; rocky, gravelly-clayey and clayey buttes; knolls; rocky and sandy ledges; along rocky, rocky-sandy, gravelly-loamy and sandy-silty-loamy ridges; rocky, gravelly-clayey, gravelly-silty-loamy ridgetops; clayey ridge slumps; openings in forests and woodlands; meadows; rocky and clayey-loamy foothills; rocky, rocky-gravelly and cindery (scoria) hills; sandy hilltops; rocky, shaley, stony and sandy hillsides; sandy bases of escarpments; along bedrock, bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, rocky-sandy-loamy, rocky-loamy, rocky-clayey-silty, shaley, shaley-silty, stony, stony-gravelly, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey-loamy, sandy-silty, loamy, clayey, clayey-loamy, clayey and silty-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders, rocks and cobbles; rockbeds; sandy lava flows; sand hills; sand bluffs; sand dunes; sandy-clayey banks; breaks; stony-gravelly benches; benchlands; shaley barrens; sandy, clayey-loamy and silty-clayey prairies; sandy and sandy-clayey plains; rocky, rocky-gravelly, sandy, sandy-clayey, sandy-silty and clayey flats; sandy, clayey, clayey-loamy and silty-clayey uplands; sandy valley floors; sandy roadcuts; along gravelly and sandy roadsides; along and in bedrock, rocky and gravelly arroyos; sandy bottoms of arroyos; along and in rocky, loamy, loamy-clayey and silty draws; bottoms of gullies; along ravines; bedrock bottoms of ravines; seeps; along springs; around streams; along streambeds; in silty-loamy soils along and in creeks; along rocky creekbeds; along rivers; riverbeds; along and in rocky, rocky-gravelly, gravelly and sandy washes; along and in rocky-clayey-silty, gravelly-sandy, sandy, gravelly-clayey, sandy, clayey and silty-loamy drainages; within drainage ways; ciénegas; marshes; silty-clayey depressions; in low swales with Desert Willow; along (gravelly-sandy, sandy, clayey and silty) banks of draws, creeks and rivers, gullies, streams, rivers and washes; along (rocky) edges of ravines, springs and washes; margins of rivers and pools; (clayey-loamy) shores of lakes; gravel bars; rocky-sandy benches; rock shelves; gravelly terraces; bottomlands; gravelly, sandy and clayey floodplains; mesquite bosques; along sandy fencelines; clayey catchments; stock tanks; rocky riparian areas, and disturbed areas growing in wet (rarely recorded); mucky-clayey (rarely recorded), and wet (rarely recorded), moist (rarely recorded) and dry rimrock; rocky desert pavement; bouldery, bouldery-rocky-sandy, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, stony-gravelly, cobbly, cindery (scoria), cindery-gravelly, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam, silty-clayey loam and loam ground; bouldery clay, gravelly clay, gravelly-sandy clay, sandy clay, loamy clay, silty clay and clay ground; rocky silty, rocky-clayey silty, shaley silty, sandy silty and silty ground, and chalky ground, occurring from 300 to 9,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland

ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber or fodder crop; it was also noted as having been used as a decoration. Sideoats Grama may be useful in controlling erosion. Stems may occur singly or in small clusters from creeping rhizomes (var. *curtipendula*), or form into large clumps from a common root crown (var. *caespitosa*). In areas where it occurs naturally, consider including Sideoats Grama seed in reseeding mixtures. This plant is a larval food plant for the Orange Skipperling (*Copaeodes aurantiacus*). *Bouteloua curtipendula* is native to central and southern North America; Central America, and South America. *5, 6, 15, **16**, 18, 30, 33 (Page 143, "One of the most important range grasses in the Southwest, highly palatable and a vigorous grower."), 43 (092909), 44 (041311), 46 (Page 129), 48, 58, 63 (092909 - color presentation), 77, 82, **85** (102211 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill), 105 ("This is one of our most important range grasses. ... It cures well and maintains a fairly high feeding value throughout the year. ... Sideoats is a normal component of most Arizona grassland ranges, and these ranges are not in excellent condition without an abundance of the grass. It lengthens the grazing season and increases forage production, in addition to providing variety in the feed."), 106 (061407), 124 (041311), 127, 140 (Pages 199-200 & 299)*

Bouteloua filiformis (see *Bouteloua repens*)

Boutloua polystachya (see footnote 89 under *Bouteloua barbata*)

***Bouteloua radicosa* (E.P. Fournier) D. Griffiths: Purple Grama**

COMMON NAME: Navajita Morada (Spanish); Purple Grama. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with erect culms 12 to 32 inches in height); the florets are purplish; based on few records located flowering generally takes place between mid-August and early October. HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; bases of cliffs; rocky canyons; rocky canyonsides; canyon bottoms; rocky points; crevices in boulders and rocks, buttes; rock ledges; rocky ridges; ridgetops; meadows; foothills; rocky hills; hilltops; along rocky hillsides; rocky, rocky-gravelly, stony and gravelly slopes; pebbly-clayey-loamy piedmonts; rocky outcrops; on boulders and rocks; amongst boulders; on rocks; rocky flats; along roadsides; along and in rocky draws; in cobbly streambeds; riverbeds; within sandy washes; (gravelly) edges of arroyos, draws and washes; margins of washes; sandy riparian areas, and disturbed areas growing in moist and dry rocky, rocky-gravelly, stony, cobbly, gravelly and sandy ground; rocky loam, gravelly loam, pebbly-clayey loam and loam ground, and rocky clay ground sometimes forming small localized colonies or almost pure stands over large areas, occurring from 600 to 9,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Bouteloua radicosa* is native to southwest-central and southern North America. *5, 6, 15, 30 (unable to access 120906), 33 (Pages 145-146), 43 (100910 - *Bouteloua radicosa* Griffiths), 44 (102211 - no record of species; genus record), 46 (Pages 128-129), 63 (100910), **85** (102211 - color presentation including habitat), **89** (reported as being a perennial herb located on Tumamoc Hill, possibly recorded as *Bouteloua bromoides* (H.B.K.) Lag.), 124 (102211 - no record of species; genus record), 140 (Page 299)*

***Bouteloua repens* (K.S. Kunth) F.L. Scribner & E.D. Merrill: Slender Grama**

SYNONYMY: *Bouteloua filiformis* (E.P. Fournier) D. Griffiths). COMMON NAMES: Navajta ("Little Knife" a name also applied to other species, Spanish: Mexico, Sonora); Navajta Rastrera (Spanish); Large Mesquite Grama; Slender Grama; Zacate Sabanilla (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 4 to 32 inches in height and up to 4 inches in width at the base); the leaves are bright green (purple and yellow forms were also reported) curing to gray or yellow; the spikelets (flowers) are reddish-purple; the anthers are orange, purple, red or yellow; flowering generally takes place between early August and early November (additional records: two for early January, three for late February and one for mid-June; flowering beginning as early as June and July and ending as late as December has also been reported). HABITAT: Within the range of this species it has been reported from rocky mountains; gravelly and gravelly-loamy mesas; cliff faces; bases of cliffs; rocky canyons; along gravelly-sandy canyon bottoms; talus slopes; crevices in rocks; pockets of soil in rocks; rocky buttes; rocky ledges; bedrock ridges; rocky ridgetops; openings in forests; rocky and gravelly-loamy foothills; rocky hills; hilltops; rocky and rocky-clayey hillsides; along rocky, rocky-gravelly, rocky-gravelly-sandy-loamy, rocky-clayey, rocky-sandy-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and clayey slopes; alluvial fans; bajadas; bedrock and rocky outcrops; amongst rocks; prairies; llanos; rocky, cobbly and sandy plains; sandy and clayey flats; bedrock valley floors; railroad right-of-ways; along rocky roadbeds; along gravelly and sandy roadsides; along rocky arroyos; bottoms of arroyos; rocky draws; bottoms of draws; gulches; ravines; along streams; along and in rocky streambeds; along and in rocky, gravelly, gravelly-loamy and sandy washes; along and in bedrock drainages; within drainage ways; ciénegas; rocky-clayey swales; (gravelly-loamy) banks of washes; edges of arroyos; (sandy) shorelines of oceans; benches; bottomlands; floodplains; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy loam, rocky-sandy loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, sandy loam and clayey loam ground, and rocky clay and clay ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Slender Grama holds up well under heavy grazing pressure. *Bouteloua repens* is native to southwest-central and southern North America; Central America and coastal islands in the Caribbean Sea, and northern South America. *5, 6, 15, **16**, 33 (recorded as *Bouteloua filiformis* (Fourn.) Griffiths, Page 145), 43 (093009), 44 (112210 - no record of species; genus record), 46 (recorded as *Bouteloua filiformis* (Fourn.) Griffiths, Page 129), 48, 58, 63 (093009 - color

presentation), 77, **85** (102211 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill, possibly recorded as *Bouteloua bromoides* (H.B.K.) Lag.), 105 (recorded as *Bouteloua filiformis* (Fourn.) Griffiths), 124 (102510 - no record of species; genus record), 140 (Page 299)*

Bouteloua repens var. *repens* (see footnote 85 under *Bouteloua repens*)

***Bouteloua rothrockii* G. Vasey: Rothrock's Grama**

SYNONYMY: *Bouteloua barbata* M. Lagasca y Segura var. *rothrockii* (G. Vasey) F.W. Gould. COMMON NAMES: Navajita Liebrero (Spanish); Rothrock Grama; Rothrock's Grama. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 8 to 30 inches in height); the foliage is green curing to straw; the flowers may be brownish-red, pale green, green, orange or reddish; the anthers are pink or white; flowering generally takes place between late July and late September (additional records: one for early March, one for mid-May, one for late May, one for late October and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky-gravelly mountainsides; gravelly and sandy mesas; along canyons; sandy canyon bottoms; rocky and rocky-gravelly and gravelly-loamy foothills; rocky and rocky-sandy hills; rocky, gravelly and gravelly-sandy-loamy hillsides; rocky, rocky-gravelly, gravelly, sandy, sandy-loamy, sandy-clayey and clayey slopes; rocky alluvial fans; gravelly and sandy bajadas; prairies; along rocky, cobbly and sandy plains; bouldery-sandy, gravelly, gravelly-loamy and sandy flats; basins; gravelly-loamy valley floors; valley bottoms; along gravelly and sandy roadsides; sandy draws; sandy bottoms of gulches; streambeds; sandy riverbeds; along washes; rocky drainages; within drainages; swales; edges of washes; along margins of ciénegas; benches; terraces; sandy floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground, and sandy clay and clay ground, occurring from 300 to 5,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This short-lived perennial may be an attractive component of a restored native habitat, it has been described as being hardy and drought-resistant. Rothrock Grama (perennial) may be confused with the annual Sixweeks Grama (*Bouteloua barbata*). the Masked Bobwhite (*Colinus virginianus* subsp. *ridgwayi*) feeds on the seeds of the Rothrock Grama. *Bouteloua rothrockii* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Bouteloua barbata* Lag. var. *rothrockii* (Vasey) Gould), 33 (Page 151), 43 (093009), 44 (112210 - no record of species; genus record), 46 (Page 128), 48, **56**, **57**, 58, 63 (093009 - color presentation), **77**, **85** (102211 - color presentation of dried material), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes), 105, 124 (102510 - no record of species; genus record), 140 (Page 200 & 299 - recorded as *Bouteloua barbata* Lagasca var. *rothrockii* (Vasey) Gould)*

***Bouteloua trifida* G. Thurber (var. *trifida* is the variety reported as occurring in Arizona): Red Grama**

COMMON NAMES: China; Navajita ("Little Knife" a name also applied to other species, Spanish); Navajita China (Spanish); Navajita Roja (Spanish); Red Grama (a name also applied to other species); Red Grama Grass; Red Gramagrass; Red Gramma; Red Gramma Grass; Three-awn Grama; Three-awned Grama; Threeawn Grama; Threeawn-grama; Trifid Grama. DESCRIPTION: Terrestrial perennial tufted graminoid (decumbent, slighty geniculate, ascending and/or erect culms 2 to 16 inches in height); the foliage may be purple; the spikelets (flowers) are reddish-purple; the anthers are yellow; flowering generally takes place between mid-March and late May (additional records: one for early August, two for mid-August, one for early September, one for late September and two for late October). HABITAT: Within the range of this species it has been reported from rocky mountains; mesas; rocky cliffs; rocky canyons; along canyon walls; gorges; talus slopes; crevices in rocks; pockets of soil in bedrock; bluffs; rocky ledges; bouldery ridges; ridgetops; foothills; bouldery, rocky, rocky-gravelly, stony-gravelly and loamy hills; bouldery and rocky hillsides; bouldery-rocky, rocky, gravelly, sandy and sandy-loamy slopes; bajadas; rocky outcrops; dunes; clayey prairies; plains; gravelly flats; basins; valley floors; roadbeds; along rocky, gravelly-sandy and clayey roadsides; sandy arroyos; gulches; springs; along streams; along and in bedrock, cobbly-gravelly-sandy and gravelly-sandy washes; within rocky drainages; within drainage ways; around pools; depressions; (rocky) banks of arroyos; floodplains; ditches, and riparian areas growing in dry bouldery, bouldery-rocky, rocky, rocky-cobbly-gravelly-sandy, rocky-gravelly, stony, stony-gravelly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam ground, and clay ground, occurring from 700 to 8,200 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it is reported to be drought-resistant; it may form patches or rings, and it is sometimes mistaken for an *Aristida* spp. because of the three-awned spikelets. *Bouteloua trifida* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (Page 151), 43 (100109), 44 (021911), 46 (Page 128), 63 (102311), 77, **85** (102311 - color presentation including habitat), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes), 124 (021911 - no record of species; genus record)*

Brachiaria arizonica (see *Urochloa arizonica*)

Brachiaria fasciculata (see *Urochloa fusca*)

***Bromus arizonicus* (C.L. Shear) G.L. Stebbins: Arizona Brome**

SYNONYMY: *Bromus carinatus* W.J. Hooker & G.W. Arnott var. *arizonicus* C.L. Shear. COMMON NAMES: Arizona Brome (a name also applied to other species); Arizona Brome Grass; Arizona Chess. DESCRIPTION: Terrestrial annual

tufted graminoid (erect culms 4 to 40 inches in height); the flowers are burgundy; flowering generally takes place between early February and early September (additional records: two for late October). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; rocky canyons; sandy canyon bottoms; talus slopes; bluffs; ledges; ridges; openings in woodlands; sandy meadows; foothills; hills; rocky hillsides; rocky, gravelly and sandy-loamy slopes; bouldery outcrops; amongst boulders and rocks; sand dunes; sandy plains; gravelly, sandy and clayey flats; sandy-clayey-loamy valley bottoms; coastal bluffs; coastal dunes; sandy coastal flats; along gravelly and sandy roadsides; within arroyos; bottoms of arroyos; gulches; around springs; around seeping streams; in sand along streams; streambeds; along creeks; creekbeds; along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty, gravelly-loamy and sandy washes; within drainages; marshy areas; along (rocky) banks of streams, rivers and washes; (rocky, gravelly-sandy and sandy) edges of washes; along shores of lakes; gravel and sand bars; sandy beaches; sandy benches; bottomlands; sandy floodplains; along ditches; ditch banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-rocky-sandy, rocky, rocky-sandy, shaley, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loamy ground; clay ground, and gravelly-sandy silty ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Bromus arizonicus* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (Page 44), 43 (100109), 44 (041311), 46 (Page 77), 58, 63 (102311), 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (102311 - color presentation), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain, recorded as *Bromus carinatus* H. & A. var. *arizonicus* Shear), 124 (041311 - no record of species; genus record), 140 (Page 299)*

***Bromus carinatus* W.J. Hooker & G.W. Arnott: California Brome**

COMMON NAMES: Arizona Brome (a name also applied to other species); Basiawari (Hispanic); Basicuáare (Hispanic); Bromo de California (Spanish); California Brome; California Brome Grass; California Brome-grass; California Bromegrass; California Keeled Brome; California Mountain Brome; Californian Brome; Camaloti (Hispanic); Grama (Hispanic); Great Western Brome; Keeled Brome; Large Flowered Brome; Large-flowered Brome; Masiyague (Hispanic); Mountain Brome; Mountain Bromegrass; Native California Brome; Pipillo (Hispanic); Pipilo (Hispanic); Sweet Brome; Tigrillo (Hispanic); Tupikua (Purépecha); Zacate (Hispanic); Zacate Bromo (Hispanic). DESCRIPTION: Terrestrial annual or perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 1 to 6 feet in height and up to 12 inches in width at the base); the foliage may be reddish or yellow-green; the flowers may be dull green, green, purplish or purplish-red; the anthers are cream-yellow or pale yellow; flowering generally takes place between late March and early October (additional records: one for late February, one for early March, two for late October and one for late December). HABITAT: Within the range of this species it has been reported from mountains; bedrock-shaley-clayey and rocky mountaintops; mountainsides; cobbly peaks; mesas; rocky bases of cliffs; rock walls; chutes; along bouldery and gravelly-loamy canyons; along rocky and gravelly canyon bottoms; chasms; bases of limestone fins; scree slopes; rocky talus; crevices in rocks; along bluffs; rocky buttes; knolls; bouldery and stony ridges; along rocky and rocky-sandy-loamy ridgetops; along ridgelines; clayey clearings in forests and woodlands; rocky, stony, sandy-loamy, clayey-loamy and loamy meadows; foothills; rocky, loamy and chalky hills; rocky, cobbly-sandy-loamy, gravelly and sandy hillsides; bouldery, rocky, rocky-gravelly, rocky-sandy-loamy, rocky-clayey, shaley-sandy, shaley-clayey-loamy, stony, stony-gravelly, gravelly, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, clayey and clayey-loamy slopes; rocky-sandy-loamy alluvial fans; sandy bajadas; bouldery and rocky outcrops; on boulders; amongst rocks; lava flows; sand dunes; breaks; benches; pebbly and sandy plains; rocky, gravelly, sandy, loamy, clayey-loamy and silty-loamy flats; uplands; basins; gravelly-silty valley floors; coastal dunes; sandy coastal flats; along coasts; cut banks; along railroad right-of-ways; along gravelly, sandy, sandy-loamy and loamy roadsides; along and in rocky arroyos; sandy-loamy bottoms of arroyos; along bouldery-rocky, gravelly and sandy draws; slopes and bottoms of draws; gulches; gullies; rocky bottoms of gullies; within sandy-loamy ravines; along humusy seeps; springs; along streams; along bouldery and stony streambeds; in springy rocky soil along creeks; along and in gravelly and sandy creekbeds; along rivers; riverbeds; along and in rocky-sandy, rocky-silty, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; within rocky and gravelly drainages; along and in drainage ways; among and in pools; along ponds; rocky-clayey lakebeds; boggy areas; ciénegas; marshes; swamps; gravelly depressions; swales; along (rocky-silty, gravelly, gravelly-sandy and sandy) banks of arroyos, draws, streams, creeks, rivers, washes, pools and lakes; edges of springs, streams, creeks, washes, drainages, lakes and ciénegas; margins of seeps, streams, rivers, washes and lakes; shores of lakes; mudflats; along stony-cobbly-sandy, gravel and sand bars; rocky-sandy and sandy beaches; sandy benches; rocky strands; gravelly and sandy terraces; loamy bottomlands; sandy floodplains; mesquite bosques; along fencelines; along canals; along gravelly ditches; along reservoirs; loamy beaver meadows; along reservoirs; bouldery and gravelly-loamy riparian areas; waste places, and disturbed areas growing in spongy mossy; mucky-sandy, and wet, moist, damp and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley-sandy, stony, stony-cobbly-sandy, stony-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, shaley-clayey loam, cobbly-

sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky clay, shaley clay, gravelly clay, sandy clay and clay ground; rocky silty, gravelly-silty, gravelly-sandy silty, sandy silty and silty ground; humusy ground; chalky ground, and rocky powdery and powdery ground, occurring from sea level to 11,400 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Bromus carinatus* is native to west-central and southern North America and Central America. *5, 6, 15, 30, 33 (Page 45), 43 (100209), 44 (032711), 46 (Page 77), **56**, **57**, 58, 63 (100209 - color presentation), 77 (recorded as *Bromus carinatus* H.&A. [incl. *B. arizonicus* (Shear) Stebbins]. Arizona Brome), 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (102511 - color presentation), 101 (color photograph), 124 (032711), 127, 140 (Pages 201 & 299)*

Bromus carinatus var. *arizonicus* (see *Bromus arizonicus*)

Bromus carinatus var. *carinatus* (see footnote 85 under *Bromus carinatus*)

***Bromus catharticus* M.H. Vahl: Rescuegrass**

SYNONYMY: *Bromus unioloides* K.S. Kunth; *Bromus willdenowii* K.S. Kunth. COMMON NAMES: Australian Oats; Brome Grass (New Mexico, a name also applied to other species and to the genus *Bromus*); Bromo Cebadiila (Spanish); Cebadiila (Spanish); Flat Spiked Brome Grass; Flat-spiked Brome Grass; Horn Grass; Johnson Grass (a name also applied to other species); Rescue Brome; Rescue Brome Grass; Rescue Bromegrass; Rescue Grass (a name also applied to other species); Rescue-grass; Rescuegras; Rescuegrass; Schrader's Brome (a name also applied to other species); Schrader's Brome Grass; Schrader's Bromegrass; Schrader's Bromus; Schrader's Grass; Schrader's-grass; Southern Chess; Wild Brome Grass. DESCRIPTION: Terrestrial annual or perennial tufted graminoid (ascending and/or erect culms 10 inches to 4 feet in height); the foliage is light green or green; the florets are green; flowering generally takes place between mid-March and mid-August (additional records: one for early January (in the Southern Hemisphere), two for mid-February, one for late February, one for early September, one for mid-September, two for early October, one for mid-October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rock walls; canyon rims; rocky canyons; gravelly and sandy canyon bottoms; talus slopes; meadows; foothills; rocky hills; bases of hills; sandy-loamy, sandy-clayey, loamy and silty slopes; bajadas; sand hills; sandy-loamy prairies; sandy flats; sandy-loamy basins; valley floors; clayey valley bottoms; coastal dunes; railroad right-of-ways; along sandy roadsides; draws; along bottoms of draws; seeps; springs; along streams; streambeds; along rivers; riverbeds; along and in cobbly washes; sandy drainages; drainage ways; in rocks around ponds; freshwater marshes; along (loamy) banks of rivers and lakes; edges of springs, streams; rivers and marshes; along margins of springs, rivers, washes and ciénegas; shores of rivers and lakes; sandy beaches; sandy benches; bottomlands; sandy floodplains; mesquite bosques; along fencerows; margins of stock tanks; canals; along canal banks; ditches; along ditch banks; riparian areas; waste places, and disturbed areas growing in wet, moist and dry rocky, rocky-sandy, cobbly, gravelly and sandy ground; gravelly loam, sandy loam and loam ground; sandy clay and clay ground; silty ground, and chalky ground, occurring from sea level to 12,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as fodder. *Bromus catharticus* is native to South America. *5, 6, 15, **16** (recorded as *Bromus willdenowii* Kunth), 33 (Page 44), 43 (100309), 44 (032711), 46 (Page 77), **56**, **57**, 58, 63 (100309 - color presentation), 68, **77**, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information. Rescuegrass, *Bromus willdenowii* (confused with *Bromus catharticus*) is also listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This introduced annual grass has been reported to develop toxic concentrations of nitrate."), **85** (102511 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb, recorded as *Bromus unioloides* H.B.K.), 101 (color photograph), 124 (032711), 127, 140 (Page 299)*

Bromus catharticus var. *catharticus* (see footnote 85 under *Bromus catharticus*)

***Bromus diandrus* A.W. Roth subsp. *rigidus* (A.W. Roth) J.M. Lainz Ribalaygua: Ripgut Brome**

SYNONYMY: *Bromus diandrus* A.W. Roth var. *rigidus* (A.W. Roth) F. Sales; *Bromus rigidus* A.W. Roth. COMMON NAMES: Rigid Brome; Ripgut Brome (a name also applied to the species); Ripgut Grass (a name also applied to the species). DESCRIPTION: Terrestrial annual or perennial graminoid (decumbent and/or erect culms 8 inches to 3 feet in height); flowering for the species generally takes place between late February and early July. HABITAT: Within the range of this species it has been reported from mountains; bouldery-rocky and rocky canyons; canyon bottoms; rocky talus; meadows; hillsides; bouldery, gravelly-sandy-loamy slopes; bouldery-gravelly-sandy alluvial fans; rocky outcrops; amongst boulders; bases of boulders; sand dunes; valley floors; along railroad right-of-ways; along roadsides; arroyos; along streams; along creeks; along rivers; sandy washes; along sloughs; along (sandy) banks of creeks and rivers; edges of lakes; along margins of creeks; sandy beaches; sandy benches; terraces; loamy bottomlands; bouldery-gravelly-sandy, sandy, sandy-silty and loamy floodplains; mesquite bosques; dams; along ditches; riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, bouldery-gravelly-sandy, rocky and sandy ground; gravelly-sandy loam and loam ground, and sandy silty ground, occurring from 1,100 to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. *Bromus diandrus* is native to middle and southern Europe; western Asia, and northern Africa. *5, 6, 33 (species, recorded as *Bromus rigidus* Roth, Page 50), 43 (100309 - *Bromus diandrus* Roth subsp. *rigidus* (Roth) O. Bolòs, Masalles & Vigo), 44 (102611 - no record of subspecies; genus and species (one record under species) records), 46 (species, recorded as *Bromus rigidus* Roth, Page 78), 63 (100309 - color presentation), 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), 85 (102611 - color presentation of dried material), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb, recorded as *Bromus maximus* Desf. var. *gussoni* Parl.), 101 (color photograph, *Bromus rigidus* Roth), 124 (102611 - no record of subspecies or species; genus record), 133 (recorded as *Bromus diandrus* Roth var. *rigidus* (Roth) Sales)*

Bromus diandrus var. *rigidus* (see *Bromus diandrus* subsp.*rigidus*)

Bromus madritensis subsp. *rubens* (see *Bromus rubens*)

Bromus maximus var. *gussoni* (see footnote 89 under *Bromus diandrus* var. *rigidus*)

Bromus rigidus (see *Bromus diandrus* subsp.*rigidus*)

***Bromus rubens* C. Linnaeus: Red Brome**

SYNONYMY: *Bromus madritensis* C. Linnaeus subsp. *rubens* (C. Linnaeus) Duvin; *Bromus matritensis* C. Linnaeus subsp. *rubens* (C. Linnaeus) Duvin ort. var.). COMMON NAMES: Bromo (a name also applied to the genus *Bromus*); Bromo Rojo (Spanish); Foxtail Brome; Foxtail Chess; Red Brome; Red Brome Foxtail Chess; Red Brome Grass; Red Brome-grass; Red Bromegrass; Red Foxtail Brome; Red Foxtail Chess; Red Foxtail Cheat-grass; Tufted Brome. DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 3 inches to 2 feet in height); the foliage is light green curing to a light straw yellow; the spikelets (flowers) may be purple, red-brown, reddish or reddish-purple; the awns are reddish; flowering generally takes place between late January and early June (additional records: one for late June, one for early July and one for late August); the seedheads are red, reddish-brown or purplish. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy-silty mesas; cliffs; rocky-pebbly cliffsides; hanging gardens; bases of cliffs; rocky and stony canyons; rocky and clayey canyon bottoms; talus; pockets of sandy soil in bedrock, boulders and rocks; bluffs; buttes; rocky and rocky-stony ledges; rocky promontories; along rocky and silty-loamy ridges; ridgetops; sandy meadows; sandy edges of meadows; cinder cones; rocky foothills; bouldery, rocky, gravelly-sandy, sandy, loamy and silty-loamy hills; sandy-clayey and clayey hilltops; rocky and clayey hillsides; bedrock, bouldery, bouldery-rocky, rocky, rocky-sandy, rocky-clayey, rocky-clayey-loamy, rocky-loamy, cobbly-sandy-loamy, cindery, gravelly, gravelly-sandy, gravelly-clayey, sandy, loamy and silty-loamy slopes; rocky alluvial fans; rocky, gravelly and sandy bajadas; rocky outcrops; sandy bases of rock outcrops; amongst boulders and rocks; sand dunes; plains; rocky, rocky-sandy-clayey, cindery, gravelly, loamy, clayey and silty-loamy flats; cindery valley floors; valley bottoms; coastal bluffs; coastal flats; along railroad right-of-ways; along gravelly roadbeds; along rocky-clayey-silty, gravelly, gravelly-sandy and sandy-loamy roadsides; within rocky arroyos; draws; along rocky gullies; rocky and gravelly ravines; seeps; springs; around seeping streams; bouldery and rocky-sandy streambeds; along and in creeks; rocky creekbeds; along rivers; riverbeds; along and in rocky, stony-gravelly, gravelly, gravelly-sandy and sandy washes; within rocky and sandy drainages; rocky and sandy drainage ways; pondbeds; gravelly-clayey soils around lakes; sandy, sandy-silty and silty lakebeds; saltwater marshlands; depressions; swales; (gravelly-sandy, sandy and loamy) banks of streams, rivers and washes; along (sandy) edges of washes, lakes and freshwater and saltwater marshes; margins of washes; sandy beaches; sandy benches; rocky-silty, gravelly and sandy terraces; sandy, sandy-loamy and loamy bottomlands; rocky, sandy and loamy floodplains; mesquite bosques; stock tanks; around reservoirs; canal banks; bouldery, gravelly, gravelly-sandy and sandy

riparian areas; sandy waste places; recently burned areas of scrub, and disturbed areas growing in wet, moist, damp and dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-pebbly, rocky-sandy, shaley, stony, stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly-sandy loam, sandy loam, clayey loam, silty loam and loam ground; rocky-sandy clay, rocky clay, gravelly clay, sandy clay and clay ground, and rocky silty, rocky-clayey silty, gravelly silty, sandy silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. *Bromus rubens* is native to southern Europe; middle and western Asia, and northern Africa. *5, 6, 15, **16**, 22 (color photograph), 33 (Page 50), 43 (100309 - no record for *Bromus madritensis* subsp. *rubens*), 44 (032711 - species records located under *Bromus madritensis* L. subsp. *rubens* (L.) Husn; genus record), 46 (Page 78), **56**, **57**, 58, 63 (100409 - color presentation), 68, 77, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (102611 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 105, 124 (032711 - no record of species; genus record), 140 (Pages 201, 202, 214 & 299)*

***Bromus tectorum* C. Linnaeus: Cheatgrass**

SYNONYMY: *Bromus tectorum* C. Linnaeus var. *glabratus* F.C. Spenner; *Bromus tectorum* C. Linnaeus var. *tectorum*. COMMON NAMES: Awned Brome Grass (Iowa); Brome des Toits (French); Brome Grass (a name also applied to the genus *Bromus*); Brom Tec; Brom Tect; Bromo (a name also applied o the genus *Bromus*); Bromo Velloso (Spanish); Bromo-felpudo (Portuguese: Brazil); Bromo-pendente (Portuguese: Brazil); Bronco Grass (a name also applied to other species); Broncograss (a name also applied to other species); Capim-cevadinha (Portuguese: Brazil); Cheat Brome; Cheat Grass (a name also applied to other species); Cheatgrass (a name also applied to other species); Cheatgrass Brome; Cheatgrass Brome; Common Cheat; Common Cheatgrass; Dachtrespe (German); Downy Brome (a name also applied to other species); Downy Brome Grass; Downy Brome-grass; Downy Bromegrass; Downy Cheat; Downy Cheat Grass; Downy Cheat-grass; Downy Cheatgrass; Downy Chess; Downy Chess Brome; Downy Chess Brome Grass; Downy Chess Bromegrass; Drooping Brome; Drooping Brome-grass; Drooping Bromegrass; Early Chess; Espiguilla Colgante (Spanish); Festuca avenacea sterilis humilior (Bauhin 1622); European Cheat Grass; European Cheat-grass; European Cheatgrass; Gramen Avencaeum Locustis Villosis Angustis Canticantibus et Aristis (Tournefort 1694); Fire Prone Cheatgrass; Fire-prone Cheat Grass; Fire-prone Cheatgrass; Introduced Cheat; Introduced Cheat Grass; Introduced Cheatgrass; Invasive Cheat Grass; Invasive Cheat-grass; Invasive Cheatgrass; June Grass (a name also applied to other species); Military Grass (Montana); Mormon Oats; Nonnative Cheatgrass; Slender Chess (Indiana); Soft Chess (a name also applied to other species); Taklosta (Swedish); Thatch Bromegrass; Weedy Cheat Grass; Weedy Cheat-grass; Weedy Cheatgrass; Wild Oats (a name also applied to other species and the genus *Bromus*); 100-Days Grass. DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 1 inch to 3 feet in height); the foliage is light green aging to purple or purple-green at maturity and curing to a straw-yellow; spikelets (flowers) may be purplish-tinged; flowering generally takes place between mid-March and late August (additional records: one for late January, two for mid-September, two for late September and two for mid-October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; gravelly-loamy mountainsides; rocky-sandy, shaley-clayey, gravelly-sandy, gravelly-loamy, sandy and sandy-loamy mesas; sandy plateaus; rocky, shaley and clayey-loamy cliffs; cracks in cliffs; hanging gardens; bases of cliffs; rocky canyon rims; along shaley-clayey, gravelly and sandy canyons; along pebbly-sandy canyon walls; sandy and clayey canyon bottoms; rock slides; talus slopes; crevices in rocks; rocky, stony-cobbly, gravelly and chalky bluffs; rocky, rocky-gravelly-clayey, cindery (scoria), gravelly-sandy, sandy-clayey, sandy-silty-clayey and clayey buttes; knobs; rocky-sandy-loamy, stony and sandy knolls; rocky, rocky-gravelly-silty and sandy ledges; rocky, rocky-shaley, rocky-sandy, shaley, stony, cindery (scoria), gravelly, gravelly-sandy, sandy and sandy-clayey ridges; rocky, sandy and clayey ridgetops; bases of ridges; rocky clearings in forests and woodlands; along rocky, gravelly-loamy, sandy and clayey meadows; rocky foothills; bouldery, bouldery-gravelly, rocky, stony, stony-cobbly-clayey, shaley, gravelly, sandy, loamy, clayey and chalky hills; cindery (scoria) and clayey hilltops; rocky, rocky-sandy-loamy, sandy and clayey hillsides; pediments; bedrock, bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, rocky-sandy-clayey, rocky-loamy, rocky-clayey, rocky-powdery, shaley, shaley-gravelly, shaley-sandy, shaley-clayey, stony, stony-cobbly, stony-cobbly-gravelly, stony-gravelly, stony-sandy, stony-sandy-clayey, cobbly-sandy-loamy, cobbly-loamy, cindery, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey-loamy, gravelly-silty-loamy, pebbly, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, sandy-silty, loamy, clayey, clayey-silty and silty-clayey slopes; gravelly-sandy bases of slopes; alluvial fans; rocky and shaley outcrops; sandy bases of outcrops; amongst boulders and rocks; bases of clinkers; sand hills; sand dunes; sand bluffs; sand flats; blow-sand deposits; boulder and gravel piles; powdery mounds; rocky and clayey breaks; shaley, rocky, gravelly and gravelly-sandy-silty benches; stony-cobbly-gravelly benchlands; terraces; clay pans; steppes; sandy-loam, silty and silty-loamy prairies; gravelly, sandy, clayey and clayey-silty plains; rocky, rocky-clayey, shaley, gravelly, sandy, sandy-loamy, sandy-clayey, loamy, clayey and silty-clayey flats; rocky, rocky-clayey, sandy, clayey and silty-loamy uplands; sandy and clayey basins; sandy and sandy-clayey valley floors; sandy valley bottoms; along sandy railroad right-of-ways and cutbanks; roadbeds; gravelly and sandy

roadcuts; along rocky, rocky-gravelly-loamy, rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-loamy, sandy-silty, clayey and silty roadsides; along and in arroyos; bottoms of arroyos; within rocky, rocky-sandy, stony-cobbly, gravelly, sandy and sandy-clayey draws; shaley slopes and bottoms of draws; along sandy gulches; bottoms of gulches; within sandy gullies; bottoms of gullies; within rocky and sandy ravines; sandy bottoms of ravines; seeps; springs; gravelly and sandy soils along streams; along shaley, gravelly and sandy streambeds; sandy soils along creeks; along and in shaley, sandy and clayey creekbeds; sandy soils along rivers; gravelly-sandy-loamy riverbeds; along and in rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy washes; along and in rocky, rocky-gravelly, cindery, gravelly-sandy, sandy and clayey drainages; within drainage ways; playas; boggy areas; marshes; depressions; clayey swales; (bouldery, rocky, shaley, gravelly-sandy, sandy and silty) banks of draws, gullies, springs, streams, creeks, rivers, washes, drainages and lakes; (rocky and sandy) edges of arroyos, draws, gullies, washes, rivers and lakes; margins of streams, streambeds, creeks and rivers; along (sandy) shores of lakes; draw-down mud; mudflats; rocky-sand, gravel, gravelly-sand, sand and silty-sand bars; cobbly and sandy beaches; sandy benches; sandy terraces; sandy and clayey bottomlands; rocky-sandy-clayey, gravelly, sandy, clayey and silty-loamy floodplains; lowlands; silty mesquite bosques; along fencelines; rocky dams; stock tanks; muddy shores of beaver ponds; along rocky, gravelly-sandy and sandy banks, edges, margins and shorelines of reservoirs; canal banks; along and in gravelly-clayey-loamy and sandy ditches; along gravelly and sandy ditch banks; rocky, gravelly-sandy and sandy riparian areas; waste places; recently burned areas in forests, and disturbed areas growing in mucky and muddy; rimrock pavement; cryptogamic, and wet, moist and dry bouldery, bouldery-gravelly, rocky, rocky-shaley, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, shaley-gravelly, shaley-sandy, stony, stony-cobbly, stony-cobbly-gravelly, stony-gravelly, stony-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-loam, rocky-gravelly loam, rocky-sandy-loam, cobbly-sandy loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, pebbly-sandy, clayey loam, silty loam and loam ground; rocky clay, rocky-gravelly clay, rocky-sandy clay, shaley clay, stony-cobbly clay, stony-sandy clay, gravelly clay, sandy clay, sandy-silty clay, silty clay and clay ground; rocky-gravelly silty, gravelly silty, gravelly-sandy silty, sandy silty, clayey-silty and silty ground; chalky ground and powdery ground, occurring from sea level to over 13,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, fodder, fiber and as a ceremonial medicine. Cheatgrass often forms pure stands with some monocultures reportedly covering thousands of acres; density may range between 1 and 1,400 plants per square foot. *Bromus tectorum* is native to Europe; southwestern Asia, and northern Africa and islands in the North Atlantic Ocean. *5, 6, 15, 33 (Page 52), 43 (100409), 44 (102711), 46 (Page 78), 63 (100409 - color presentation), 68, **77**, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (110111 - color presentation), 101 (color photograph), 105, 106 (100409 - color presentation), 124 (102711), 127*

Bromus tectorum var. *glabratus* (see *Bromus tectorum*)

Bromus tectorum var. *tectorum* (see footnote 85 under *Bromus tectorum*)

Bromus unioloides (see *Bromus catharticus*)

Bromus willdenowii (see *Bromus catharticus*)

Cenchrus ciliaris (see *Pennisetum ciliare*)

Chaetochloa leucopila (see *Setaria leucopila*)

Chloris crinita (see *Trichloris crinita*)

Chloris elegans (see *Chloris virgata*)

***Chloris virgata* O. Swartz: Feather Fingergrass**

SYNONYMY: *Chloris elegans* K.S. Kunth. COMMON NAMES: Barbas de Indio (Hispanic); Cola de Zorra (Spanish); Plumerito (Hispanic); Feather Finger; Feather Finger Grass; Feather Finger-grass; Feather Fingergrass; Feather Windmill Grass; Feather Windmill-grass; Feather Windmillgrass; Feathered Chloris; Feathery Rhodes Grass; Feather-finger (Texas); Feather-top Chloris; Feather-top Rhodes Grass; Featherfinger (Texas); Feathertop Chloris; Feathertop Rhodes Grass; Feathertop Rhodesgrass; Finger Grass (a name also applied to other species and the genus *Chloris*); Five-finger Windmillgrass; Klossiegras (Afrikaans); Oldland Grass; Showy Chloris; Showy Windmillgrass; Silky Chloris; Silky Fingergrass; Sweet Grass (a

name also applied to other species); Verdillo (Hispanic); Verdillo Plumerito (Spanish); Zacate de Cinco Dedos; Zacate de Cola de Zorra (Hispanic); Woolly-top Rhodes Grass; Zacate Lagunero (Spanish); Zacate Mota (Spanish); Zacate Pluma (Spanish). DESCRIPTION: Terrestrial annual tufted (usually) graminoid (a bunchgrass with decumbent, geniculate, ascending and/or erect culms ½ to 40 inches in height); the foliage is light green curing to light straw; the flowers are greenish; flowering generally takes place between mid-July and late October (additional flowering records: one for late January, one for early May, three for mid-May, one for mid-November, two for late November; flowering beginning as early as April has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky and clayey-loamy mesas; bases of cliffs; rocky canyons; gravelly canyon bottoms; ridges; meadows; rocky foothills; amongst hills; rocky hillsides; rocky, rocky-clayey-loamy, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy, loamy and clayey-loamy slopes; gravelly bajadas; amongst boulders, rocks and pebbles; sand dunes; sandy prairies; plains; gravelly, sandy-loamy, loamy and clayey-loamy flats; clayey valley floors; valley bottoms; along rocky-gravelly-clayey, gravelly, gravelly-sandy, gravelly-loamy and sandy roadsides; arroyos; sandy bottoms of arroyos; draws; bottoms of draws; seeps; along streams; rocky streambeds; along creeks; creekbeds; along and in rocky, gravelly, sandy and clayey washes; within drainages; within drainage ways; around ponds; ciénegas; freshwater marshes; silty depressions; swales; along banks of rivers; (sandy and sandy-clayey) edges of washes; margins of washes; (rocky-sandy) shores of lakes; clayey mudflats; gravel bars; sandy beaches; sandy benches; rocky shoals; terraces; loamy bottomlands; floodplains; mesquite bosques; along fencelines; clayey-loamy stock tanks (represos); around reservoirs; along ditches; ditch banks; bouldery-cobbly-sandy and sandy riparian areas; gravelly waste places, and disturbed areas growing in moist, damp and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, clayey-humusy loam and loam ground; rocky clay, rocky-gravelly clay, sandy clay and clay ground, and silty ground, occurring from sea level to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Chloris virgata* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea; northern, western and southern South America; southern Asia, and Africa and islands in the West Indian Ocean. *5, 6, 15, **16**, 30, 33 (Page 130), 43 (100509), 44 (110211), 46 (Page 126), **57**, 58, 63 (110211 - color presentation), 68, 77, **85** (110211 - color presentation including habitat), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain, recorded as *Chloris elegans* H.B.K.), 105, 124 (110211)*

Cortaderia selloana (J.A. Schultes & J.H. Schultes) P.F. Ascherson & K.O. Graebner: Uruguayan Pampas Grass

COMMON NAMES: Cana-dos-pampas (Portuguese: Brazil); Capim-dos-pampas (Portuguese: Brazil); Capim-penacho (Portuguese: Brazil); Common Pampas Grass; Common Pampas-grass; Common Pampasgrass; Cortadeira (Portuguese: Brazil); Little Pampas Grass; Paina (Portuguese: Brazil); Pampas Grass (a name also applied to the genus *Cortaderia*); Pampasgras (Afrikaans); Penacho (Portuguese: Brazil); Pluma (Portuguese: Brazil); Selloana Pampas Grass; Selloana Pampas-grass; Silver Pampas Grass; Silver Pampasgrass; Silwergras (Afrikaans); True Pampas Grass; True Pampas-grass; True Pampasgrass; Uruguay Pampas Grass; Uruguayan Pampas Grass; Uruguayan Pampas Grass; Uruguayan Pampas-grass; Uruguayan Pampasgrass; White Pampas Grass; White Pampas-grass; White Pampasgrass. DESCRIPTION: Terrestrial perennial (evergreen) tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 40 inches to 20 feet in height and to about the same in width; one clump was observed and described as being 8 feet in height and 7 feet in width, clumps were observed and described as being 10 feet in height and 10 feet in width, two plants were observed and described as being 12 feet in height and 10 feet in width); the foliage is bluish-green, green or silvery-gray curing to straw; the flowers are lavender, pink or white; based on few records located, flowering generally takes place between late July and mid-October (flowering records: one for mid-March, one for late July, two for early September, three for mid-September, one for early October, three for mid-October, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from canyons; loamy canyonsides; canyon bottoms; hillsides; cobbly-sandy slopes; bouldery outcrops; amongst boulders; sandy flats; coastal dunes; coastal saltmarshes; along roadsides; bottoms of arroyos; gullies; springs; in sandy soils along streams; creeks; rivers; saltwater marshes; along banks of streams; edges of marshes; bouldery floodplains; ditches; riparian areas, and disturbed areas growing in moist and dry bouldery, cobbly-sandy, gravelly and sandy ground and loam ground, occurring from sea level to 6,000 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. *Cortaderia selloana* is native to central and southern South America. *5, 6, **16**, 22 (color photograph and note under Giant Reed), 26 (color photograph), 33 (no record of species), 43 (100509), 44 (110211), 63 (110211 - color presentation), **77**, **85** (110211 - color presentation), 106 (050908), 124 (110211 - no record of species or genus)*

Cottea pappophoroides K.S. Kunth: Cotta Grass

COMMON NAME: Cotta Grass. DESCRIPTION: Terrestrial annual or perennial tufted graminoid (ascending and/or erect culms 10 to 40 inches in height); the inflorescence is purple; flowering generally takes place between early September and late October (flowering records: one for early February, seven for early September, two for late September and three for late October; flowering beginning as early as August and ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from along mountains; cliffs; bases of cliffs; rocky canyons; rocky talus; rocky buttes; ledges; ridges; foothills; hills; hilltops; rocky hillsides; rocky and sandy slopes; sandy bajadas; amongst rocks; sandy and sandy-loamy plains; gravelly flats; valley floors; along rocky-sandy roadsides; along and in draws; streambeds; along rocky and sandy washes; within drainages; along (sandy and loamy) banks of arroyos and washes; benches; rocky shelves; terraces; bottomlands; floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-sandy, gravelly

and sandy ground and sandy loam and loam ground, occurring from 900 to 4,800 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Cottea pappophoroides* is native to southwest-central and southern North America and western and southern South America. *5, 6, 15, **16**, 33 (Page 100), 43 (100509), 44 (110211 - no record of genus or species), 46 (Page 91), 58, 63 (110211 - color presentation of seed), 77, **85** (022711 - color presentation of dried material and seed), **89** (reported as being a perennial herb located on Tumamoc Hill), 124 (110211 - no record of genus or species), 140 (Page 299)*

***Cynodon dactylon* (C. Linnaeus) C.H. Persoon: Bermudagrass**

COMMON NAMES: 'A'ai Hihimdam Vaṣai (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; 'A'ai Himdam Vashai [A'ai Hihimdam Waṣai] ("Grass that Spreads in All Directions", Uto-Aztecan: Akimel O'odham and Tohono O'odham)[140]; Acabacahuiztle (Hispanic); Acacahuitzli (Náhuatl); Acaxacahuitztli <acabacahuitztli> (Uto-Aztecan: Náhuatl)[140]; Bahama Grass (var. *dactylon*); Bahama-grass; Bermud Grass; Bermudgrass; Bermuda Couch Grass; Bermuda Devil Grass; Bermuda Grass (a name applied to var. *dactylon* and to the genus *Cynodon*); Bermuda Grass (English)[140]; Bermudagras (German, a name applied to var. *dactylon*); Bermudagrass (a name also applied to the genus *Cynodon*); Bramilla (Hispanic); Cane Grass; Canzuuc (Maya); Capim-bermuda (Portuguese, applied to var. *dactylon*); Chiendent Pied-de-poule (French); Coarse Kweek; Common Bermuda Grass; Common Bermuda-grass; Common Bermudagrass; Creeping Bermuda Grass; Creeping Cynodon; Creeping-cynodon; Cynodon Dactyle (French, applied to var. *dactylon*); Devil Grass; Devil's Grass (var. *dactylon*); Devilgrass; Dhub (India, applied to var. *dactylon*); Diente de Perro ("Dog's Tooth", Spanish)[140]; Doab Grass; Doab-grass; Dog-tooth Grass (a name also applied to the genus *Cynodon*); Dog'-tooth; Dog's Grass; Dog's Tooth; Dog's Tooth Grass; Dog's-tooth Grass; Doob (India, applied to var. *dactylon*); Doob Grass; Doob-grass; Doorba; Dub (northern India); Dub Grass; Dub-grass; Durba (Bengal); European Bermuda Grass; Gallito ("Little Rooster", Spanish: Mexico)[140]; Gallitos (Hispanic); Gewonekweek (Afrikaans); Giant Bermuda Grass (var. *aridus*); Giant Bermudagrass; Grama ("Grass", Spanish: Spain)[140]; Grama de la Costa (Spanish); Grama-seda; Gramilla (Hispanic); Grana (Hispanic); Grama Rastrera (Spanish, applied to var. *dactylon*); Grand Chiendent (French, applied to var. *dactylon*); Green Couch; Green Couch Grass; Guix-biguiñi (Zapotec); Hariali (Deccan); Hariali Grass (var. *dactylon*); Hundezahngras (German, applied to var. *dactylon*); Indian Couch Grass; Indian Couch-grass; Indian Doab; Indian Doob; Kan-suuk (Mayan: Maya)[140]; Ki: Weco Vaṣai (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Kii Wecho Vashai [Ki: Weco Waṣai] ("Grass Around Houses" used when first seen, Uto-Aztecan: Akimel O'odham and Tohono O'odham)[140]; Komal Himdam ("Spreads Out Flat Grass", Uto-Aztecan: Akimel O'odham)[140]; Kweekgras (Afrikaans, applied to var. *dactylon*); Lan-suuk (Maya); Manienie; Motie Molulu; Owiv ("Grass", Uto-Aztecan: Ute)[140]; Pasto Bermuda (Hispanic); Pasto Estrella (Hispanic); Pata de Gallo ("Rooster's Foot", Spanish: Sonora)[140]; Pata de Perdiz (Hispanic); Pata de Pollo (Hispanic); Quick Grass (var. *dactylon*); Scotch Grass; Scutch Grass; Tł'oh ("Grass" a word applied to any grass, Athapascan: Western Apache)[140]; Tsakam Toom (Hispanic); Vaiṣoi [Vásoi] ("Grass" a word applied to any grass, Uto-Aztecan: Northern Tepehuan)[140]; Wahá꞉ ("Grass" a word applied to any grass, Uto-Aztecan: Northern Paiute)[140]; White Quick Grass; Wire Grass (a name also applied to other species and to the genus *Aristida*); Wire-grass; Xusí (Yuman: Cocopa)[140]; Zacate (Hispanic); Zacate Bermuda (Spanish: Sonora)[140]; Zacate Borrego (Hispanic); Zacate Chino (Hispanic); Zacate Conejo ("Rabbit Grass", Spanish: Chihuahua)[140]; Zacate de Bermuda (Spanish, applied to var. *dactylon*); Zacata de Lana ("Wool Grass", Spanish: Mayo, Sonora)[140]; Zacate del Conejo (Hispanic); Zacate Inglés ("English Grass", Spanish: Sonora)[140]; Zacate Pilillo (Hispanic); Zaruue (Hispanic); Zarzuue (Mayan: Maya, Yucatán)[140]. DESCRIPTION: Terrestrial perennial graminoid (a sodgrass with usually stoloniferous, creeping decumbent and geniculate culms 2 to 24 inches in height); the foliage is green or yellow-green curing to straw after a frost; the color of the florets has been described as being purple; flowering generally takes place between mid-February and late November (additional records: one for early January and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky canyons; bouldery-gravelly-sandy, rocky and sandy canyon bottoms; pockets of sandy soil in boulders; buttes; meadows; foothills; rocky hills; bouldery and rocky hillsides; rocky, gravelly, sandy and clayey slopes; rocky outcrops; sand hummocks; prairies; plains; gravelly, sandy and clayey flats; valley floors; clayey valley bottoms; along railroad right-of-ways; along gravelly, gravelly-clayey-loamy and sandy roadsides; along sandy arroyos; gravelly and sandy bottoms of arroyos; seeps; springs; about streams; seeping streams; along streambeds; along creeks; along sandy creekbeds; along rivers; riverbeds; along and in rocky and sandy washes; within drainages; within rocky drainage ways; tinajas; waterholes; in clayey soils around ponds; ciénegas; freshwater marshes; clayey marshlands; sandy depressions; along (sandy) banks of draws, streams, creeks, rivers and washes; (sandy) edges of rivers, ponds, lagoons, bogs and marshes; shores of lakes; gravel bars; sandy beaches; sandy benches; loamy bottomlands; floodplains; mesquite bosques; in and around clayey-loamy stock tanks; sandy-loamy edges of reservoirs; edges of canals; along canal banks; along ditch banks; bouldery and sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery, bouldery-cobbly-sandy, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; clay ground, and bouldery-gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 6,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a veterinary aid. Bermuda Grass is sometimes confused with another exotic species, Large Crabgrass (*Digitaria sanguinalis*) a species of similar general appearance. Bermuda Grass goes dormant when nighttime temperatures drop below freezing or average daytime temperatures are below 50 degrees Fahrenheit. Vigorous growth is achieved when nighttime temperatures are above 60 degrees Fahrenheit and daytime temperatures are above 85 degrees Fahrenheit. *Cynodon dactylon* is native to Africa. *5, 6, 15, **16**, 18, 22 (color photograph), 30, 33 (Page 129), 43 (100509), 44 (032711), 46 (Page 124), **56**, **57**, 58, 63 (053109 - color presentation),

68, 77, 80 (Bermudagrass is listed as a Poisonous Cropland and Garden Plant. "Cattle grazing on Bermudagrass pasture may develop photosensitization, paralysis or a nervous syndrome."), **85** (110311 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a perennial herb), 101 (color photograph), 105, 109, 124 (032711), 127, 140 (Pages 202-203 & 299), **WTK** (October 28, 2009)*

***Dactyloctenium aegyptium* (C. Linnaeus) C.L. von Wildenow: Egyptian Grass**

COMMON NAMES: Beach Wiregrass; Coast Button Grass (a name also applied to other species); Comb Fringe Grass; Crowfoot Grass (a name also applied to other species); Crowfootgrass (a name also applied to other species); Duck Grass (a name also applied to other species); Durban Crowfoot; Durban Crowfoot Grass; Durban Crow's Foot Grass; Durban Crow's-foot Grass; Durban Crowfootgrass; Durban's Crow-foot Grass; Egyptian Crabgrass; Egyptian Crowfoot Grass; Egyptian Crowfootgrass; Egyptian Finger Grass; Egyptian Finger-grass; Egyptian Fingergrass; Egyptian Grass; Estrela (Portuguese: Brazil); Finger Comb Grass; Grama-de-dedo-egipcia (Portuguese: Brazil); Grama Egipcia (Portuguese: Brazil); Makri (India); Mão-de-sapo (Portuguese: Brazil); Na'eem el-Saleeb (Arabic); Pata de Cuervo (Spanish); Rigl'al'harbaya (Arabic); Três-dedos (Portuguese: Brazil). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate and/or ascending culms 2 to 40 inches in height); the foliage is green; the florets are maroon; the anthers are pale yellow; based on few records located, flowering generally takes place between late July and late November (flowering records: one for mid-March, one for late July, one for early August, four for mid-August, one for late August, two for early September, three for mid-September, one for early October, four for mid-October, one for late October, one for early November, two for mid-November, one for late November and three for late December). HABITAT: Within the range of this species it has been reported from canyon bottoms; rocky bluffs; hills; hillsides; rocky slopes; along dunes; sandy-loamy plains; flats; basins; valley floors; along coastal dunes; coastal plains; coastal beaches; along coastlines; along gravelly roadsides; along gravelly bottoms of arroyos; along streams; in gravelly soils along rivers; sandy riverbeds; along and in sandy washes; along banks of rivers; sandy beaches; floodplains; riparian areas, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground and sandy loam ground, occurring from sea level to 4,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. *Dactyloctenium aegyptium* is native to southern Asia and islands in the North Pacific Ocean, and Africa and islands in the North Atlantic Ocean and Indian Ocean. *5, 6, 33 (Pages 127-128), 43 (100509), 44 (110311 - color photograph of seed), 46 (*Dactyloctenium aegyptium* (C. Linnaeus) H.E. Richter, Page 124), **56**, **57**, 63 (110311 - color presentation), **85** (110311 - color presentation of dried material), 124 (110311 - no record of species or genus)*

***Dasyochloa pulchella* (K.S. Kunth) C.L. von Wildenow ex P.A. Rydberg: Low Woollygrass**

SYNONYMY: *Erioneuron pulchellum* (K.S. Kunth) T. Tateoka; *Tridens pulchellus* (K.S. Kunth) A.S. Hitchcock; *Triodia pulchella* K.S. Kunth. COMMON NAMES: Desert Fluffgrass; False Fluff Grass; False Fluffgrass; Fluff Grass (a name also applied to other species); Fluff-grass (a name also applied to other species); Fluffgrass (a name also applied to other species); Low Fluffgrass; Low Triodia; Low Woolly Grass; Low Woolly-grass; Low Woollygrass; Low Woolygrass; Oerennuak Grass; Zacate Borreguero. DESCRIPTION: Terrestrial perennial (often appearing to be an annual and has also been described as being a short-lived perennial) tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms ½ to 6 inches in height; plants were observed and recorded as being 2 to 4 inches in height and 2 to 4 inches in width, plants were observed and recorded as being 4 inches in height and 12 inches in width); the foliage is bluish-green curing to a gray-white; the flowers are green, silvery or white; flowering generally takes place between late March and late October (additional records: two for mid-February and one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy, gravelly, sandy-loamy and clayey mesas; rocky, gravelly and sandy canyons; gravelly-sandy canyon bottoms; gorges; rocky talus slopes; sandy soils in crevices in rocks and rock slabs; knolls; rocky and gravelly ridges; clayey ridgetops; ridgelines; meadows; gravelly foothills; rocky, gravelly and sandy hills; rocky, rocky-sandy and gravelly hillsides; sandy bases of escarpments; sandy edges of escarpments; bedrock, bouldery, rocky, rocky-gravelly, stony, cindery-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey, sandy and loamy slopes; rocky alluvial fans; rocky-sandy, gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; rocky-sandy coves; lava rincons; sand hills; sand dunes; breaks; gravelly steppes; sandy and clayey plains; rocky, cindery, gravelly, gravelly-sandy, sandy, sandy-loamy and clayey flats; valley floors; valley bottoms; along railroad right-of-ways; along bouldery-rocky, rocky, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy and sandy-loamy roadsides; arroyos; sandy bottoms of arroyos; gravelly draws; bottoms of gulches; rocky gullies; streambeds; along creeks; creekbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in rocky and sandy drainages; playas; marshes; clayey depressions; along banks of washes; edges of washes; (rocky-sandy) shores of lakes; beaches; benches; gravelly and sandy terraces; rocky-sandy and loamy bottomlands; floodplains; rocky lowlands; sandy riparian areas, and disturbed areas growing in moist, damp or dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; rocky clay, cindery clay, gravelly clay, gravelly-sandy clay, sandy clay and clay ground, and sandy silty ground, occurring from 100 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This low, densely tufted perennial may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is browsed by the Desert Bighorn Sheep (*Ovis canadensis mexicana*); however, it has been reported that this plant is generally avoided by grazing animals. *Dasyochloa pulchella* is native and endemic to southwest-central and southern North America. *5,

6, 15 (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), **16** (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), 33 (recorded as *Tridens pulchellus* (H.B.K.) Hitchc., Page 97), 43 (071309), 44 (032811 - records located under *Erioneuron pulchellum*, color photograph), 46 (recorded as *Tridens pulchellus* (H.B.K.) Hitchc., Page 90), 58 (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), 63 (110311 - color presentation in habitat), 77 (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), **85** (110311 - color presentation including habitat), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Triodia pulchella* H.B.K.), 105 (recorded as *Tridens pulchellus* (H.B.K.) Hitchc.), 124 (032811 - no record of genus (record for *Erioneuron*) or species), 127, **WTK** (October 28, 2009)*

Digitaria californica (G. Bentham) J.T. Henrard: Arizona Cottontop

SYNONYMY: *Trichachne californica* (G. Bentham) M.A. Chase. COMMON NAMES: Arizona Cotton Grass; Arizona Cotton Top; Arizona Cotton-grass; Arizona Cotton-top; Arizona Cottongrass; Arizona Cottontop; California Cotton-grass; California Cotton-top; California Cottontop; California Crab Grass; California Crabgrass; Cotton Grass (a name also applied to other species); Cotton Top (Texas, a name also applied to other species); Cotton-top (a name also applied to other species); [Arizona, California] Cotton-top (English)[140]; Cottongrass (a name also applied to other species); Cottontop (a name also applied to other species); Plumero Blanco ("White Feather Duster", Spanish)[140]; Punta Blanca (Spanish); Tł'oh ("Grass" a word applied to any grass, Athapascan: Western Apache)[140]; Wahá‡ ("Grass" a word applied to any grass, Uto-Aztecan: Northern Paiute)[140]; Waṣai ("Grass" a word applied to any grass, Uto-Aztecan: Tohono O'odham)[140]; Zacate Punta Blanca ("White Top Grass", Spanish: Chihuahua, Sonora)[140]. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with geniculate, ascending and/or erect culms 1 to 4 feet in height); the foliage may be dark bluish-green, gray-green, green or yellow-green curing to gray or straw; spikelets (flowers) are purplish-pink, flowering generally takes place between early August and early December (additional records: one for early May and one for early July); the cottony seedheads are covered by silky hairs. HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; sandy-loamy mesas; shaded rocky cliffs; bases of cliffs; rocky and gravelly-loamy canyons; rocky canyon walls; sandy canyon bottoms; bouldery and rocky talus slopes; crevices in rocks; rock buttes; knobs; ledges; rocky ridges; foothills; bouldery and rocky hills; rocky hillsides; bouldery escarpments; bouldery, bouldery-rocky, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy-loamy, gravelly, gravelly-sandy, gravelly-clayey, gravelly-sandy-loamy, sandy, sandy-loamy, sandy-clayey and clayey-loamy slopes; alluvial fans; bajadas; bouldery outcrops; amongst boulders and rocks; silty plains; rocky and gravelly flats; hollows; valley floors; valley bottoms; roadbeds; along gravelly and sandy roadsides; arroyos; rocky draws; gulches; ravines; springs; along creeks; creekbeds; riverbeds; along and in sandy and silty-clayey washes; within drainage ways; marshes; along (rocky and sandy) banks of arroyos, streams and washes; gravel bars; along benches; terraces; clayey bottomlands; sandy floodplains; ditches; sandy riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from 200 to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Digitaria californica* is native to southwest-central and southern North America; Central America, and western and southern South America. *5, 6, 15, **16**, 33 (recorded as *Trichachne californica* (Benth.) Chase, Page 296), 43 (100609), 44 (110311), 46 (recorded as *Trichachne californica* (Benth.) Chase, Page 132), 48, 58, 63 (100609 - color presentation), 77, **85** (110311 - color presentation), **89** (reported as being a half-shrub located on the Mesa-like Mountain Slopes, recorded as *Panicum saccharatum* Buckl.), 105 (recorded as *Trichachne californica* (Benth.) Chase), 124 (110311), 140 (Pages 199, 203-204 & 299)*

Digitaria insularis (C. Linnaeus) C.C. Mez ex E.L. Ekman: Sourgrass

SYNONYMY: *Trichachne insularis* (C. Linnaeus) C.G. Nees von Esenbeck. COMMON NAMES: Barba de Indio (Spanish); Camalote; Cotton Grass (a name also applied to other species); Feather Grass; Plumerillo Café (Hispanic); Rabo de Zorra (Spanish); Sour Grass; Sourgrass; Tł'oh ("Grass" a word applied to any grass, Athapascan: Western Apache); Waṣai ("Grass" a word applied to any grass, Uto-Aztecan: Tohono O'odham); Zacate Mano Punta Café (Hispanic); Zacate Taiwan (Hispanic: Mexico, Yucatan). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 2 to 6½ feet in height); the foliage is green; the inflorescence is pale green; based on few records located, flowering generally takes place between late May and early October (flowering records: one for mid-January, one for late May, one for late June, one for early August, one for early September, and one for early October; flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; cliffs; bases of cliffs; rocky canyons; canyon bottoms; clearings in forests; foothills; hills; rocky hilltops; rocky-clayey hillsides; rocky slopes; gravelly plains; bouldery-sandy and rocky flats; along clayey-loamy roadsides; arroyos; within draws; within rocky drainages; drainage ways; rocky and sandy floodplains; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, gravelly and sandy ground; sandy clay and clayey loam ground, and rocky clay ground, occurring from sea level to 7,300 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Digitaria insularis* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 30, 33 (recorded as *Trichachne insularis* (L.) Nees., Pages 296-297), 43 (100609), 44 (110311 - no record of species), 46 (recorded as *Trichachne insularis* (L.) Nees., Page 131), **56**, **57**, 58, 63 (100609), 77, **85** (110311 - color presentation of dried material), 124 (110311 - no record of species; genus record), 140 (Pages 203, 204 & 299)*

***Digitaria sanguinalis* (C. Linnaeus) J.A. Scopoli: Hairy Crabgrass**

COMMON NAMES: Abu Rokba (Arabic); Blutfennich (Bohemia); Bluthirse (German); Common Crab Grass (a name also applied to other species); Common Crabgrass (a name also applied to other species); Crab Finger Grass; Crab Finger-grass; Crab Fingergrass; Crab Grass (a name also applied to other species); Crab-grass (a name also applied to other species); Crabgrass (a name also applied to other species); Crowfoot (a name also applied to other species); Digitaire Sanguine; Finger Grass (a name also applied to other species); Finger-grass (a name also applied to other species); Fingergrass (a name also applied to other species); Garrachuelo (Spanish); Hairy Crab Grass; Hairy Crabgrass (a name also applied to other species); Hairy Finger Grass (a name also applied to other species); Large Crab Grass; Large Crab-grass; Large Crabgrass (a name also applied to other species); Manne Terrestre (French); Mock Sandburr; Northern Crab Grass; Northern Crab-grass; Northern Crabgrass; Panic Sanguin (French); Pigeon Grass (a name also applied to other species, Hopkinton, Iowa); Polish Millet; Purple Crabgrass (a name also applied to other species); Redhair Crab-grass; Redhair Crabgrass; Zacate Cangrejo (Spanish); Zacate Cangrejo Velludo (Spanish). DESCRIPTION: Terrestrial annual graminoid (spreading-decumbent culms 6 to 52 inches in height); flowering generally takes place between late June and late October (additional records: two for late May and two for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rock walls; rocky canyons; sandy canyon bottoms; ridges; meadows; foothills; gravelly hills; hillsides; bouldery, rocky, rocky-sandy, sandy, sandy-loamy, loamy, clayey and clayey-loamy slopes; amongst rocks; sandy, sandy-loamy and clayey-loamy flats; uplands; valley floors; valley bottoms; coastal dunes; along gravelly, gravelly-sandy and sandy roadsides; arroyos; draws; seeps; springs; along streams; within rocky and sandy streambeds; along creeks; along and in rocky creekbeds; along rivers; sandy riverbeds; along and in sandy washes; within drainages; drainage ways; pools; sandy-loamy soils along ponds; saltwater marshes; swales; (sandy and silty) banks of streams, creeks, washes and drainages; edges of saltmarshes and depressions and lakes; sandy benches; rocky shelves; rocky and sandy bottomlands; sandy floodplains; seeps along canals; sandy edges of canals; along and in ditches; edges of ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry rocky, rocky-sandy, rocky-cobbly-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam, silty loam and loam ground; gravelly clay and clay ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. Large Crabgrass is sometimes confused with another exotic species, Bermudagrass (*Cynodon dactylon*) a species of similar general appearance. *Digitaria sanguinalis* is native to eastern and southern Europe; central and southern Asia, and northern Africa and islands in the North Atlantic Ocean. *5, 6, 15, 33 (Page 295), 43 (100609), 44 (110311), 46 (Page 132), 58, 63 (110311 - color presentation), 68, 85 (110311 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (color photograph), 124 (110311)*

***Distichlis spicata* (C. Linnaeus) E.L. Greene: Saltgrass**

SYNONYMY: *Distichlis spicata* (C. Linnaeus) E.L. Greene var. *stricta* (J. Torrey) F. Lamson-Scribner; *Distichlis stricta* (J. Torrey) P.A. Rydberg. COMMON NAMES: Aira Calucibus Trivalvibus Triflorus; Alkali Grass (a name also applied to other species and the genus *Distichlis*); Alkali-grass (a name also applied to other species and the genus *Distichlis*); Alkaline Grass (a name also applied to other species); Coast Marsh Spike-grass; Coastal Salt Grass; Coastal Saltgrass; Desert Salt Grass (Colorado); Desert Saltgrass (Colorado); Huizapole (Spanish); Inland Salt Grass; Inland Salt-grass; Inland Saltgrass; Interior Salt Grass; Interior Saltgrass; XoKásxK (Seri); Marsh Grass; Marsh Salt Grass; Marsh Spike Grass; Marsh Salt-grass; Marsh Spike-grass; Marsh Saltgrass; Marsh Spikegrass; Marsh-spike-grass; Peyisuksuta (“Tough Grass” or “Hard Grass”, Lakota); Salt Grass (a name also applied to other species and the genus *Distichlis*); Salt-grass (a name also applied to other species and the genus *Distichlis*); Saltgrass (a name also applied to other species and the genus *Distichlis*); Sea-shore Salt-grass; Sea-shore Saltgrass; Seashore Salt Grass; Seashore Saltgrass; Slender Spike Grass (a name also applied to other species); Spicate Saltgrass; Spike Grass (Maine, a name also applied to other species and the genus *Distichlis*); Spiked Quaking Grass (a name also applied to other species); Spiked Salt Grass; Spiked Salt-grass; Spiked Saltgrass; Wire Grass (Nebraska, a name also applied to other species); Wiregrass (Nebraska, a name also applied to other species); Zacate Espinudo (Spanish); Zacate Salado (Spanish). DESCRIPTION: Terrestrial perennial graminoid (prostrate, decumbent and/or erect culms 4 inches to 2 feet in height); the foliage may be blue-green, gray-green, green or yellow-green; the flowers are pale green or green, sometimes tinged reddish-purple, flowering generally takes place between late March and early October (additional records: two for late October and one for late November). HABITAT: Within the range of this species it has been reported from crevices in boulders; bouldery-sandy, rocky, sandy and silty-loamy canyon bottoms; shaley and sandy bluffs; rocky, shaley and shaley-sandy ridges; rocky-sandy, sandy-loamy, loamy and clayey-loamy meadows; foothills; shaley hills; hillsides; rocky, rocky-gravelly, rocky-sandy, gravelly, sandy, loamy and clayey slopes; alluvial fans; sand hills; sand dunes; shaley breaks; clay pans; steppes; sandy prairies; sandy plains; sandy and clayey flats; rocky, gravelly and sandy uplands; basins; clayey and silty-loamy valley floors; valley bottoms; coastal dunes; sandy coastal beaches; coastal tidal salt marshes; along cindery railroad right-of-ways; sandy roadbeds; gravelly and sandy roadcuts; along gravelly, gravelly-sandy, gravelly-clayey, sandy, clayey and silty roadsides; stony arroyos; bottoms of arroyos; shaley-silty, clayey and silty draws; muddy bottoms of draws; gulches; sandy gullies; ravines; around and in alkali seeps; in mud around springs; sandy soils along streams; along and in muddy, shaley, gravelly-clayey, sandy-silty-clayey and clayey streambeds; along and in creeks; in muddy and clayey creekbeds; along rivers; mucky-clayey, sandy, sandy-clayey and clayey riverbeds; along and in bouldery and clayey washes; along and in gravelly-sandy-clayey, clayey and clayey-loamy drainages; around pools; ponds; lakes; clayey lakebeds; within sandy-loamy and clayey playas; alkali peat bogs; ciénegas; sandy freshwater and saltwater marshes; alkaline swamps; alkaline depressions; pozos in salt flats; clayey sloughs; alkaline swales; along (shaley, sandy and clayey) banks of draws, streams, creeks, creekbeds, rivers, washes, drainages, ponds, lakes and marshes;

along (gravelly, sandy and muddy) edges of springs, streams, creeks, rivers, washes, lakes, marshes and sloughs; (sandy) margins of streams, rivers, washes and lakes; along (gravelly-sandy, sandy, clayey and silty) shorelines of rivers, ponds and lakes; mudflats; cobble, sand, silty and silty-sand bars; along sandy beaches; benches; sandy-loamy and clayey terraces; clayey bottomlands; stony, sandy and clayey floodplains; saline lowlands; mesquite bosques; fencelines; dams; dikes; along sandy banks, edges, margins and shores of reservoirs; reservoir beds; along canals; banks of canals; along and in muddy and clayey ditches; along sandy and sandy-loamy ditch banks; muddy, bouldery-cobbly-gravelly, rocky, sandy, clayey-loamy and silty-loamy riparian areas, and disturbed areas growing in sandstone pavement; rimrock; shallow (1 cm deep) water; clayey-mucky and muddy and wet, moist and dry bouldery, bouldery-cobbly-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam, silty loam and loam ground; gravelly clay, gravelly-sandy clay, sandy clay, sandy-silty clay, silty clay and clay ground; shaley silty, sandy silty and silty ground, and peat, occurring from below sea level (-282 feet) to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it is a warm-season, low-growing and sod-forming native grass that often forms dense colonies. It is usually found in salt marsh communities and areas where the water table is fairly close to the surface, preferring moist, saline soils. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or spice crop; it was also noted as having been used as a drug or medication. Individual plants are either male or female with populations often growing in female- or male-majority populations. *Distichlis spicata* is native to central and southern North America; Central America and coastal islands in the Caribbean Sea, and western and southern South America. *5, 6, 33 (recorded as *Distichlis spicata* (L.) Greene var. *stricta* (Gray) Beetle, Pages 89-91), 43 (100709), 44 (110511), 46 (recorded as *Distichlis stricta* (Torr.) Rydb., Page 88), 48, 63 (110411 - color presentation including habitat), 68 (recorded as *Distichlis stricta* (Torr.) Rydb.), 85 (110511 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 101 (color photograph), 105 (recorded as *Distichlis stricta* (Torr.) Rydb.), 124 (110511), 127*

Distichlis spicata var. *stricta* (see *Distichlis spicata*)

Distichlis stricta (see *Distichlis spicata*)

***Echinochloa colona* (C. Linnaeus) J.H. Link: Jungle Rice**

SYNONYMY: *Echinochloa colonum* (C. Linnaeus) J.H. Link. COMMON NAMES: Armilá;n (Spanish); Arroz del Monte (Spanish); Awnless Barnyard Grass; Awnless Barnyard-grass; Awnless Barnyardgrass; Birds Rice; Blé du Dekkan (French); Capim-arroz (Portuguese: Brazil); Capim-da-colônia (Portuguese: Brazil); Capituva (Portuguese: Brazil); Corn Panic Grass; Corn Panic-grass; Corn Panicgrass; Deccan Grass; Dekkan Grass; Jangle-rice; Janglerice; Jungle Grass (a name also applied to the genus *Echinochloa*); Jungle Rice; Jungle Rice Grass; Jungle Rice-grass; Jungle Ricegrass; Jungle-rice; Junglegrass; Junglerice; Junglerice Grass; Leopard Grass; Little Barnyard Grass; Little Barnyardgrass; Millet (a name also applied to other species); Millet Rice; Millet-rice; Milletrice; Pasto del Arroz (Spanish); Red Striped Crabgrass; Schamahirse (German); Shama Millet (a name also applied to other species); Shanwa Millet; Shanwamillet; Short Millet; Small Barnyard Grass; Small Barnyardgrass; Southern Cockspur; Tiger Grass; Tiger Millet; Watergrass (a name also applied to other species); Zacate Pinto (Spanish); Zacate Rayado (Spanish); Zacate Tigre (Spanish); Zancaraña (Spanish). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 4 to 40 inches in height); the foliage is blue-green, green or yellow-green and may be mottled with purple; the stems may be colored with purple, the leaves may be banded with purple; the spikelets (flowers) are pale green or green; flowering generally takes place between late July and mid-November (additional records: one for mid-January, one for late March, one for early June, one for early July and one for mid-December); the fruits may be green, maroon and/or red. HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; plateaus; canyons; canyon bottoms; meadows; rocky hills; rocky hillsides; pockets of soil on rocky outcrops; sandy and loamy slopes; amongst cobbles; cobbly and sandy plains; plains; gravelly-silty, loamy-clayey and silty flats; valley floors; valley bottoms; coastal flats; along roadsides; along and in gravelly arroyos; along bottoms of arroyos; gulches; seeps; springs; sandy streambeds; along creeks; along rivers; bouldery-cobbly-sandy riverbeds; along and in bouldery, rocky, gravelly, sandy and silty-clayey washes; along and in drainages; around pools; muddy ponds; in pondbeds; along lakes; marshes; silty-muddy swamps; within sandy depressions; swales, along (sandy and sandy-silty) banks of arroyos, rivers, washes and drainages; (sandy-loamy) edges of rivers, riverbeds and pools; (muddy) margins of ravines, rivers and pools; along shores of lakes; along beaches; sandy benches; loamy bottomland; rocky and sandy floodplains; lowlands; dams; around and in sandy and silty stock tanks (represos); shores of reservoirs; in ditches; along ditch banks; bouldery, rocky and sandy-clayey-loamy riparian areas; waste places, and disturbed areas growing in shallow water; mucky and muddy, and wet, moist, damp and dry bouldery, bouldery-cobbly-sandy, rocky, cobbly, gravelly and sandy ground; sandy-clayey loam, humusy-clayey loam and loam ground; sandy clay, loamy clay and silty clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. *Echinochloa colona* may be native to Europe; however, the native origin of this species is obscure. *5, 6, 15, **16** (recorded as *Echinochloa colonum* (L.) Link), 30, 33 (recorded as *Echinochloa colonum* (L.) Link, Pages 275-276), 43 (100809 - no record of *Echinochloa colonum*), 44 (011411), 46 (recorded as *Echinochloa colonum* (L.) Link, Page 138), **56** (recorded as *Echinochloa colonum* (L.) Link), **57** (recorded as *Echinochloa colonum* (L.) Link), 63 (110611 -

color presentation), 68 (recorded as *Echinochloa colonum* (L.) Link), 77 (recorded as *Echinochloa colonum* (L.) Link), **85** (110611 - color presentation of dried materials), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb, also recorded as *Echinochloa colona* (L.) Link var. *zonale* (Guss.) Dewey), 101 (color photograph), 124 (110611), 127, 140 (Page 299)*

Echinochloa colona var. *zonale* (see footnote 89 under *Echinochloa colona*)

Echinochloa colonum (see *Echinochloa colona*)

***Echinochloa crus-galli* (C. Linnaeus) A.M. Palisot de Beauvois: Barnyardgrass**

COMMON NAMES: Ankee Millet (Iowa); Arrocillo (Spanish); Barn Grass; Barn Yard Grass (a name also applied to other species); Barn-grass (a name also applied to other species); Barngrass (a name also applied to other species); Barnyard Grass (a name also applied to other species and the genus *Echinochloa*, Nebraska); Barnyard Millet (a name also applied to the genus *Echinochloa*); Barnyard-grass (a name also applied to other species and the genus *Echinochloa*, Nebraska); Barnyardgrass (a name also applied to other species); Chicken Panic; Chicken Panic Grass; Chicken Panicgrass; Chicken-panic Grass; Chicken-panic-grass; Cock's Foot (a name also applied to other species); Cock's-foot (a name also applied to other species); Cock-spur Barnyard Grass; Cocks Foot Grass (a name also applied to other species); Cocks-foot Grass (a name also applied to other species); Cock-spur Barnyard Grass; Cocksfoot Panicum; Cockspur (a name also applied to the genus *Echinochloa*); Cockspur Barnyard Grass; Cockspur Grass (a name also applied to the genus *Echinochloa*); Cockspur-grass (a name also applied to the genus *Echinochloa*); Common Barnyard Grass; Common Barnyard-grass; Common Barnyardgrass; Common Cockspur; Common Cockspur Grass; Crusgalli Barnyard Grass; Echinochloa Pied-de-coq (French); Gewöhnliche Hühnerhirse (German); Grama Morada (Hispanic); Hedgehog Grass; Hühnerhirse (German); Japanese Millet (a name also applied to other species); Large Barnyard Grass; Large Barnyard-grass; Large Barnyardgrass; Large Crowfoot Grass (New Mexico); Loose Panic Grass; Loose Panic-grass; Mexican Barnyard Grass; Pasto Alemán (Hispanic); Pasto Mijillo (Hispanic); Pata de Gallo (Spanish); Pie de Gallina (Spanish); Pied-de-coq (French); Sanwak (India); Water Grass (a name also applied to other species); Water-grass (a name also applied to other species); Watergrass (a name also applied to other species); Zacate de Agua (Spanish); Zacate de Corral (Hispanic). DESCRIPTION: Terrestrial annual graminoid (spreading, decumbent and/or erect culms 4 to 83 inches in height; one plant was described as being 4 feet in height an 40 inches in diameter at the base); the foliage may be gray-green or yellow-green; the leaves may have purple bands; flowering generally takes place between mid-May and early November; however, flowering year round has been reported (additional record: one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; gravelly-sandy and sandy mesas; gravelly-sandy plateaus; bases of cliffs; rocky and gravelly-loamy canyons; rocky, rocky-sandy, sandy and loamy canyon bottoms; pockets of soil; bluffs; ridges; ridgetops; openings in woodlands; loamy meadows; escarpments; rocky, gravelly, sandy, sandy-clayey-loamy, loamy, clayey and clayey-loamy slopes; amongst cobbles; gravelly-sandy plains; gravelly, gravelly-loamy and sandy flats; uplands; hollows; valley floors; coastal plains; along gravelly and sandy-loamy roadbeds; along gravelly, gravelly-loamy, gravelly-clayey-loamy, sandy and sandy-loamy roadsides; arroyos; along draws; gulches; gullies; bottoms of gullies; ravines; sandy and clayey seeps; springs; along and in sandy streams; along and in rocky-sandy and sandy streambeds; along creeks; within rocky creekbeds; along and in rivers; in cobbly-sandy and sandy riverbeds; along and in rocky and sandy washes; within drainages; poolbeds; along and in ponds; muddy pondbeds; along lakes; clayey lakebeds; bogs; ciénegas; clayey freshwater marshes; swamps; clayey-muddy depressions; within muddy sloughs; swales; along (muddy, gravelly-sandy, sandy-loamy and sandy) banks of springs, streams, creeks, rivers, washes, ponds and lakes; along (muddy, rocky and sandy) edges of streams, creeks, rivers, watercourses, ponds, lakes and sloughs; along (sandy and clayey) margins of creeks and ponds; along (sandy-loamy) shores of ponds and lakes; mudflats; gravel, gravelly-sand and sand bars; sandy beaches; sandy benches; along terraces; sandy bottomlands; sandy floodplains; lowlands; fencelines; dams; levees; in mud around stock tanks (charcos, represos); muddy edges and shores of reservoirs; along and in muddy canals; muddy canal banks; along sandy-clayey ditches; along clayey-loamy ditch banks; cobbly-sandy riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery, rocky, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clay loam, silty loam, humus-clayey loam and loam ground, and sandy clay, loamy clay and clay ground, occurring from sea level to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. *Echinochloa crus-galli* is native to Europe. *5, 6, 30, 33 (Pages 276-277), 43 (100809), 44 (041411), 46 (Page 138), 58, 63 (100809 - color presentation), 68, 80 (Barnyard Grass is listed as a Rarely Poisonous and Suspected Poisonous Range Plant "This annual grass has been reported to develop toxic levels of nitrate."), **85** (110611 - color presentation of dried material), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (color photograph), 124 (041411), 127*

***Elymus elymoides* (C.S. Rafinesque-Schmaltz) G.D. Swezey: Squirreltail**

COMMON NAMES: Alkali Rye; Barb Goatgrass; Beardless Wild Rye; Bottle Brush (a name also applied to other species); Bottle Brush Grass; Bottle Brush Squirrel Tail; Bottle Brush Squirreltail; Bottle-brush Squirreltail; Bottle-brush Squirrel-tail; Bottlebrush Squirrel Tail; Bottlebrush Squirrel-tail; Bottlebrush Squirreltail; Common Squirrel-tail; Common Squirreltail (subsp. *elymoides*); Creeping Wild Rye; Long-bristle Wild Rye; Long-bristled Wild Rye; Long-bristled Wild-rye;

Long-bristle Wild Rye; Mono'pü (Uto-Aztecan: Paiute)[140]; O'ro [O'do, O'ro, O'rorop] (Uto-Aztecan)[140]; Odorûmbiv (Uto-Aztecan: Ute)[140]; Orchard Barley; Pahankis (Uto-Aztecan: Cahuilla)[140]; Pesru <pésru> (Uto-Aztecan: Hopi)[140]; Porcupine Grass; Squaw Grass; Squirrel Tail; [Bottlebrush] Squirrel-tail (English)[140]; Squirreltail (a name also applied to other species and the genus *Elymus*); Tł'oh ("Grass" a word applied to any grass, Athapascan: Western Apache)[140]; Triguillo Desértico ("Little Desert Wheat", Spanish: Mexico)[140]; Waṣai ("Grass" a word applied to any grass, Uto-Aztecan: Tohono O'odham)[140]; Western Bottle Brush Grass; Western Bottle-brush Grass; Western Squirreltail; Zacate Cebadilla [Sevaidilla] ("Little Nourishing Grass", Spanish: Mexico)[140]; Zacate Ladera ("Slope Grass, Spanish: Sonora)[140]; Zee'iilwo'ii Ntsaaigii (Navajo); 'Zéé'iilwoii <ʔazeʾ i.l "oʾi> (Athapascan: Navajo)[140]. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 3 inches to 6½ feet in height; plants were observed and reported as being 12 inches in height and 6 inches in width at the base, plants were observed and reported as being 20 inches in height and 2 inches in width at the base); the foliage is green; the spikelets (flowers) are gray-green or green; flowering generally takes place between mid-March and late September (additional records: one for early October and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; rocky and gravelly mountaintops; sandy mountainsides; rocky-sandy-silty bases of peaks; bases of mountains; rocky-sandy, stony-cobbly, shaley and sandy-clayey-loamy mesas; rocky, sandy and clayey-loamy plateaus; tablelands; canyon rims; cliff faces; bases of cliffs; bouldery, rocky, gravelly-sandy and sandy canyons; along pebbly-sandy canyon walls; shaley, gravelly and gravelly-sandy canyonsides; rocky and gravelly-sandy canyon bottoms; rocky gorges; rocky and clayey scree; rocky talus slopes; crevices in rocks; sandy bluffs; rocky, rocky-gravelly, gravelly, gravelly-sandy, gravelly-clayey, sandy-clayey and clayey buttes; stony, sandy and clayey knolls; rocky and sandy ledges; bouldery, rocky, rocky-gravelly, shaley, stony, gravelly, gravelly-sandy, sandy, sandy-silty-loamy and clayey ridges; rocky, shaley, stony-cobbly, gravelly, sandy and clayey ridgetops; ridgelines; rocky clearings in forests; rocky, rocky-silty, gravelly, sandy and loamy meadows; foothills; rocky, shaley, cindery (scoria), gravelly-sandy, sandy, sandy-clayey and clayey hills; rocky, stony-cobbly, gravelly, sandy and clayey hilltops; rocky, rocky-sandy, rocky-clayey and gravelly hillsides; sandy bases of hills; bouldery, bouldery-rocky, bouldery-silty, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-sandy-loamy, rocky-sandy-clayey, rocky-loamy, rocky-clayey, rocky-clayey-loamy, rocky-silty, shaley, shaley-sandy, shaley-clayey, stony, stony-cobbly, stony-cobbly-sandy-clayey, stony-sandy, stony-clayey, cobbly-sandy-loamy, cindery-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, pebbly-sandy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, clayey, clayey-loamy, clayey-silty, silty and silty-clayey slopes; gravelly bajadas; bouldery, rocky, shaley and clayey outcrops; amongst boulders, rocks and gravels; rocky fell-fields; rocky-clayey rock beds; bases of rocks; sandy alcoves; sandy lava flows; lava beds; sand dunes; sandy hummocks; blow-sand deposits; clayey mounds; gravelly mudslopes; breaks; shaley and gravelly benches; edges of clayey balds; loamy steppes; stony and sandy prairies; gravelly, pebbly, sandy, sandy-clayey and clayey plains; rocky, rocky-sandy, rocky-clayey, gravelly, gravelly-sandy-clayey, gravelly-loamy, sandy, sandy-clayey, clayey, silty-loamy and silty-clayey flats; pebbly-sandy, sandy and clayey uplands; rocky and clayey basins; basin floors; sandy and sandy-silty valley floors; clayey valley bottoms; along sandy and clayey railroad right-of-ways; roadbeds; sandy roadcuts; along rocky, rocky-gravelly-silty, rocky-sandy, cindery, gravelly and clayey roadsides; within arroyos; within rocky-sandy, shaley, gravelly-sandy, sandy and clayey draws; sandy bottoms of draws; gulches; bottoms of gulches; muddy-clayey, rocky and sandy gullies; bottoms of gullies; ravines; seeps; springs; along streams; gravelly-clayey streambeds; along creeks; rocky and clayey creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, shaley, sandy and clayey washes; within cobbly-gravelly, gravelly-sandy and sandy drainages; within rocky drainage ways; playas; sandy-clayey depressions; clay pits; swales; along (gravelly, sandy and silty) banks of streams, creeks and rivers; along edges of washes and lakes; margins of rivers, playas and (soda) lakes; (sandy) shores of lakes; along gravel, gravelly-sand and sand bars; sandy beaches; rocky, rocky-sandy, shaley, gravelly and sandy-clayey benches; gravelly and clayey terraces; sandy and clayey bottomlands; along sandy, sandy-clayey and clayey floodplains; clayey lowlands; mesquite bosques; fencelines; clayey catchments; around stock tanks; edges and margins of reservoirs; dry bottoms of reservoirs; along ditches; sandy-loamy banks of ditches; sandy riparian areas, and disturbed areas growing in cryptogamic; shallow water and wet, moist, damp and dry rimrock; rocky desert pavement; bouldery, bouldery-rocky, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony, stony-cobbly, stony-sandy, cobbly-gravelly, cindery, gravelly, gravelly-sandy, pebbly, pebbly-sandy and sandy ground; rocky loam, rocky-gravelly-sandy-clayey loam, rocky-gravelly loam, rocky-sandy loam, rocky-clayey loam, stony-clayey loam, cobbly-sandy loam, gravelly-sandy-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam, humusy loam and loam ground; rocky clay, rocky-sandy clay, shaley clay, stony clay, stony-cobbly-sandy clay, cindery clay, gravelly clay, gravelly-sandy clay, sandy clay, silty clay and clay ground; bouldery silty, rocky silty, rocky-gravelly silty, rocky-sandy silty, sandy silty, clayey silty and silty ground; humusy ground; peaty ground, and chalky ground, occurring from 1,500 to 11,600 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder crop. *Elymus elymoides* is native to west-central and southern North America. *5, 6, 15, 33 (*Elymus elymoides* (Raf.) Swezey (*Sitanion hystrix* J.G. Smith) subsp. *elymoides*, Pages 115-117), 43 (100809), 44 (110611 - color photograph), 46 (subsp. *elymoides*, recorded as *Sitanion hystrix* J.G. Smith, "The mature awns penetrate the flesh of grazing animals, causing inflammation.", Page 96), 48, 63 (110611 - color presentation including habitat), 68, 77 (recorded as *Elymus elymoides* (Raf.) Swezey [*Sitanion hystrix* (Nutt.) J.G. Smith]. Squirrel Tail), **85** (111011 - color presentation including habitat), 124 (110611), 127, 140 (204-206, 215 & 299)*

***Elymus elymoides* (C.S. Rafinesque-Schmaltz) G.D. Swezey subsp. *elymoides*: Squirreltail**

SYNONYMY: *Sitanion hystrix* (T. Nuttall) J.G. Smith. COMMON NAMES: Alkali Rye (a name also applied to the species); Beardless Wild Rye (a name also applied to the species); Common Squirreltail; Mono'pü (a name applied to *Elymus elymoides*, Uto-Aztecan: Paiute)[140]; O'ro [O'do, O'ro, O'rorop] (a name applied to *Elymus elymoides*, Uto-Aztecan)[140]; Odorûmbiv (a name applied to *Elymus elymoides*, Uto-Aztecan: Ute)[140]; Pahankis (a name applied to *Elymus elymoides*, Uto-Aztecan: Cahuilla)[140]; Pesru <pésru> (a name applied to *Elymus elymoides*, Uto-Aztecan: Hopi)[140]; [Bottlebrush] Squirrel-tail (for *Elymus elymoides*, English)[140]; Tł'oh ("Grass" a word applied to any grass, Athapascan: Western Apache)[140]; Triguillo Desértico ("Little Desert Wheat" a name applied to *Elymus elymoides*, Spanish: Mexico)[140]; Typical Bottlebrush Squirreltail; Creeping Wild Rye (a name also applied to the species); Porcupine Grass (a name also applied to the species); Squaw Grass; Typical Squirreltail; Waṣai ("Grass" a word applied to any grass, Uto-Aztecan: Tohono O'odham)[140]; Zacate Cebadilla [Sevaidilla] ("Little Nourishing Grass" a name applied to *Elymus elymoides*, Spanish: Mexico)[140]; Zacate Ladera ("Slope Grass" a name applied to *Elymus elymoides*, Spanish: Sonora)[140]; Zee'iilwo'ii Ntsaaigii (Navajo); 'Zéé'iilwoii <ʔazeʔ i.l "oʔi> (a name applied to *Elymus elymoides*, Athapascan: Navajo)[140]. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 6 to 20 inches in height); flowering generally takes place between late March and early October (additional record: one for late October). HABITAT: Within the range of this species it has been reported from mountains; rocky and gravelly mountaintops; sandy mountainsides; rocky-sandy, shaley, shaley-clayey, stony-cobbly, sandy and clayey-loamy mesas; sandy and clayey-loamy plateaus; sandy rims of mesas; cliffs; rims of canyons; sandy canyons; pebbly-sandy canyon walls; gravelly and gravelly-sandy canyonsides; canyon bottoms; rocky gorges; talus slopes; crevices in rocks; sandy bluffs; rocky, rocky-gravelly, gravelly, gravelly-sandy, gravelly-clayey, sandy-clayey and clayey buttes; shaley hogbacks; stony and clayey knolls; along rocky and sandy ledges; bouldery, rocky, rocky-gravelly, shaley, stony, gravelly, gravelly-sandy, sandy, sandy-loamy, clayey and silty-loamy ridges; rocky, shaley, stony-cobbly, gravelly, gravelly-sandy-clayey, sandy and clayey ridgetops; ridgelines; rocky openings in forests and woodlands; rocky and gravelly meadows; foothills; shaley, cindery (scoria), gravelly-sandy, sandy, loamy and clayey hills; rocky, stony-cobbly, gravelly, sandy and clayey hilltops; rocky, rocky-clayey, stony-cobbly, gravelly, sandy and clayey hillsides; bouldery, bouldery-rocky, bouldery-silty, rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-sandy, rocky-sandy-loamy, rocky-sandy-clayey, rocky-loamy, rocky-clayey, shaley, shaley-sandy, shaley-clayey, stony, stony-cobbly, stony-cobbly-sandy-clayey, stony-sandy, stony-clayey, cobbly-sandy-loamy, cindery-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, pebbly-sandy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, sandy-silty-loamy, loamy, clayey, clayey-loamy and silty slopes; gravelly-loamy bottoms of slopes; gravelly bajadas; rocky, shaley and clayey outcrops; amongst boulders and rocks; clayey rock beds; bases of rocks; clayey mounds; gravelly mudslopes; sandy lava flows; lava beds; sand dunes; shaley and gravelly benches; breaks; clayey cuts; tablelands; edges of clayey balds; rocky-clayey and clay patches; steppes; stony prairies; gravelly, sandy, sandy-clayey and clayey plains; rocky-sandy, rocky-clayey, gravelly, gravelly-sandy-clayey, gravelly-loamy, sandy, sandy-clayey, clayey, clayey-loamy and silty-clayey flats; pebbly-sandy, sandy and clayey uplands; basins; basin floors; valley floors; clayey valley bottoms; along sandy and clayey railroad right-of-ways; sandy roadcuts; along rocky, rocky-sandy and gravelly roadsides; within arroyos; within rocky-sandy, gravelly-sandy, sandy and clayey draws; sandy bottoms of draws; bottoms of gulches; clayey gullies; within ravines; springs; along streams; gravelly-clayey streambeds; along creeks; clayey creekbeds; along rivers; sandy riverbeds; along rocky-sandy, shaley, gravelly, gravelly-loamy, sandy and sandy-clayey washes; within rocky, gravelly-sandy, sandy and clayey drainages; along runs; swampy areas; sandy-clayey depressions; swales; along (gravelly-sandy-clayey, sandy and sandy-silty) banks of streams, creeks and rivers; edges of lakes and cienegas; margins of rivers and soda lakes; (sandy) shores of lakes; along gravel and sand bars; sandy beaches; rocky and sandy-clayey benches; terraces; gravelly-loamy, sandy and clayey bottomlands; along sandy, sandy-clayey and clayey floodplains; fencerows; clayey catchments; around stock tanks; edges and margins of reservoirs; bottoms of dry reservoirs; ; sandy-loamy ditch banks; riparian areas, and disturbed areas growing in shallow water; mucky-sandy and muddy-clayey, and wet, moist, damp and dry cryptogamic; rimrock; rocky desert pavement; bouldery, bouldery-rocky, rocky, rocky-shaley-gravelly, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, stony-cobbly, stony-sandy, cindery, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam and loam ground; rocky clay, rocky-sandy clay, shaley clay, stony clay, stony-cobbly-sandy clay, cindery clay, gravelly clay, gravelly-sandy clay, sandy clay, loamy clay, silty clay and clay ground; bouldery silty, rocky-sandy silty, sandy silty and silty ground; humusy ground; peaty ground, and chalky ground, occurring from 2,200 to 11,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Elymus elymoides*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder crop. *Elymus elymoides* subsp. *elymoides* is native to west-central and southern North America. *5, 6, **16** (recorded as *Sitanion hystrix* (Nutt.) J.G. Smith), 33 (Pages 115-117), 43 (100809), 44 (111111 - color photograph), 46 (recorded as *Sitanion hystrix* (Nutt.) J.G. Smith, "The mature awns penetrate the flesh of grazing animals, causing inflammation.", Page 96), 58 (recorded as *Sitanion hystrix* (Nutt.) J.G. Smith), 63 (112311 - color presentation including habitat), 77 (recorded as *Elymus elymoides* (Raf.) Swezey [*Sitanion hystrix* (Nutt.) J.G. Smith]. Squirrel Tail), 85 (112211), 124 (111111 - no record of subspecies *elymoides*; species and genus records), 127 (species), 140 (Page 204 & Page 299 - recorded as *Elymus elymoides* (Rafinesque) Swezey [*Sitanion hystrix* J.G. Smith])*

Elymus triticoides (see *Leymus triticoides*)

***Enneapogon desvauxii* N.A. Desvaux ex A.M. Palisot de Beauvois: Nineawn Pappusgrass**

SYNONYMY: *Pappophorum wrightii* S. Watson. COMMON NAMES: False Pappus Grass; Feather Pappus Grass (a name also applied to the genus Enneapogon); Feather Pappusgrass (a name also applied to the genus Enneapogon); Kalkgras (Afrikaans); Nine Awned Pappus Grass; Nine-awn Feather Pappus Grass; Nine-awn Feather-pappus Grass; Nine-awn Pappus Grass; Nine-awn Pappus-grass; Nine-awn Pappusgrass; Nine-awned Feather-pappus Grass; Nine-awned Pappus Grass; Nineawn Pappusgrass; Purple Grass (a name also applied to other species); Purple-grass; Spike Pappus Grass (Texas); Spike Pappus-grass; Spike Pappusgrass; Spike-pappus Grass; Wondergras (Afrikaans); Wright Pappusgrass; Zacate Ladera (Spanish); Zacate Lobero (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 4 to 20 inches in height); the foliage may be grayish-green or light green; the flowers are grayish, grayish-green or purplish; flowering generally takes place in summer and fall between early August and early November (additional records: two for late January, two for early July and one for mid-December; flowering beginning in February and ending in March has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; bedrock, gravelly and sandy mesas; plateaus; cliffs; along bases of cliffs; sandy rims of canyons; along bouldery, rocky and clayey canyons; sandy canyon bottoms; talus slopes; crevices; pockets of sandy soil in rim rock sandstone; knolls; bouldery and rocky ledges; bedrock ridges, ridgetops; rocky foothills; rocky, gravelly and clayey hills; gravelly hilltops; rocky hillsides; escarpments; bedrock, rocky, rocky-gravelly, rocky-loamy, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy and clayey slopes; bedrock and gravelly bajadas; rocky outcrops; amongst rocks; sandy lava flows; lava fields; debris fans; plains; gravelly and sandy-loamy flats, basins; rocky valley floors; rocky valley bottoms; along rocky, rocky-gravelly, gravelly and sandy roadsides; rocky bottoms of arroyos; gulches; gullies; ravines; along streambeds; gravelly-loamy creekbeds; within rocky and gravelly washes; along and in drainages; drainage ways; depressions; edges of ravines; sand bars; benches; terraces; bottomlands; floodplains; stock tanks; ditches; riparian areas; waste areas, and disturbed areas growing in moist (rarely reported) and dry rocky desert pavement; bouldery, bouldery-rocky-sandy, rocky, rocky-cindery-sandy, rocky-sandy, gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam and sandy loam ground; gravelly clay, sandy clay and clay ground, and rocky-gravelly silty ground, occurring from 900 to 7,300 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider using in a mix with other grasses when over-seeding. *Enneapogon desvauxii* is native to southwest-central and southern North America, and west-central and southern South America; central and southern Asia, and Africa. *5, 6, 15, **16**, 33 (Pages 102-103), 43 (112311 - *Enneapogon desvauxii* P. Beauv.), 44 (112211), 46 (Page 91), 58, 63 (112211 - color presentation), 77, **85** (112311 - color presentation including habitat), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Pappophorum wrightii* Wats.), 105 ("This grass seems to be rather short-lived for a perennial. However, it is a prolific seeder and re-establishes rapidly and abundantly during seasons of good rainfall"), 106 (053109), 124 (112211), 140 (Page 299)*

Eragrostis arida (see *Eragrostis pectinacea* var. *miserrima*)

***Eragrostis barrelieri* J.A. Daveau: Mediterranean Lovegrass**

COMMON NAMES: Barrelier Eragrostis; Barrelier Lovegrass; Mediterranean Love Grass; Mediterranean Love-grass; Mediterranean Lovegrass; Pitted Love Grass; Pitted Love-grass; Pitted Lovegrass. DESCRIPTION: Terrestrial annual tufted graminoid (prostrate and/or erect culms (decumbent at the base) 2 inches to 2 feet in height); the spikelets (flowers) may be grayish, greenish, lead-green or reddish-purple; the anthers are reddish-brown; flowering generally takes place between mid-March and late November (flowering records: one for mid-March, two for early April, one for late May, one for mid-June, one for late June, one for mid-July, two for late July, four for mid-August, one for late August, three for early September, one for late September, two for early October, one for late October, one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; pockets of sandy soil; gravelly buttes; rocky, gravelly, sandy and clayey hills; rocky, rocky-gravelly and gravelly slopes; rock outcrops; clayey banks; prairies; sandy flats; sandy areas near railroad yards; sandy-silty roadways; along gravelly, gravelly-loamy, gravelly-clayey-loamy, sandy and silty-loamy roadsides; rocky gullies; along streams; along creeks; along rivers; sandy riverbeds; within washes; pebbly drainage ways; banks of rivers; edges of streams and playas; sand bars; sandy benches; bottomlands; sandy floodplains; within ditches; riparian areas; waste places, and disturbed areas growing in moist, damp and dry rocky, rocky-gravelly, gravelly, pebbly and sandy ground; gravelly loam, gravelly-clayey loam and silty loam ground; clay ground, and sandy silty ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Eragrostis barrelieri* is native to southern Europe; southern and western Asia, and northern and western Africa and coastal islands in the North Atlantic Ocean. *5, 6, **16**, 33 (Page 82), 43 (101009), 44 (041411), 46 (Page 86), 63 (041411), **77**, **85** (112311 - color presentation including habitat), 124 (041411)*

***Eragrostis cilianensis* (C. Allioni) F. Vignolo-Lutati ex E.E. Janchen: Stinkgrass**

SYNONYMY: *Eragrostis megastachya* (G.L. Koeler) J.H. Link. COMMON NAMES: Amoresco (Hispanic); Candy Grass (a name also applied to other species and the genus *Eragrostis*); Candy-grass (a name also applied to other species and the genus *Eragrostis*); Candygrass (a name also applied to other species and the genus *Eragrostis*); Éragrostide Fétide; Graminha (Portuguese: Brazil); Großes Liebesgras (German); Gray Love Grass; Lovegrass (a name also applied to other species and the genus *Eragrostis*); Stink Grass (a name also applied to other species and the genus *Eragrostis*); Stinkgrass (a name also applied to other species and the genus *Eragrostis*); Stinking Lovegrass; Strong-scented Lovegrass (a name also applied to other species); Strongscented Lovegrass (a name also applied to other species); Watergrass; Zacate Apestoso (Hispanic); Zacate Arestoso[140];

Zacate Borreguero (Hispanic); Zacate de Amor Hediondo (Hispanic); Zacate Estepario (Hispanic). DESCRIPTION: Terrestrial annual tufted graminoid (a bunchgrass with prostrate, decumbent, geniculate and/or erect culms 3 to 36 inches in height); the foliage is gray-green or light green; the spikelets (flowers) are greenish, white or whitish with green veins turning tawny with age, the anthers are yellow; flowering generally takes place between early July and late October (additional records: one for mid-March, one for late March, one for mid-May, one for late May, two for early June, one for mid-November, one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; sandy bases of cliffs; rocky, gravelly and sandy canyons; gravelly-sandy and sandy canyon bottoms; bluffs; knolls; ledges; bedrock ridges; bases of ridges; sandy meadows; bouldery foothills; rocky and gravelly hills; rocky and gravelly hillsides; rocky, rocky-gravelly, rocky-clayey-loamy, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy-loamy, sandy-clayey, sandy-humusy, loamy, clayey and clayey-loamy slopes; sandy-loamy bottoms of slopes; rocky outcrops; amongst boulders and rocks; coves; sandy outwash; gravelly-clayey slides; gravelly-sandy plains; gravelly, sandy, sandy-loamy, sandy-silty and clayey-loamy flats; uplands; valley floors; valley bottoms; roadbeds; roadcuts; along gravelly, gravelly-loamy, sandy, sandy-silty and loamy roadsides; two-tracks; along sandy arroyos; bottoms of arroyos; loamy and loamy-clayey draws; gulches; gullies; gravelly-sandy seeps; springs; along streams; along and in cobbly-sandy and loamy-clayey streambeds; along creeks; in gravelly-sandy and sandy creekbeds; along rivers; in gravelly-sandy, sandy and sandy-clayey riverbeds; along and in gravelly, sandy and silty-clayey washes; within drainage ways; clayey lakebeds; ciénegas; marshes; bedrock depressions; silty swales; along (rocky-sandy, gravelly, sandy and sandy-loamy) banks of streams, creeks, rivers, washes and drainages; (sandy) edges of streams, ponds, lakes and marshes; mud flats; sandy areas of drawdown; sand bars; sandy benches; gravelly-loamy terraces; loamy bottomlands; gravelly, sandy and clayey floodplains; sandy mesquite bosques; sandy fencerows; around and in stock tanks (charcos, represos); around and in reservoirs; banks of reservoirs; along sandy ditches; sandy riparian areas; waste places, and disturbed areas growing in clayey-loamy mucky and wet, moist, damp and dry bouldery, rocky, rocky-gravelly, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, clayey-humusy loam and loam ground; gravelly clay, sandy clay, loamy clay, silty clay and clay ground; sandy silty and silty ground, and sandy humusy ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant may have a foul odor. *Eragrostis cilianensis* is native to middle, eastern and southern Europe; western, eastern and southern Asia, and Africa. *5, 6, 15, **16**, 30, 33 (recorded as *Eragrostis megastachya* (Koel.) Link, Pages 82-83), 43 (101009), 44 (032811), 46 (Page 86), **56**, **57**, 58, 63 (101009 - color presentation of seed), 68, 77, 80 (This plant is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This annual grass was reported to cause poisoning in horses when fed in large quantities over a long period of time."), **85** (112511 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb, recorded as *Eragrostis megastachya* (Koeler) Link), 101 (color photograph), 105 (recorded as *Eragrostis megastachya* (Koel.) Link), 124 (032811), 140 (Pages 207 & 300)*

Eragrostis echinochloidea O. Stapf: African Lovegrass

COMMON NAME: African Lovegrass; Bosluisgras (Afrikaans); Lovegrass (a name also applied to other species and the genus *Eragrostis*); Tick Grass; Tickgrass. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 12 to 40 inches in height); the spikelets (flowers) are greenish to lead; the anthers are yellowish; based on few records located, flowering generally takes place between mid-February and late October (flowering records: one for mid-February, one for mid-April; two for early October, and one for late October). HABITAT: Within the range of this species it has been reported from mountains; canyon bottoms; crevices in rocks; foothills; hillsides; rocky slopes; banks; sandy plains; flats; along gravelly and sandy roadsides; sandy streambeds; riverbeds; along and in sandy washes; swales; (sandy) banks of washes and drainage ways; floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in moist, damp and dry rocky, gravelly and sandy ground, occurring from 1,100 to 4,600 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Eragrostis echinochloidea* is native to southern Africa. *5, 6, 15, **16**, 33 (no record of species), 43 (010711 - *Eragrostis echinochoidea* Stapf), 44 (041411 - no record of species; genus record), 46 (Page 87, note beneath *Eragrostis lehmanniana*), 58, 63 (112611 - color presentation of seed), 77, **85** (112611 - color presentation of dried material), 124 (041411 - no record of species; genus record)*

Eragrostis lehmanniana C.G. Nees von Esenbeck: Lehmann Lovegrass

COMMON NAMES: Lehman (error) Lovegrass; Lehmann Love Grass; Lehmann Lovegrass; Lehmann's Love Grass; Lehmann's Lovegrass; Lovegrass (a name also applied to other species and the genus *Eragrostis*); Zacate Africano; Zacate de Amor; Zacate de Amor Lehman (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 8 to 48 inches in height); the foliage is bright green or yellow-green curing to a dull yellow; the spikelets (flowers) are grayish-green, lead or straw colored with yellowish anthers; flowering generally takes place between late July and early November (flowering records: one for early March, one for mid-March, one for early May, one for mid-May, two for early June, two for early July, two for late July, one for early August, three for mid-August, three for late August, one for early September, two for mid-September, one for late September, three for early October, two for mid-October, two for late October and two for early November; flowering beginning in February and ending in May and again beginning in August and end ending in November has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky canyons; along rocky canyon bottoms; gravelly ridges; meadows; rocky foothills; rocky hills; rocky hillsides; rocky, gravelly, gravelly-loamy and sandy-loamy slopes; gravelly bajadas; rock outcrops;

amongst boulders; dunes; gravelly plains; gravelly, sandy and clayey flats; clayey valley floors; roadbeds; along sandy and clayey roadsides; two-tracks; along arroyos; springs; along and in streambeds; along creeks; along and in creekbeds; along rivers; sandy riverbeds; along gravelly and sandy washes; drainages; depressions; along banks of rivers; shores of lakes; sandy beaches; cobbly-sandy benches; travertine clefts; terraces; loamy bottomlands; sandy floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in dry bouldery, bouldery-cobbly-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground, and clay ground, occurring from 100 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Eragrostis lehmanniana* is native to southern Africa. *5, 6, 15, **16**, 22 (color photograph), 33 (Page 79), 43 (101009), 44 (112611), 46 (Page 87), **56**, **57**, 58, 63 (101009 - color presentation of seeds), 77, **85** (112611 - color presentation), 105, 124 (112611 - no record of species; genus record), 140 (Pages 206, 207 & 300)*

Eragrostis megastachya (see *Eragrostis cilianensis*)

***Eragrostis mexicana* (J.W. Hornemann) J.H. Link subsp. *mexicana*: Mexican Lovegrass**

SYNONYMY: *Eragrostis neomexicana* G. Vasey ex L.H. Dewey. COMMON NAMES: Crab Grass (a name also applied to other species); Crab-grass (a name also applied to other species); Crabgrass (a name also applied to other species); Kšam <košom, kwšam> (this name may refer to *Eragrostis pectinacea* and not to *Eragrostis mexicana*, Yuman: Cocopa)[140]; Mexican Eragrostis (Iowa); Mexican Love Grass; Mexican Love-grass; Mexican Lovegrass; Mexican Spear Grass; New Mexican Lovegrass; Typical New Mexico Love Grass; Typical New Mexico Lovegrass; Zacate de Amor Mexicano (Spanish). DESCRIPTION: Terrestrial annual graminoid (decumbent, ascending and/or erect culms 1 to 4 feet in height), the foliage is yellow-green; the spikelets (flowers) are grayish-green with purplish anthers; based on few flowering records flowering generally takes place between mid-May and late November (flowering records: two for mid-May, one for late June, one for mid-July, two for late July, three for mid-August, one for late August, three for early September, three for late September, two for early November, one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bases of cliffs; gravelly-loamy canyons; bottoms of canyons; pockets of soil in rocks; rocky ledges; ridges; openings in forests; meadows; foothills; hills; hilltops; rocky, clayey and clayey-loamy slopes; bases of slopes; rocky outcrops; amongst rocks; terraces; clayey flats; clayey sides of dirt tracks; along roadsides; arroyos; rocky-sandy bottoms of arroyos; draws; within gulches; springs; in sand along streams; streambeds; rocky creekbeds; along rivers; in sandy washes; rocky drainages; (rocky-gravelly) banks of arroyos; margins of creeks; terraces; floodplains; mesquite bosques; around edges of charcos; edges of canals; rocky riparian areas; waste places, and disturbed areas growing in muddy and moist, damp and dry rocky, rocky-gravelly, rocky-sandy and sandy ground; gravelly loam and clayey loam ground, and clay ground sometimes reported as occurring in the shade of shrubs, trees and rock faces, occurring from 2,100 to 8,500 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Eragrostis mexicana*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Eragrostis mexicana* subsp. *mexicana* is native to central and southern North America; Central America; central and southern South America; north-central Pacific (Hawaii), and Australia. *5, 6, 33 (recoded as *Eragrostis neomexicana* Vasey, Page 84), 43 (101009), 44 (112611), 46 (recoded as *Eragrostis neomexicana* Vasey, Page 87), 63 (101009), 85 (112611), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain, recorded as *Eragrostis neo-mexicana* Vasey), 124 (112611), 127 (species), 140 (Pages 206 & 300 - recorded *Eragrostis mexicana* (Hornemann) Link)*

Eragrostis neomexicana (see *Eragrostis mexicana* subsp. *mexicana*)

***Eragrostis pectinacea* (A. Michaux) C.G. Nees von Esenbeck ex E.G. von Steudel: Tufted Lovegrass**

COMMON NAMES: Carolina Love Grass; Carolina Lovegrass; Comb Grass (Nebraska); Desert Love Grass; Desert Lovegrass; Éragrostide Pectinée; False Red Top; False Redtop; Ihta Zaa (Mixteco); Kšam <košom, kwšam> (this name may refer to *Eragrostis mexicana* and/or *Eragrostis pectinacea*, Yuman: Cocopa)[140]; Meadow Comb Grass; Pasto de Semillas de Pajarito (Hispanic); Pink Grass; Purple Eragrostis; Purple Love Grass; Purple Love-grass; Purple Lovegrass; Pursh's Eragrostis; Pursh's Love Grass; Pursh's Love-grass; Southern Eragrostis; Southern Love-grass; Spreading Lovegrass; Tufted Love Grass; Tufted Love-grass; Tufted Lovegrass; Western Love Grass; Western Lovegrass. DESCRIPTION: Terrestrial annual or perennial tufted graminoid (a bunchgrass (clumpgrass) with spreading decumbent, geniculate and/or erect culms 4 to 40 inches in height); the spikelets (flowers) may be green, lead-green, dark reddish-purple, grayish-green or yellowish-brown; the anthers are purplish; flowering generally takes place between early July and mid-November (additional records: one for mid-February, two for early March, two for mid-March, one for late March, one for mid-May, one for early June and one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; plateaus; gravelly bases of cliffs; rocky canyons; sandy canyon bottoms; gravelly-clayey slides; along talus slopes; crevices in rocks; foothills; rocky hills; hillsides; bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy-loamy, sandy-clayey, loamy and clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders; short grass prairies; sandy plains; sandy flats; basins; loamy valley floors; valley bottoms; coastal plains; along sandy railroad right-of-ways; gravelly roadbeds; along gravelly-sandy, sandy and clayey roadsides; in two-tracks; within arroyos; sandy-silty bottoms of arroyos; draws; gulches; sandy ravines; springs; along streams; along and in sandy streambeds; along gravelly-sandy creeks; creekbeds; gravelly soils along rivers; sandy

riverbeds; along and in bouldery-sandy, gravelly and sandy washes; within sandy, sandy silty and silty drainage ways; dry ephemeral pools; poolbeds; clayey lakebeds; playas; ciénegas; marshes; sandy-silty and silty depressions; clayey swales; along (muddy, sandy and sandy-loamy) banks of arroyos, streams, creeks, rivers and washes; (sandy) edges of arroyos, ponds, playas, marshes, rivers and washes; margins of washes and ponds; along (silty) shores of rivers, pools and lakes; mudflats; cobbly-sand, gravel, gravelly-sand and sand bars; sandy beaches; sandy benches; gravelly terraces; clayey-loamy bottomlands; sandy floodplains; lowlands; mesquite bosques; in stock ponds; sandy edges of tanks and reservoirs; along and in ditches; gravelly and sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam, clayey loam, humusy-clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Eragrostis pectinacea* is native to northeast-central, south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 15, **16**, 30, 33 (Pages 87-88), 43 (101009), 44 (112711), 46 (Page 86), 58, 63 (112711), **77**, **85** (112711 - color presentation including habitat), 124 (112711), 140 (Page 300 - recorded as *Eragrostis pectinacea* (Michaux) Nees [*Eragrostis pectinacea* (Michaux) Nees var. *miserrima* (E. Fournier) J. Reeder])*

***Eragrostis pectinacea* (A. Michaux) C.G. Nees von Esenbeck ex E.G. von Steudel var. *miserrima* (E.P. Fournier) J.R. Reeder: Desert Lovegrass**

SYNONYMY: *Eragrostis arida* A.S. Hitchcock; *Eragrostis tephrosanthos* J.A. Schultes. COMMON NAMES: Desert Love Grass (a name also applied to the species and other species); Desert Lovegrass (a name also applied to the species and other species); Gulf Love Grass; Gulf Lovegrass. DESCRIPTION: Terrestrial annual tufted graminoid (a bunchgrass (clumpgrass) with spreading decumbent, geniculate, ascending or erect culms 4 to 28 inches in height); flowering generally takes place between mid-July and late October (additional records: one for late May and one for late June; flowering ending in November has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy-loamy mesas; bouldery and rocky canyons; sandy ridgetops; clearings in forests; meadows; foothills; hills; rocky and clayey hillsides; escarpments; bouldery-rocky, rocky, rocky-clayey-loamy, gravelly, gravelly-sandy-loamy, sandy-loamy and silty-loamy slopes; llanos; Tobosa flats; gravelly-sandy uplands; valley floors; along roadsides; arroyos; seeps; along streams; streambeds; along creeks; sandy soils along rivers; along and in gravelly and sandy washes; clayey lakebeds; playas; ciénegas; mucky-clayey marshes; depressions; swales; banks of creeks; edges of washes and pools; swales; gravelly terraces; bottomlands; sandy floodplains; mesquite bosques; banks of stock tanks; along sandy ditches; sandy riparian areas; waste places, and disturbed areas growing in mucky clay and dry bouldery, bouldery-rocky, rocky, stony, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy loam, sandy loam, silty loam and humusy-clayey loam ground, and clay ground, occurring from 800 to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetlands ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant may be an attractive component of a restored native habitat. *Eragrostis pectinacea* var. *miserrima* is native to south-central and southern North America; Central America, and northern South America. *5, 6, 30 (species), 33 (recoded as *Eragrostis arida* Hitchc., Pages 84-85, *Eragrostis tephrosanthos* Schult., Pages 86-87), 43 (101009), 44 (112711), 46 (recoded as *Eragrostis arida* Hitchc., Page 87), 63 (112711), **85** (112711 - color presentation of dried material), 124 (112711 - no record of variety; genus and species records), 140 (Page 300 - recorded as *Eragrostis pectinacea* (Michaux) Nees [*Eragrostis pectinacea* (Michaux) Nees var. *miserrima* (E. Fournier) J. Reeder])*

***Eragrostis pilosa* (C. Linnaeus) A.M. Palisot de Beauvois: Indian Lovegrass**

COMMON NAMES: Barba de Indio (Spanish); Behaartes Liebesgras (German); Capim-barbicha-de-alemão (Portuguese: Brazil); Capim-mimoso (Portuguese: Brazil); Capim-orvalho (Portuguese: Brazil); Capim-peludo (Portuguese: Brazil); Éragrostide Poilue; Hairy Love Grass (Oklahoma); Hairy Love-grass (Oklahoma); India Love Grass; India Love-grass; India Lovegrass; Indian Love Grass; Indian Lovegrass; Jersey Love Grass; Jersey Love-grass; Panasco (Portuguese: Brazil); Pâturin Poilu (French); Perplexed Lovegrass; Pilose Eragrostis; Slender Meadow Grass; Slender Medow-grass; Small Tufted Love Grass; Small Tufted Love-grass; Small Tufted Lovegrass; Small-tufted Lovegrass; Soft Love Grass; Soft Love-grass; Soft Lovegrass; Southern Spear Grass (Iowa). DESCRIPTION: Terrestrial annual tufted graminoid (geniculate and/or erect culms 3 to 28 inches in height); the foliage is yellow-green; the anthers are purplish; based on few records examined flowering generally takes place between early July and late October (flowering records: two for early July, one for mid-August, three for mid-September, one for late September, one for early October and one for late October). HABITAT: Within the range of this species it has been reported from canyons; hillsides; slopes; prairies; sandy flats; valley floors; along cindery railroad right-of-ways; along gravelly, gravelly-sandy and sandy roadsides; rocky-sandy and sandy creekbeds; along rivers; washes; poolbeds; (sandy) edges of swamps; along (sandy) shores of lakes; along sandy beaches; sandy benches; floodplains; shores of reservoirs; along canals; along ditches; riparian areas; waste places, and disturbed areas growing in wet and dry rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Exotic? *Eragrostis pilosa* is native to eastern, middle and southern Europe; Asia and islands in the North Pacific Ocean, and Africa, it has also been reported as being native to parts of southwest-central and southern North America. *5, 6, 33 (Page 88), 43 (101009), 44 (112811), 46 (Page 86), 63 (112811 - color presentation of seed), 85 (1128911 - color presentation), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain), 124 (112811), 140 (Page 207)*

Eragrostis tephrosanthos (see *Eragrostis pectinacea* var. *miserrima*)

***Eriochloa acuminata* (J.S. Presl) K.S. Kunth: Tapertip Cupgrass**

COMMON NAMES: Cupgrass (a name also applied to other species and the genus *Eriochloa*); Southwestern Cup Grass; Southwestern Cup-grass; Southwestern Cupgrass; Tapertip Cup Grass; Taper Tipped Cup Grass; Taper-tip Cup Grass; Taper-tip Cup-grass; Taper-tipped Cup Grass; Taper-tipped Cup-grass; Tapertip Cup Grass; Tapertip Cupgrass; Tapertipped Cup Grass. DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, ascending and/or erect culms 6 inches to 4 feet in height); the foliage may be bright green or yellow-green; based on few records located, flowering generally takes place between late August and mid-October (flowering records: three for late August and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky canyons; bedrock canyon bottoms; talus slopes; in pockets of soil on bedrock; sandy meadows; foothills; hills; rocky hillsides; rocky, rocky-gravelly, gravelly, sandy, rocky-loamy, gravelly-clayey, sandy-loamy, loamy and clayey slopes; bedrock outcrops; amongst boulders; plains; gravelly, sandy and loamy flats; valley floors; valley bottoms; along gravelly-loamy roadsides; arroyos; bottoms of arroyos; draws; gulches; seeps; along streams; streambeds; sandy riverbeds; along and in gravelly and sandy washes; rocky drainages; within rocky drainage ways; pools; depressions; swales; along banks of rivers and drainage ways; edges of ponds; benches; terraces; loamy bottomlands; sandy floodplains; mesquite bosques; along margins of stock tanks; along canals; along and in clayey ditches; sandy riparian areas, and disturbed areas growing in moist and dry rocky, rocky-gravelly, gravelly and sandy ground; rocky loam, gravelly-loam, sandy-loam, humus-clayey loam and loam ground, and gravelly clay, sandy-clay and clay ground, occurring from 100 to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Alternate spellings of *lemmonii* were presented: *lemmonii* and *lemmoni*. *Eriochloa acuminata* is native to south-central and southern North America. *5, 6, 33 (recoded as *Eriochloa lemmoni* Vasey & Scribn. var. *gracilis* (Fourn.) Gould., Pages 273-274), 43 (101109), 44 (041511), 46 (recoded as *Eriochloa gracilis* (Fourn.) Hitchc., Page 133), 58, 63 (021011), 68 (recoded as *Eriochloa gracilis* (Fourn.) Hitchc.), **77**, **85** (112811 - color presentation), 101 (recoded as *Eriochloa gracilis* (Fourn.) A.S. Hitchc., color photograph), 124 (041511 - no record of species; genus record)*

***Eriochloa acuminata* (J.S. Presl) K.S. Kunth var. *acuminata*: Tapertip Cupgrass**

SYNONYMY: *Eriochloa gracilis* (E.P. Fournier) A.S. Hitchcock; *Eriochloa lemmonii* G. Vasey & F.L. Scribner var. *gracilis* (E.P. Fournier) F.W. Gould. COMMON NAMES: Cupgrass (a name also applied to the species, other species and to the genus *Eriochloa*); Typical Southwestern Cup Grass; Typical Southwestern Cup-grass; Typical Southwestern Cupgrass; Typical Tapertip Cup Grass; Typical Taper Tipped Cup Grass; Typical Taper-tip Cup Grass; Typical Taper-tip Cup-grass; Typical Taper-tipped Cup Grass; Typical Taper-tipped Cup-grass; Typical Tapertip Cup Grass; Typical Tapertip Cupgrass; Typical Tapertipped Cup Grass. DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, ascending and/or erect culms 6 inches to 4 feet in height); the foliage may be bright green or yellow-green; based on few records located, flowering generally takes place in late August and mid-October (flowering record: one for late August and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; hills; rocky, rocky-gravelly, rocky-loamy, gravelly-clayey and loamy slopes; bedrock outcrops; amongst boulders; sand hills; flats; valley floors; valley bottoms; along roadsides; arroyos; bottoms of arroyos; draws; seeps; along streams; along creekbeds; along and in gravelly and sandy washes; rocky drainages; pools; within depressions; within swales; banks of rivers; edges of ponds; terraces; bottomlands; sandy floodplains; mesquite bosques; along and in clayey ditches; sandy riparian areas, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-gravelly, gravelly and sandy ground; rocky loam, sandy-loamy, humusy-clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and silty ground, occurring from 100 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Alternate spellings of *lemmonii* were presented: *lemmonii* and *lemmoni*. *Eriochloa acuminata* var. *acuminata* is native to south-central and southern North America. *5, 6, 15 (recoded as *Eriochloa lemmoni* Vasey & Scribn. var. *gracilis* (Fourn.) Gould.), **16** (recoded as *Eriochloa lemmoni* Vasey & Scribn. var. *gracilis* (Fourn.) Gould), 33 (recoded as *Eriochloa lemmoni* Vasey & Scribn. var. *gracilis* (Fourn.) Gould., Pages 273-274), 43 (101109), 44 (120111), 46 (recoded as *Eriochloa gracilis* (Fourn.) Hitchc., Page 133), **56**, **57**, 63 (120111), 68 (recoded as *Eriochloa gracilis* (Fourn.) Hitchc.), **85** (120211 - color presentation of seed and dried material), 101 (recoded as *Eriochloa gracilis* (Fourn.) A.S. Hitchc., color photograph), 124 (120111 - no record of variety or species; genus record), 140 (Page 300 - recorded as *Eriochloa acuminata* (J. Presl) Kunth [*Eriochloa gracilis* (Fournet) A.S. Hitchcock, *Eriochloa lemmonii* Vasey & Scribner var. *gracilis* (Fournet) Gould])*

***Eriochloa acuminata* (J.S. Presl) K.S. Kunth var. *minor* (G. Vasey) R.B. Shaw: Tapertip Cupgrass**

SYNONYMY: *Eriochloa gracilis* (E.P. Fournier) A.S. Hitchcock var. *minor* (G. Vasey) A.S. Hitchcock; *Eriochloa punctata* (C. Linnaeus) N.A. Desvaux ex W. Hamilton var. *minor* G. Vasey. COMMON NAME: Tapertip Cupgrass (a name also applied to the species). DESCRIPTION: Terrestrial annual graminoid (6 inches to 4 feet in height); the foliage may be bright green or yellow-green; based on few records located for the species, flowering generally takes place between late August and mid-October (flowering records: one for late August and one for late September). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bases of cliffs; rocky canyons; ridges; foothills; bases of hills; rocky slopes; flats; valleys; gravelly-loamy roadsides; draws; along streams; streambeds; along gravelly and sandy washes; drainages; depressions; sink-holes; benches; terraces; floodplains; along muddy edges and margins of stock tanks (charcos); riparian areas, and disturbed areas growing in muddy and moist and dry rocky, gravelly and sandy ground and gravelly loam ground, occurring

from sea level to 6,100 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Alternate spellings of *lemmonii* were presented: *lemmonii* and *lemmoni*. *Eriochloa acuminata* var. *minor* is native to southwest-central and southern North America. *33 (recoded as *Eriochloa gracilis* (Fourn.) Hitchc. var. *minor* (Vasey) Hitch. presented as a synonym for *Eriochloa lemmoni* Vasey & Scribn., Page 273), 43 (120211), 44 (120211 - no record of variety; genus and species records), 46 (recoded as *Eriochloa gracilis* (Fourn.) Hitchc. var. *minor* (Vasey) Hitch., Page 133), 63 (120211), 85 (120211 - color presentation of seed and dried material), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain, recorded as *Eriochloa punctata* (L.) W. Hamilt.?), 124 (120211 - no record of variety or species; genus record and a record for *Eriochloa punctata* (L.) Desv. ex Hamilton), 140 (Page 300)*

***Eriochloa aristata* G. Vasey: Bearded Cupgrass**

SYNONYMY: *Eriochloa aristata* G. Vasey var. *aristata*. COMMON NAMES: Awned Cup Grass; Awned Cup-grass; Awned Cupgrass; Awned Eriochloa; Bearded Cup Grass; Bearded Cupgrass; Pointed Cup Grass; Pointed Cupgrass; Zacate Taza Aristida. DESCRIPTION: Terrestrial annual graminoid (spreading decumbent and/or erect culms 12 to 40 inches in height); anthers are absent; based on few records located, flowering generally takes place between early September and mid-October (flowering records: one for late April, one for early September, one for late September, three for early October and three for mid-October, flowering beginning as early as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; cliffs; canyon bottoms; sandy plains; sandy and sandy-silty flats; valley bottoms; along roadsides; along rocky-gravelly bottoms of arroyos; along streams; streambeds; along creeks; along rivers; along and in sandy washes; along drainages; poolbeds; swampy areas; sandy depressions; swales; silty-muddy swampy areas; along banks of streams and rivers; (sandy) edges of arroyos and washes; margins of sloughs; terraces; amongst mesquites in bottomlands; sandy floodplains; around and in stock tanks (charcos, represos); along ditches; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry rocky, rocky-gravelly, gravelly and sandy ground; sandy loam ground, and silty ground, occurring from sea level to 4,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Eriochloa aristata* is native to southwest-central and southern North America and Central America. *5, 6, 15, 33 (Page 275), 43 (101109), 44 (120211), 46 (Page 133), **57**, 63 (120211), **85** (120211 - color presentation of seeds and dried material), 124 (120211 - no record of species; genus record), 140 (Page 300)*

Eriochloa aristata var. *aristata* (see *Eriochloa aristata*)

Eriochloa gracilis (see *Eriochloa acuminata* var. *acuminata*)

Eriochloa gracilis var. *minor* (see *Eriochloa acuminata* var. *minor*)

Eriochloa lemmonii var. *gracilis* (see *Eriochloa acuminata* var. *acuminata*)

Erioneuron pulchellum (see *Dasyochloa pulchella*)

***Eriochloa punctata* (C. Linnaeus) N.A. Desvaux ex W. Hamilton: Louisiana Cupgrass**

COMMON NAMES: Dotted Millet; Everlasting Grass; Everlasting-grass; Louisiana Cup Grass; Louisiana Cupgrass. DESCRIPTION: Terrestrial annual or perennial graminoid (decumbent and/or erect culms 1 to 5 feet in height); anthers are absent; no flowering records located; however, the flowering period for *Eriochloa lemmoni* has been reported as being August to October. HABITAT: Within the range of this species it has been reported from mountains; meadows; slopes; valley floors; coastal plains; coastal marshlands; arroyos; along watercourses; swales; within ditches; riparian areas, and disturbed areas growing in muddy and wet, moist and damp ground, occurring from sea level to 3,900 feet in the wetland ecological formation. NOTES: This species is not known to occur in Arizona. *Eriochloa punctata* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *33 (recorded as *Eriochloa punctata* var. *minor* Vasey presented as a synonym for *Eriochloa lemmoni* Vasey & Scribn., Page 322), 43 (101209), 44 (120211 - no record of species; genus record), 46 (no record of species), 63 (120211 - color presentation of seed), 85 (120211 - color presentation of seed and dried material), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain, recorded as *Eriochloa punctata* (L.) W. Hamilt., possibly *Eriochloa acuminata* var. *minor*?), 95 (Personal Communication 052206), 124 (120211)*

Eriochloa punctata var. *minor* (see *Eriochloa acuminata* var. *minor*)

Festuca megalura (see *Vulpia myuros*)

Festuca myuros (see *Vulpia myuros*)

Festuca myuros var. *hirsuta* (see *Vulpia myuros*)

Festuca octoflora (see *Vulpia octoflora* var. *octoflora*)

Festuca octoflora subsp. *hirtella* (see *Vulpia octoflora* var. *hirtella*)

Festuca octoflora subsp. *octoflora* (see *Vulpia octoflora* var. *octoflora*)

Festuca octoflora var. *hirtella* (see *Vulpia octoflora* var. *hirtella*)

Festuca octoflora var. *octoflora* (see *Vulpia octoflora* var. *octoflora*)

***Heteropogon contortus* (C. Linnaeus) A.M. Palisot de Beauvois ex J.J. Roemer & J.A. Schultes: Tanglehead**

SYNONYMY: *Andropogon contortus* C. Linnaeus. COMMON NAMES: Assegaaigras (Afrikaans); Barba Negra ("Black Beard", Spanish: Mexico)[140]; Bihag Waṣai ("Wrap-around Grass", Uto-Aztecan: Tohono O'odham)[140]; Biibhinol Vashai ("Wrap-around Grass", Uto-Aztecan: Akimel O'odham, Arizona)[140]; Black Spear Grass; Black Speargrass; Bunch Spear Grass; Bunched Speargrass; Carrizo (a name also applied to other grasses, Spanish: Sonora)[140]; Common Tangleweed; Contorted Tanglehead; Hierba Negros de los Prados ("Black Herb of the Prairies", Spanish: Mexico)[140]; Hierba Torcida (Spanish); Needle-grass (English: New Mexico)[140]; Pili Grass; Piligrass (Hawaii); Rabo de Asno ("Donkey's Tail", Spanish: Mexico)[140]; Retorcido Moreno ("Black Twisted", Spanish: Mexico)[140]; Spear Grass (a name also applied to other species); Speergras (German); Steekgras (Afrikaans); Tangel Head; Tangle Grass; Tangle Head; Tangle-head (English)[140]; Tangle-head Grass; Tangelhead; Tanglehead (a name also applied to the genus *Heteropogon*); Tanglehead Grass (a name also applied to the genus *Heteropogon*); Tł'oh ("Grass" a name applied to any grass, Athapascan: Western Apache, Navajo)[140]; Twisted Tanglehead; Ujchú (Uto-Aztecan: Guarijío)[140]; Wahá꞉ ("Grass" any grass, Uto-Aztecan: Northern Paiute)[140]; Zacate Aceitillo ("Oily Grass", Spanish: Chihuahua, Sonora)[140]; Zacate Colorado ("Red Grass", Spanish: Arizona, Chihuahua, Sonora)[140]; Zacate Retorcido ("Twisted Grass", Spanish: Mexico)[140]. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 8 inches to 5 feet in height); the foliage is bright green or yellow-green curing to orange-brown; the spikelets (flowers) may be brown or purple; based on few records located, flowering generally takes place between early January and late May and again between late July and early December (flowering records: one for early January, three for late January, one for late February, one for mid-March, one for early May, one for late May, one for late July, three for early August, five for late August, three for early September, five for mid-September, four for late September, three for early October, three for mid-October, five for early November, one for mid-November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, gravelly and sandy mesas; cliffs; cliff faces; bases of cliffs; along and in rocky canyons; along canyon walls; along bouldery, rocky and gravelly canyon bottoms; rockslides; crevices in rocks; ledges; along rocky ridges; bouldery and rocky ridgetops; volcanic cones; gravelly and sandy foothills; rocky hills; rocky and gravelly-clayey hillsides; bedrock, rocky, gravelly, gravelly-sandy and sandy slopes; rocky outcrops; amongst boulders and rocks; lava flows; rocky and sandy plains; gravelly flats; valley floors; along sandy roadsides; along and in rocky and sandy arroyos; rocky-sandy bottoms of arroyos; along draws; gulches; within gullies; ravines; around seeping streams; streambeds; creekbeds; along and in rocky, rocky-sandy, cobbly, gravelly-sandy and sandy washes; within gravelly-sandy-loamy drainages; within rocky and sandy drainage ways; bedrock tinajas; around pools; (silty) banks of streams and rainwater basins; edges of washes; margins of waterways; sandy beaches; terraces; floodplains; riparian areas, and disturbed areas growing in dry bouldery, bouldery-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground; gravelly clay ground, and silty ground, occurring from sea level to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; however, the awns may bring about painful sores in livestock and pets and in some areas may be considered to be a noxious weed. It is able to become established in newly disturbed and poor soils. *Heteropogon contortus* is native to south-central and southern North America; eastern Asia, and possibly to other tropic sub-tropic and warm-temperate regions of the world. *5, 6, 15, **16**, 33 (Page 302), 43 (101209), 44 (120411 - color photograph), 46 (Page 144), 48, **56**, **57**, 58, 63 (120411 - color presentation), 77, **85** (120411 - color presentation including habitat), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Andropogon contortus*), 105 (Reports that Tanglehead Grass "is one of the easiest grasses to establish under conditions of low rainfall."), 124 (120411 - no record of genus or species), 140 (Pages 207-208 & 300)*

***Hilaria belangeri* (E.G. von Steudel) G.V. Nash: Curly-mesquite**

COMMON NAMES: Common Curly-mesquite; Common Curlymesquite; Creeping Curly-mesquite; Curly Mesquite; Curly Mesquite Grass; Curly-mesquite; Curlymesquite; Curlymesquite Grass; Longleaf Curly-mesquite (var. *longifolia*); Mesquite-grass; Southwestern Buffalo Grass. DESCRIPTION: Terrestrial perennial tufted graminoid (a sodgrass with ascending and/or erect culms 2 to 14 inches in height; plants to 4 inches in width at the base have been reported); the foliage is bluish-green curing to white; inflorescences are green, dark red-purple or purplish; the awns are purple; flowering generally takes place between early August and early November (additional records: one for mid-February, one for early March, one for mid-March and one for mid-June). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; plateaus; rocky canyons; rocky canyon bottoms; knolls; gravelly-sandy-clayey ridges; ridgelines; ridgetops; meadows; foothills; rocky and gravelly-clayey-loamy hills; rocky hilltops; rocky hillsides; rocky, rocky-gravelly-sandy, stony, gravelly, gravelly-sandy-clayey and clayey slopes; gravelly bajadas; boulder and rock outcrops; amongst boulders, rocks and gravels; prairies; sandy plains; gravelly and sandy flats; grassy valley floors; along roadsides; along arroyos; along streams; streambeds; along creeks; along and

in gravelly washes; within drainage ways; depressions; swales; banks of washes; benches; riparian areas; recently burned areas in grasslands, and disturbed areas growing in dry bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, gravelly and sandy ground; bouldery-gravelly loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground, and gravelly-sandy clay and clay ground, occurring from 1,100 to 6,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and should be considered for use in restoration projects; it has good soil binding capabilities; however, it is not overly drought-resistant (preferring areas with 10 to 19 inches annual [spring thru summer] precipitation, goes dormant during drought) or shade tolerant. Stands of Curlymesquite Grass have been reported to have a lifespan of 5 to 9 years of age with the plant growing well in areas of disturbance. Stoloniferous plants may spread up to 13 feet in a year. In native stands most of the rapid growth is shown after the beginning of the summer rains. Depending upon the variety, this plant may be soloniferous (var. *belangeri*) or may not be soloniferous (var. *longifolia*). Curlymesquite is grazed by pronghorn and deer. This grass is not damaged by fire and may increase following a spring fire in grasslands and woodlands. *Hilaria belangeri* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (Pages 158-160), 43 (101209), 44 (120511 - no record of genus or species), 46 (Page 122), 48, 58, 63 (101209), **85** (120511 - color presentation), 105 (Curly Mesquite, a palatable and nutritious grass, may be used as an indicator plant of range conditions. Where Curly Mesquite is abundant in comparison to other high-volume production grasses the stocking load should be reduced, sound range management is indicated where high-volume production grasses are abundant or increasing.), 124 (120511 - no record of genus or species)*

Hilaria belangeri (E.G. von Steudel) G.V. Nash var. *belangeri*: Curly-mesquite

COMMON NAMES: Common Curlymesquite (a name also applied to the species), Creeping Curly-mesquite (a name also applied to the species), Curly Mesquite (a name also applied to the species), Curly-mesquite (a name also applied to the species), Curlymesquite (a name also applied to the species), Curly Mesquite Grass (a name also applied to the species), Curlymesquite Grass (a name also applied to the species), Southwestern Buffalo Grass (a name also applied to the species). DESCRIPTION: Terrestrial perennial tufted graminoid (a sodgrass with ascending and/or erect culms 2 to 14 inches in height, plants to 4 inches in width at the base have been reported); the foliage is bluish-green curing to white; inflorescences are green, dark red-purple or purplish; the awns are purple; flowering generally takes place between early August and early November (additional records: one for mid-February, one for early March and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; rocky canyon bottoms; gravelly-sandy-clayey ridges; ridgelines; ridgetops; meadows; foothills; rocky hills; hilltops; rocky hillsides; rocky, rocky-gravelly-sandy, gravelly and gravelly-sandy-clayey slopes; gravelly bajadas; boulder and rock outcrops; amongst boulders, rocks and gravels; sandy plains; gravelly and sandy flats; along grassy roadsides; along arroyos; along streams; along creeks; along and in gravelly washes; within drainage ways; depressions; swales; banks of washes; benches, and riparian areas growing in dry bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly-sandy, gravelly and sandy ground; bouldery-gravelly loam, gravelly loam, sandy loam and clayey loam ground, and gravelly-sandy clay and clay ground, occurring from 1,500 to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it may not be overly drought resistant or shade tolerant. Variety *belangeri* is stoloniferous. In native stands most of the rapid growth is shown after the beginning of the summer rains. *Hilaria belangeri* var. *belangeri* was the dominant grass species of the Texas shortgrass prairies. Curlymesquite is grazed by pronghorn and deer. *Hilaria belangeri* var. *belangeri* is native to southwest-central and southern North America. *5, 6, 15, 33 (species, Pages 158-159), 43 (101209), 44 (120611 - no record of genus, species or variety), 46 (species, Page 122), 48, 58, 63 (120611), **85** (120611), 105 (Curly Mesquite, a palatable and nutritious grass, may be used as an indicator plant of range conditions. Where Curly Mesquite is abundant in comparison to other high-volume production grasses the stocking load should be reduced, sound range management is indicated where high-volume production grasses are abundant or increasing.), 124 (120611 - no record of genus, species or variety)*

Hilaria belangeri (E.G. von Steudel) G.V. Nash var. *longifolia* (G. Vasey) A.S. Hitchcock: Longleaf Curly-mesquite

SYNONYMY: *Hilaria cenchroides* K.S. Kunth var. *longifolia* G. Vasey. COMMON NAMES: Longleaf Curly-mesquite, Curly Mesquite (a name also applied to the species), Curly Mesquite Grass (a name also applied to the species). DESCRIPTION: Terrestrial perennial tufted graminoid (a sodgrass with ascending and/or erect culms 2 to 12 inches in height); the foliage is bluish-green curing to white; flowering generally takes place between early August and early November and sometimes in the spring. HABITAT: Within the range of this species it has been reported from mountains; rocky hills, and rocky slopes growing in dry rocky ground, occurring from 1,100 to 4,800 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, this variety does not produce stolons. *Hilaria belangeri* var. *longifolia* is native to southwest-central and southern North America (reportedly more restricted in distribution than var. *belangeri*). *5, 6, 15, 33 (Pages 159-160), 43 (101209), 44 (120611 - no record of genus, species or variety), 46 (Page 122), 48, 58, 63 (120611), 85 (120611), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Hilaria cenchroides* H.B.K. var. *longifolia* Vasey), 105 (Curly Mesquite, a palatable and nutritious grass, may be used as an indicator plant of range conditions. Where Curly Mesquite is abundant in comparison to other high-volume production grasses the stocking load should be reduced, sound range management is indicated where high-volume production grasses are abundant or increasing.), 124 (120611 - no record of genus, species or variety)*

Hilaria cenchroides var. *longifolia* (see *Hilaria belangeri* var. *longifolia*)

Hilaria mutica (see *Pleuraphis mutica*)

Hopia obtusa (see *Panicum obtusum*)

Hordeum leporinum (see *Hordeum murinum* subsp. *leporinum*)

***Hordeum murinum* C. Linnaeus: Mouse Barley**

COMMON NAMES: Barley (a name also applied to other species and the genus *Hordeum*); Barnyard Foxtail; Bulbous Barley; Cebada (subsp. *glaucum*, Spanish); Cevada-de-ponche-verde (Portuguese: Brazil); Cevada-dos-ratos (Portuguese: Brazil); Common Wall-barley-grass; False Barley (subsp. *murinum*); Farmers Foxtail; Farmers' Foxtail; Farmer's Foxtail; Farmer's-foxtail (subsp. *murinum*); Hare Barley (subsp. *leporinum*); Harkorn (subsp. *leporinum*, Swedish); Leporinum Barley (subsp. *leporinum*); Mouse Barley (subsp. *leporinum*); Mouse Barley Grass; Mouse Barley-grass; Mouse-barley Grass; Mugi-kusa (Japanese Rōmaji); Rabbit Barley; Smooth Barley (subsp. *glaucum*); Spädkorn (subsp. *glaucum*, Swedish); Vildkorn (Swedish); Wall Barley (subsp. *murinum*); Wallbarley; Way Barley (subsp. *murinum*); Wild Barley (a name also applied to subsp. *leporinum* and the genus *Hordeum*). DESCRIPTION: Terrestrial annual loosely tufted graminoid (nearly prostrate, ascending and/or erect culms 6 to 44 inches in height); the leaf blades may be blue-green or gray; the anthers may be gray to yellow, sometimes with purple spots; flowering generally takes place between late February and late May (additional records: one for early July, one for mid-August, one for early September and one for early October). HABITAT: Within the range of this species it has been reported from mountains; clayey mountaintops; mountainsides; mesas; plateaus; sandy soils on cliffs; bases of cliffs; gravelly canyons; rocky, rocky-gravelly and sandy canyon bottoms; bluffs; buttes; pebbly ridgetops; meadows; rocky hills; rocky hillsides; bases of hills; rocky, rocky-loamy, cobbly-gravelly-loamy, gravelly, gravelly-clayey, sandy-loamy, loamy, clayey and silty slopes; sandy bajadas; boulder outcrops; sand dunes; pebbly plains; gravelly, pebbly and clayey flats; valley floors; valley bottoms; along railroad right-of-ways; along gravelly, sandy and clayey roadsides; gulches; within gullies; springs; along streams; along creeks; sandy and loamy creekbeds; along rivers; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; rocky drainage ways; rocky-sandy bases of waterfalls; waterholes; sandy-silty lakebeds; silty playas; ciénegas; clayey freshwater marshes; clayey depressions; swales; (sandy) banks of arroyos, rivers and washes; (sandy) edges of seeps, creekbeds, rivers, poolbeds and ponds; shores of rivers and lakes; mudflats; channel bars; sandy bottomlands; along sandy and silty floodplains; around stock tanks; along silty ditches; banks of ditches; rocky-sandy, gravelly and sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, cobbly-gravelly loam, gravelly loam, sandy loam, sandy-clayey loam and loam ground; bouldery-cobbly clay, gravelly clay and clay ground, and rocky-silty, sandy silty and silty ground, occurring from sea level to 9,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication (*H.m.* subsp. *glaucum*). *Hordeum murinum* is native to Europe and islands in the Mediterranean Sea; western, central and southern Asia, and northern Africa and islands in the North Atlantic Ocean. *5, 6, **16**, 33 (note under *Hordeum leporinum*, Page 107), 43 (101309), 44 (120811), 63 (120811 - color presentation), 85 (120811 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 124 (120811 - no record of species; genus record), 127*

***Hordeum murinum* C. Linnaeus subsp. *glaucum* (E.G. von Steudel) N.N. Tzvelev: Smooth Barley**

SYNONYMY: *Hordeum stebbinsii* G. Covas. COMMON NAMES: Barley (a name also applied to the species and genus *Hordeum*); Blue Barley-grass; Blue-gray Barley; Blue-green Foxtail Barley; Cebada (Spanish); Glaucous Barley; Seagreen Barley; Northern Barley Grass; Northern Barley-grass; Northern Barleygrass; Smooth Barley; Spädkorn; Wild Barley (a name also applied to subsp. *leporinum* and the genus *Hordeum*); -ya-jewel-g-ute- (Hairs Kills Horses - Supai). DESCRIPTION: Terrestrial annual tufted graminoid (nearly prostrate, ascending and/or erect culms 4 to 16 inches in height); the florets are green; flowering generally takes place between early March and early June (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; gravelly canyons; rocky-gravelly and sandy canyon bottoms; bases of cliffs; sandy bluffs; buttes; meadows; foothills; hills; rocky and sandy hillsides; rocky, cobbly-gravelly-loamy and loamy slopes; sandy bajadas; boulder outcrops; sand dunes; sandy flats; valley floors; along railroad right-of-ways; along sandy roadsides; arroyos; draws; gulches; springs; along streams; along creeks; loamy creekbeds; along and in rocky and gravelly-sandy washes; rocky drainage ways; pools; lakebeds; cienegas; depressions; banks of arroyos and rivers; edges of seeps, creekbeds and rivers, margins of playas; channel bars; along sandy and silty floodplains; around stock tanks; along canal banks; along ditches; banks of ditches; sandy riparian areas; waste places, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam and loam ground; clayey ground, and silty ground, occurring from 100 to 9,100 feet in elevations in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication. *Hordeum murinum* subsp. *glaucum* is native to southwestern Europe and islands in the Mediterranean Sea; western, central and southern Asia, and northern Africa and islands in the North Atlantic Ocean. *5, 6, 15, 43 (101309), 44 (120911), 46 (recorded as *Hordeum stebbinsii* Covas, Page 97), **56**, **57**, 58, 63 (120911 - color presentation), 77, **85** (120911 - color presentation of dried material), 124 (120911 - no record of subspecies or species; genus record), 127, 140 (Page 300)*

***Hordeum pusillum* T. Nuttall: Little Barley**

SYNONYMY: *Hordeum pusillum* T. Nuttall var. *pubens* A.S. Hitchock. COMMON NAMES: Barley Grass (a name also applied to the genus *Hordeum*); Dvärgkorn (Swedish); Little Barley; Little Wildbarley; Mouse Barley; Wild Barley (a name also applied to other species and the genus *Hordeum*). DESCRIPTION: Terrestrial tufted annual graminoid (geniculate, ascending and/or erect culms 4 to 24 inches in height); the foliage is gray-green turning yellow-green; the spikelets (flowers) are pale green; flowering generally takes place between mid-March and late July. HABITAT: Within the range of this species it has been reported from mountains; rocky and clayey-loamy mesas; plateaus; canyon rims; bases of cliffs; rocky canyons; canyon bottoms; rocky, rocky-gravelly-clayey and gravelly-sandy buttes; rocky ridges; rocky and rocky-gravelly-silty ridgetops; sandy and clayey meadows; rocky and sandy hills; rocky hillsides; rocky, stony, shaley, gravelly, sandy, sandy-loamy, clayey, clayey-loamy and silty-clayey slopes; rock beds; sandy alcoves; sandy steppes; sandy, loamy-clayey, clayey-loamy, silty and silty-loamy prairies; plains; gravelly, gravelly-clayey-loamy, sandy and clayey flats; rocky, sandy, clayey, silty and silty-loamy uplands; valley floors; valley bottoms; along railroad right-of-ways; silty-loamy roadbeds; roadcuts; along gravelly, sandy-loamy and sandy-clayey-loamy roadsides; within clayey draws; bottoms of draws; gulches; ravines; seeps; around springs; along streams; streambeds; along and in creeks; clayey-loamy creekbeds; in sand along rivers; sandy riverbeds; along and in clayey washes; clayey drainages; among and in pools; in rocks around ponds; clayey playas; ciénegas; clayey depressions; clayey swales; (shaley, sandy, loamy and loamy-clayey) banks of draws, creeks, rivers; edges of rivers, ponds and marshes; margins of streams and lakes; shores of lakes; sandy benches; clayey shelves; sandy terraces; clayey bottomlands; rocky-gravelly and clayey floodplains; along fencelines; clayey catchments; around stock tanks; bottoms of reservoirs; along and in ditches; sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry rocky, rocky-gravelly, shaley, stony, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky clay, rocky-gravelly clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground, and rocky-gravelly silty, gravelly silty and silty ground, occurring from sea level to 9,100 in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Little Barley was grazed by American Bison (*Bos bison*), deer and Pronghorn (*Antilocapra americana*). *Hordeum pusillum* is native to west-central, southeast-central and southern North America and possibly islands in the North Atlantic Ocean. *5, 6, 15, **16**, 33 (Page 107), 43 (101309), 44 (121011 - no records listed under Common Names; genus record), 46 (Page 97), **56**, **57**, 58, 63 (121011 - color presentation), **77**, **85** (121011 - color presentation in habitat), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain), 124 (121011), 140 (Pages 205 & 300)*

Hordeum pusillum var. *pubens* (see *Hordeum pusillum*)

Hordeum stebbinsii (see *Hordeum murinum* subsp. *glaucum*)

***Hordeum vulgare* C. Linnaeus: Common Barley**

COMMON NAMES: Barley (a name also applied to subsp. *vulgare*; other species, and to the genus *Hordeum*); Bear Barley (varieties of 6-rowed Barley); Beardless Barley; Bere; Big Barley; Black Barley (varieties of 4-rowed Barley); Bori (transcribed Korean); Cebada (subsp. *vulgare*, Spanish); Cereal Barley; Cevada (subsp. *spontaneum* and subsp. *vulgare*, Portuguese: Brazil); Common Barley; Common English Barley; Cultivated Barley; Da Mai (for subsp. *vulgare*, transcribed Chinese); Dinkel Barley; Four-row Barley; Four Rowed Barley; French Barley (varieties of 4-rowed Barley); Gerste (subsp. *vulgare*, German); Golden Barley (varieties of 2-rowed Barley); Hulless Barley (Oklahoma); Italian Barley (varieties of 2-rowed Barley); Juba (Bengali); Korn (Swedish); Krithe (subsp. *vulgare*, transliterated Greek); Little Barley; Naked Barley (varieties of 4-rowed Barley); Nepal Barley; Ō-Mugi (subsp. *vulgare* and the species, Japanese Rōmaji); Orge (subsp. *vulgare*, French); Orge Vulgaire (subsp. *vulgare*, French); Orzo (subsp. *vulgare*, Italian); Pearl Barley (prepared seed); Red Barley (varieties of 6-rowed Barley); Russian Barley (varieties of 4-rowed Barley); Saatgerste (subsp. *vulgare*, German); Scotch Barley (varieties of 6-rowed Barley); Siberian Barley (a 2-rowed Barley); Siivayu (Pima); Six-lines Barley; Six Rowed Barley; Six-row Barley; Six-rowed Barley; Sixrow Barley; Spring Barley (varieties of 4-rowed Barley); Square Barley; Two Rowed Barley; Two-row Barley; Two-rowed Barley; Tworow Barley; Urkorn (subsp. *spontaneum*, Swedish); Wheat Barley (varieties of 4-rowed Barley); Wild Barley (a name also applied to subsp. *spontaneum*; other species and to the genus *Hordeum*); Wildgerste (subsp. *spontaneum*, German); Winter Barley (varieties of 4-rowed Barley); Yuva (Sanskrit). DESCRIPTION: Terrestrial annual tufted graminoid (erect culms to 60 inches in height); the spikes are green to black or purplish; the anthers are yellowish; flowering generally takes place between late March and late May (flowering records: one for late March, one for mid-April, one for early May, three for mid-May, one for late May and one for early July). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; hillsides; sandy slopes; sandy bajadas; rocky outcrops; prairies; sandy flats; along gravelly roadsides; springs; in riverbeds; gravelly washes; in drainages; in drainage ways; depressions; sandy banks of rivers; edges of creeks; floodplains; shores of reservoirs; around ditches; riparian areas; waste places, and disturbed areas growing in damp rocky, rocky-sandy, gravelly and sandy ground; loam ground, and clay ground, occurring from 900 to 9,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. Common Barley (*Hordeum vulgare* subsp. *vulgare* is the subspecies of *Hordeum vulgare*) that is commonly cultivated. *Hordeum vulgare* subsp. *spontaneum* is the progenitor of cultivated Barley. *Hordeum vulgare* is native to southeastern Europe on islands in the Mediterranean Sea; central and southern Asia and islands in the Philippine Sea, and northern Africa. *5, 6, 15, 33 (note under *Hordeum*, Page 105),

43 (101309), 44 (121111 - no records listed under Common Names; genus record), 46 (note under *Hordeum*, Page 96 and Supplement Page 1041), 63 (121111 - color presentation), 80 (This plant is listed as a Poisonous Cropland and Garden Plant. "Barley infected with the fungus *Giberella* (scabby barley) has poisoned hogs, but ruminants appear immune. Also plants accumulate toxic levels of nitrate."), **85** (121111 - color presentation), 124 (121111), 127*

***Lamarckia aurea* (C. Linnaeus) C. Moench: Goldentop Grass**

COMMON NAMES: Golden Dog's Tail; Golden Dog's-tail; Golden Dogs Tail; Golden Dogs-tail; Golden Lamarckia; Golden Top (a name also applied to other species); Golden Top Grass (a name also applied to the genus *Lamarckia aurea*); Golden-top (a name also applied to other species); Golden-top Grass (a name also applied to the genus *Lamarckia aurea*); Goldentop (a name also applied to other species); Goldentop Grass (a name also applied to the genus *Lamarckia aurea*); Guldäxing (Swedish). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 2 to 16 inches in height); the foliage is pale green; the inflorescences are golden-yellow, purplish, straw or yellow; flowering generally takes place between late February and late May (additional records: one for early January, one for early February and one for late August). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; rocky mesas; plateaus; rocky canyons; rocky canyon bottoms; chasms; crevices in boulders and rocks; sandy-humusy pockets of soil; bluffs; buttes; ridges; ridgetops; sandy meadows; foothills; rocky hills; rocky and sandy-loamy hilltops; bouldery and rocky hillsides; bouldery, rocky, rocky-clayey and sandy slopes; rocky-sandy-loamy alluvial fans; amongst rocks; sand dunes; flats; valley floors; coastal plains; along rocky roadsides; arroyos; bottoms of arroyos; rocky draws; sandy seeps; along streams; streambeds; creeks; rocky and sandy creekbeds; riverbeds; along and in sandy washes; drainages; rocky-sandy bases of waterfalls; pools; freshwater and saltwater marshes; (sandy) edges of creeks; beaches; rocky-loamy benches; bottomlands; riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy and sandy ground; rocky loam, rocky-sandy loam, sandy loam and clayey loam ground; rocky clay and clay ground, and sandy humusy ground, occurring from sea level to 5,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Lamarckia aurea* is native to southern Europe and islands in the Mediterranean Sea; western Asia and islands in the Mediterranean Sea, and northern Africa and islands in the North Atlantic Ocean. *5, 6, 33 (Page 93), 43 (101409), 44 (121211 - color photograph), 46 (Page 88), 63 (121211 - color presentation), 77, 85 (121211 - color presentation including habitat), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 124 (121211 - no record of genus or species), 127*

Leptochloa fascicularis (see *Leptochloa fusca* subsp. *fascicularis*)

Leptochloa filiformis (see *Leptochloa panicea* subsp. *brachiata*)

***Leptochloa fusca* (C. Linnaeus) K.S. Kunth subsp. *fascicularis* (J.B. de Lamarck) N. Snow: Bearded Sprangletop**

SYNONYMY: *Leptochloa fascicularis* (J.B. de Lamarck) A. Gray. COMMON NAMES: Beaded Sprangletop; Bearded Sprangle Top; Bearded Sprangle-top; Bearded Sprangle-top Grass; Bearded Sprangletop; Bearded Sprangle-top; Clustered Love Grass (a name also applied to other species); Clustered Love-grass (a name also applied to other species); Clustered Salt Grass; Clustered Salt-grass; Clustering Slender Grass; Leptochloa (a name also applied to the genus *Leptochloa*); Long-awn Diplachne; Long-awn Sprangletop; Long-awned Diplachne; Long-awned Sprangletop; Loose-flowered Sprangle-top; Loose-flowered Sprangletop; Salt Meadow Diplachne; Salt Meadow Grass (a name also applied to other species); Salt Meadow-grass; Salt Meadowgrass; Salt Sprangletop; Salt-meadow Diplachne; Saltpond Grass (a name also applied to the species, *Leptochloa fusca*); Sharp-scale Diplachne; Sharp-scaled Diplachne; Spike Grass (a name also applied to other species); Sprangletop (a name also applied to other species and the genus *Leptochloa*). DESCRIPTION: Terrestrial annual graminoid (prostrate, decumbent and/or erect culms 2 to 60 inches in height); the foliage is bluish-green; the inflorescence is pale green; the spikelets (flowers) becoming bluish, grayish or violet; flowering generally takes place between late June and mid-October (additional flowering record: one for mid-December; flowering beginning as early as May has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; hillsides; rocky slopes; lava flows; clay hardpans; silty flats; basins; valley floors; valley bottoms; along cindery railroad right-of-ways; along sandy, sandy-clayey, loamy-clayey and clayey roadsides; bedrock arroyos; seeps; springs; along and in sandy streams; streambeds; along creeks; along muddy and clayey creekbeds; in sand along rivers; sandy, sandy-clayey and clayey riverbeds; within drainage ways; mud puddles; around pools; around ponds; around lakes; playas; ciénegas; marshes; depressions; within sloughs; swales; along banks of rivers; along edges of ponds, lakes, playas, marshes and sloughs; along (muddy) shores of springs, creeks and lakes; mudflats; sand and silt bars; sandy beaches; sandy, sandy-clayey and clayey bottomlands; floodplains; muddy-silty lowlands; mesquite bosques; along fencelines; levees; around and in stock tanks (charcos); around and in reservoirs; along canal banks; along and in ditches; ditch banks; gravelly-sandy, sandy, sandy-clayey and clayey riparian areas; waste places and disturbed areas growing in shallow water; muddy, and wet, moist and dry rocky, cindery, gravelly-sandy and sandy ground; sandy loam and humusy-clayey loam ground; sandy clay, loamy clay and clay ground, and silty ground, occurring from sea level to 7,400 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Leptochloa fusca* subsp. *fascicularis* is native to south-central and southern North America, Central America and islands in the Caribbean Sea, and western and southern South America. *5, 6, **16** (recorded

as *Leptochloa filiformis* (Lam.) Beauv.), 33 (recorded as *Leptochloa fascicularis* (Lam.) A. Gray, Page 137), 43 (101409), 44 (121311 - no records listed under Common Names, records listed under *Leptochloa fascicularis*), 46 (recorded as *Leptochloa fascicularis* (Lam.) Gray, Page 123), **56**, **57**, 63 (121311), 68 (recorded as *Leptochloa fascicularis* (Lam.) Gray), **77** (recorded as *Leptochloa fascicularis* (Lam.) A. Gray), **85** (121311 - color presentation), 124 (121311), 140 (Page 300)*

***Leptochloa fusca* (C. Linnaeus) K.S. Kunth subsp. *uninervia* (J.S. Presl) A.S. Hitchcock & M.A. Chase: Mexican Sprangletop**

SYNONYMY: *Leptochloa uninervia* (J.S. Presl) A.S. Hitchcock & M.A. Chase. COMMON NAMES: Dense-flower Sprangletop; Dense-flowered Sprangle-top; Dense-flowered Sprangletop; Mexican Sprangle Top; Mexican Sprangle-top; Mexican Sprangletop; Sprangletop (a name also applied to other species and the genus *Leptochloa*); Zacate Salado (Spanish). DESCRIPTION: Terrestrial annual or perennial graminoid (erect culms 6 to 44 inches in height and up to 20 inches in width at the base); the foliage is blue-green or gray-green; the inflorescence is gray-green; the spikelets (flowers) are the color of lead turning dark blue, dark gray, dark green or dark violet, flowering generally takes place between early March and late November (additional records: one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; bluffs; buttes; foothills; hillsides; cobbly-sandy alluvial fans; bouldery, rocky, sandy, clayey and silty slopes; bouldery and rocky flats; valley floors; along sandy roadsides; seeps; springs; along streams; sandy and sandy-clayey streambeds; sandy creekbeds; along rivers; sandy riverbeds; sandy washes; clayey lakebeds; clayey freshwater marshes; along (muddy, sandy and silty) banks of streams, creeks, rivers, pools and sand tanks; (sandy) edges of rivers, lakes and lagoons; margins of lakes and freshwater marshes; shores of lakes; mudflats; sandy beaches; sandy benches; loamy bottomlands; sandy floodplains; edges of canals; along and in ditches; along ditch banks; riparian areas; waste places, and disturbed areas growing in wet, moist and damp bouldery, rocky, rocky-cobbly-sandy, cobbly-sandy and sandy ground; loam ground; gravelly-sandy clay, sandy clay and clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Leptochloa fusca* subsp. *uninervia* is native to south-central and southern North America, Central America and islands in the Caribbean Sea, and South America. *5, 6, 33 (recorded as *Leptochloa uninervia* (Presl) Hitchc. & Chase, Pages 137-138), 43 (101409), 44 (121311 - no records listed under Common Names, records listed under *Leptochloa uninerviaD*), 46 (recorded as *Leptochloa uninervia* (Presl) Hitchc. & Chase, Page 123), 63 (121311), 68 (recorded as *Leptochloa uninervia* (Presl) Hitchc. & Chase), 77 (recorded as *Leptochloa uninervia* (Presl) A.S. Hitchc.), **85** (121311 - color presentation of dried material), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain, recorded as *Leptochloa imbricata* Thurb.), 101 (recorded as *Leptochloa uninervia* (Presl) Hitchc. & Chase, color photograph), 124 (121311 - no record of subspecies or species; genus record), 140 (Page 300 - recorded as *Leptochloa uninervia* (J. Presl) A.S. Hitchcock & Chase)*

Leptochloa imbricata (see footnote 89 under *Leptochloa fusca* subsp. *uninervia*)

Leptochloa mucronata (see *Leptochloa panicea* subsp. *mucronata*)

***Leptochloa panicea* (A.J. Retzius) J. Ohwi subsp. *brachiata* (E.G. von Steudel) N. Snow: Mucronate Sprangletop**

SYNONYMY: *Leptochloa filiformis* (J.B. de Lamarck) A.M. Palisot de Beauvois. COMMON NAMES: Desparramo Rojo (Red Sprangle-top); Feather Grass; Feather-grass; Mucronate Sprangletop; Red Sprangle-top; Red Sprangletop; Salt Grass; Salt-grass; Slender Grass (a name also applied to the genus *Leptochloa*); Slender-grass (a name also applied to the genus *Leptochloa*); Zacate Salado (Salt Grass). DESCRIPTION: Terrestrial annual or perennial graminoid (decumbent and/or erect culms less than 4 inches to 5 feet in height; spreading at the base); the foliage is magenta, purplish or reddish; the spikelets (flowers) are tinged with purple or red; flowering generally takes place between late August and late September (additional records: one for mid-March, two for mid-October, two for early November, one for mid-November and one for mid-December; flowering beginning as early as May has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; gravelly mesas; rocky canyons; canyon bottoms; rocky talus slopes; shallow pockets of soil in bedrock; buttes; rocky ridgetops; meadows; foothills; rocky hills; rocky hillsides; rocky, gravelly, gravelly-loamy and clayey slopes; bajadas; bouldery and rocky outcrops; silty lava flows; rocky and cobbly plains; flats; valley floors; along rocky and sandy roadsides; within sandy arroyos; bottoms of arroyos; within draws; springs; along streams; along cobbly-sandy streambeds; along creeks; bouldery-cobbly-sandy riverbeds; along and in gravelly, gravelly-sandy, sandy, sandy-loamy and silty washes; drainages; within clayey drainage ways; playas; (rocky) banks of rivers and washes; edges of ponds; gravel bars; loamy bottomlands; sandy floodplains; around stock tanks (represos); edges of canals; along and in ditches; along ditch banks; bouldery riparian areas, and disturbed areas growing in wet, damp and dry bouldery, bouldery-cobbly-sandy, rocky, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground; gravelly clay and clay ground, and silty ground, occurring from sea level to 6,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Leptochloa panicea* subsp. *brachiata* is native to south-central and southern North America; Central America and islands in the Caribbean Sea, and central and southern South America. *5, 6, 15 (recorded as *Leptochloa filiformis* (Lam.) Beauv.), **16** (recorded as *Leptochloa filiformis* (Lam.) Beauv.), 33 (recorded as *Leptochloa filiformis* (Lam.) Beauv., Page 135), 43 (101509), 44 (121411 - no records listed under Common Names; genus records), 46 (recorded as *Leptochloa filiformis* (Lam.) Beauv., Page 123), 58 (recorded as

Leptochloa filiformis (Lam.) Beauv.), 63 (121411), 68 (recorded as *Leptochloa filiformis* (Lam.) Beauv.), 77 (recorded as *Leptochloa filiformis* (Lam.) Beauv.), **85** (121411 - color presentation), 124 (121411), 140 (Pages 209 & 300 - recorded as *Leptochloa panicea* (Retzius) Ohwi subsp. *brachiata* (Steudel) N. Snow [*Leptochloa filiformis* (Persoon) P. Beauvois; previously also known as *L. mucronata* (Michaux) Kunth or *L. panicea* subsp. *mucronata* (Michaux) Nowack (in part); subsp. *mucronata* now restricted to SE and central U.S.])*

***Leptochloa panicea* (A.J. Retzius) J. Ohwi subsp. *mucronata* (A. Michaux) R. Nowack: Mucronate Sprangletop**

SYNONYMY: *Leptochloa mucronata* (A. Michaux) H.B. Kunth. COMMON NAMES: Desparramo Rojo; Feather Grass (a name also applied to other species); Feather-grass (a name also applied to other species); Mississippi Sprangletop; Mucronate Sprangletop (a name also applied to the species); Needle Spranletop (a name also applied to the species); Pointed Slender Grass (a name also applied to the species); Sharp-scale Leptochloa (a name also applied to the species and to other species); Sharp-scaled Leptochloa (a name also applied to the species); Slendergrass (a name also applied to the genus *Leptochloa*); Slender Grass (a name also applied to the genus *Leptochloa*). DESCRIPTION: Terrestrial annual or perennial graminoid (decumbent and/or erect culms less than 4 to 44 inches in height; spreading at the base); the inflorescence is green; flowering generally takes place between mid-March and mid-October (flowering records: one for mid-March, one for late April, one for early May, one for mid-July, three for mid-August, one for late August, two for early September, two for mid-September, two for early October, two for mid-October and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky and gravelly canyons; canyon bottoms; chasms; ledges; rocky ridgetops; foothills; rocky and clayey hills; rocky hillsides; rocky, rocky-sandy, rocky-clayey, gravelly and gravelly-loamy slopes; rocky lava slopes; llanos; plains; gravelly-clayey and sandy-silty flats; valley bottoms; roadbeds; along gravelly roadsides; along arroyos; bottoms of arroyos; along streams; sandy streambeds; along creeks; in sandy soil along rivers; sandy riverbeds; along and in rocky, gravelly-sandy, gravelly-sandy-silty, sandy and silty washes; along drainages; playas; muddy-silty swampy areas; sandy-silty and silty depressions; banks of streams and rivers; (sandy) edges of ponds and playas; margins of arroyos and waterholes; benches; bottomlands; sandy floodplains; lowlands; along fencelines; around stock tanks (charcos, represos); along ditches; banks of ditches; gravelly riparian areas, and disturbed areas growing in muddy and wet, moist and dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam ground; bouldery clay, rocky clay, gravelly clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 5,600 feet in elevation in the forest, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an Exotic species. *Leptochloa panicea* subsp. *mucronata* is native to south-central (and southern?) North America. *5, 6, 33 (recorded as *Leptochloa mucronata pulchella* Scribn., brief note on page 135), 43 (101509), 44 (121511 - recorded as *Leptochloa mucronata*), 46 (no record), 63 (121511), **85** (121511), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain, recorded as *Leptochloa filiformis* (Lamb.) Beauv. var. *not recorded* (= *Leptochloa mucronata* (Michx.) Kunth)), 124 (121511)*

Leptochloa uninervia (see *Leptochloa fusca* subsp. *uninervia*)

***Leptochloa viscida* (F.L. Scribner) W.J. Beal: Sticky Sprangletop**

COMMON NAMES: Kupo (a possible error in identification and reporting: Kupo should probably be applied to *Leptochloa dubia*, Yuman: Mohave); Sonoran Sprangletop; Sticky Sprangle Top; Sticky Sprangle-top; Sticky Sprangletop; Zacate Salado Pagajoso; Viscid Leptochloa; Viscid Sprangletop. DESCRIPTION: Terrestrial annual graminoid (prostrate, decumbent, geniculate and/or erect culms 1¼ to 24 inches in height); the spikelets (flowers) are green or magenta; the florets may be reddish; based on few flowering records found, flowering generally takes place between late August and late October (flowering records: one for mid-January, one for August, one for early September, four for mid-September, one for late September and one for late October; flowering beginning as early as June has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyon bottoms; rocky slopes; llanos; gravelly-sandy plains; flats; valley floors; valley bottoms; along roadsides; sandy arroyos; bottoms of arroyos; springs; rivulets; streams; along sandy streambeds; sandy riverbeds; in bouldery and sandy washes; along and in muddy and sandy drainages; within sandy drainage ways; muddy waterholes; poolbeds; around ponds; powdery playas; ciénegas; marshes; silty-muddy swampy areas; clayey depressions; muddy and clayey-loamy swales; (muddy and sandy) edges of riverbeds, pools, ponds, cienegas and playas; along (sandy) margins of washes, ponds; playas and drying swales; mudflats; loamy bottomlands; floodplains; clayey mesquite bosques; recharge basins; around and in stock tanks (charcos, represos); within ditches; riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery, rocky, gravelly-sandy and sandy ground; sandy loam, clayey loam and loam ground; clay ground; silty ground, and powdery ground, occurring from sea level to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Leptochloa viscida* is native to southwest-central and southern North America. *5, 6, 33 (Page 137), 43 (080810 - *Leptochloa viscida* (Scribn.) Beal), 44 (111511), 46 (Page 123), **56**, **57**, 63 (121511), **85** (121511 - color presentation), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain), 124 (121511 - no record of species; genus record), 140 (Page 208)*

***Leymus triticoides* (S.B. Buckley) R.K. Pilger: Beardless Wildrye**

SYNONYMY: *Elymus triticoides* S.B. Buckley. COMMON NAMES: Alkalai Rye; Alkalai Rye Grass; Alkalai Rye-grass; Alkalai Ryegrass; Alkalai Wild Rye; Alkalai Wild-rye; Alkalai Wildrye; Alkali Rye; Alkali Rye Grass; Alkali Rye-grass; Alkali Ryegrass; Alkali Wild Rye; Alkali Wild-rye; Alkali Wildrye; Beardless Lyme Grass; Beardless Wild Rye (a name also

applied to other species); Beardless Wild-rye (a name also applied to other species); Beardless Wildrye (a name also applied to other species); Creeping Beardless Wild-rye; Creeping Beardless Wildrye; Creeping Wild Rye (a name also applied to other species); Creeping Wild Rye Grass; Creeping Wild Rye-grass; Creeping Wild Ryegrass; Creeping Wildrye (a name also applied to other species); Saline Creeping Wild Rye Grass; Saline Creeping Wild Ryegrass; Valley Wild Rye; Valley Wild-rye; Valley Wildrye; Wheatgrass Leymus. DESCRIPTION: Terrestrial perennial (strongly rhizomatous) graminoid (erect culms 16 to 50 inches in height); the foliage is green; flowering generally takes place between late April and mid-September (additional records: one for early October and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bouldery mountainsides; plateaus; cliffs; hanging gardens; canyon rims; canyons; canyon bottoms; talus; rocky ledges; ridges; loamy and clayey meadows; bouldery and rocky hills; sandy-silty and clayey hillsides; rocky, clayey, silty-loamy and silty-clayey slopes; rocky outcrops; amongst rocks; alcoves; sandy-clayey-loamy flats; rocky-sandy and sandy uplands; valley floors; coastal dunes; coastal freshwater and saltwater marshes; clayey roadsides; within arroyos; draws; seeps; springs; in sandy soil along streams; along sandy and clayey streambeds; along creeks; along creekbeds; along rivers; sandy-loamy riverbeds; along sandy and clayey washes; within sandy drainages; ciénegas; freshwater and saltwater marshes; along sloughs; clayey swales; along (sandy, sandy-loamy and sandy-clayey) banks of creeks, rivers and washes; edges of streams, washes, ciénegas and freshwater marshes; margins of ponds, lakes and lakebeds; shores of ponds and lakes; sand bars; beaches; sandy benches; terraces; floodplains; within sandy and loamy ditches, and sandy and sandy-clayey riparian areas growing in wet, moist, damp and dry bouldery, rocky, rocky-sandy, stony, gravelly and sandy ground; sandy loam, sandy-clayey loam, silty loam and loam ground; sandy clay, silty clay and clay ground, and sandy-silty ground, occurring from sea level to 11,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber crop. *Leymus triticoides* is native to west-central and southern (Baja Norte) North America. *5, 6, 33 (recorded as *Elymus triticoides* Buckl., Page 123), 43 (061010), 44 (121611), 46 (recorded as *Elymus triticoides* Buckl., Page 95), 58 (recorded as *Elymus triticoides* Buckl.), 63 (121611 - color presentation), 85 (121611 - color presentation), **89** (reported as being a perennial herb located on from the Santa Cruz Flood-plain, recorded as *Elymus triticoides* Buckley), 124 (121611), 127*

Lolium temulentum **C. Linnaeus (subsp. *temulentum* is the subspecies reported as occurring in Arizona): Darnel Ryegrass**

COMMON NAMES: Annual Bearded Rye-grass; Bearded Darnel (a name also applied to var. *temulentum*); Bearded Darnel Grass; Bearded Darnel-grass; Bearded Darnell; Bearded Ray Grass; Bearded Ryegrass; Beardless Darnel Rye Grass (var. *temulentum*); Beardless Darnel Ryegrass (var. *temulentum*); Bragge (var. *temulentum*); Cheat (var. *temulentum*, a name also applied to other species); Darnel (var. *temulentum*, a name also applied to the genus *Lolium*); Darnel Grass (var. *temulentum*, a name also applied to the genus *Lolium*); Darnel Rye Grass (var. *temulentum*); Darnel Ryegrass (a name also applied to var. *temulentum*); Darnell Rye-grass; Dragge (var. *temulentum*); Drake (var. *temulentum*); Drake Seed Darnel; Drank (var. *temulentum*); Dravick (var. *temulentum*); Drawke (var. *temulentum*); Droke (var. *temulentum*); Drunk (var. *temulentum*); Eaver (var. *temulentum*); Flax Darnel (var. *remotum*); Flax-darnel (var. *remotum*); Flaxfield Rye Grass (var. *remotum*); Flaxfield Rye Grass (var. *remotum*); Ivory (var. *temulentum*, Oklahoma); Ivraie (var. *temulentum*), Ivraie Du Lin (var. *remotum*), French); Ivraie Enivrante (var. *temulentum*, French); Ivray (var. *temulentum*); Ivraie Du Lin (var. *remotum*); Ivraie Enivrante (var. *temulentum*); Joio (Portuguese: Brazil); Lolch (var. *temulentum*, German); Lover's-steps (var. *temulentum*); Neele (var. *temulentum*); Nelle (var. *temulentum*); Poison Darnel (a name also applied to var. *temulentum*); Poison Ray Grass; Poison Rye Grass; Poison Ray-grass; Poison Rye-grass; Poison Ryegrass; Ray (var. *temulentum*); Poison-darnel (a name also applied to var. *temulentum*); Ray Grass (a name also applied to var. *temulentum* and to the genus *Lolium*); Ray-grass (a name also applied to var. *temulentum*); Riely (var. *temulentum*); Ssizânia (Portuguese: Brazil); Sturdy (var. *temulentum*); Sturdy Ryle (a name also applied to var. *temulentum*); Tare (thought to be the Biblical "tares", var. *temulentum*); Tares (thought to be the Biblical "tares", var. *temulentum*); Taumellolch (German); Taummelkorn (German); Virginian Oat. DESCRIPTION: Terrestrial annual graminoid (erect culms 1 to 4 feet in height); based of few records of observation located, flowering generally takes place between mid-April and mid-July (flowering records: four for mid-April, two for early June, two for mid-June, two for late June and one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; canyons; hillsides; amongst boulders; valley floors; along roadsides; seeps; riverbeds; banks of streams; dams; along ditches; ditch banks; waste places, and disturbed areas growing in moist bouldery and sandy ground, occurring from sea level to 4,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This species, *Lolium temulentum*, was reported to have been utilized by native peoples of North America; it was noted as having been used for food. For subspecies *temulentum*, the use of "forma" and variety were also observed. *Lolium temulentum* is native to Europe; Asia, and northern Africa. *5, 6, 33 (Page 125), 43 (101609 - *Lolium temulentum*), 44 (121811), 46 (Page 97), 63 (121811 - color presentation of seed; Grass Manual on the Web reported: "Because primitive agricultural practices could not separate seeds of *Lolium temulentum* from those of wheat, infected [with an endophytic fungus, assumed to be the source of the toxic pyrrolizidine alkaloids loline, 6-methyl loline and lolinine ...] seeds often resulted in poisonous flour."), 80 (This species has been listed as a Rarely Poisonous and Suspected Poisonous Range Plant. This grass has "been suspected of being toxic to man and livestock, directly or through fungus contamination, but evidence is not conclusive."), 85 (121811 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 124 (121811), 127*

Melinis repens **(C.L. von Willdenow) G. Zizka: Rose Natal Grass**

SYNONYMY: *Rhynchelytrum repens* (C.L. von Willdenow) C.E. Hubbard, *Rhynchelytrum roseum* (C.G. Nees von Esenbeck) O. Stapf & C.E. Hubbard ex J.W. Bews. COMMON NAMES: Creeping Molasses Grass; Espiga Colorada (Spanish); Natal Grass (a name also applied to other species); Natal Red Grass; Natal Red Top; Natal Red Top Grass; Natal Red-top; Natal Redtop; Natal Redtop Grass; Natal Ruby Grass; Pasto (Hispanic); Red Natal Grass; Red Natalgrass; Rose Natal Grass; Rose Natalgrass; Yerba de Natal (Spanish); Zacate Natal (Hispanic); Zacate Rosado (subsp. *repens*, Spanish: Mexico, Sonora). DESCRIPTION: Terrestrial annual or perennial tufted graminoid (trailing, spreading, prostrate, decumbent and/or geniculate culms 8 inches to 5 feet in height); the inflorescence has been described as being brownish-pink, pink, deep pink, darkish purple, purplish-pink, reddish, rose or white; the (spikelets) flowers are red or dark rose with long silky purplish-pink hairs; the anthers are orange or orange-brown; flowering generally takes place between late January and mid-December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; cliff faces; bases of cliffs; rocky canyons; rocky canyon walls; along rocky and gravelly canyon bottoms; crevices in boulders and rocks; rocky bluffs; ledges; rocky ridges; rocky ridgetops; meadows; foothills; hills; rocky hilltops; rocky hillsides; bouldery, rocky, rocky-gravelly, sandy and clayey slopes; rocky outcrops; amongst boulders and rocks; fumaroles; sand dunes; cobbly-sandy and clayey flats; basins; valley floors; coastal plains; coastal flats; railroad right-of-ways; along sandy roadsides; sandy arroyos; bottoms of arroyos; along streams; rocky streambeds; along creeks; creekbeds; along and in rocky, stony and sandy washes; drainages; drainage ways; swamps; depressions; sloughs; bouldery swales; banks of streams, rivers and drainage ways; terraces; bottomlands; sandy floodplains; lowlands; riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam ground, and clay ground, occurring from sea level to 6,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Melinis repens* is native to southern Asia; Africa, and coastal islands in the North Atlantic Ocean and Western Indian Ocean. *5, 6, 15 (recorded as *Rhynchelytrum repens* (Willd.) C.E. Hubb.), 18, 22 (color photograph), 30, 33 (recorded as *Rhynchelytrum roseum* (Nees) Stapf & Hubb., Pages 271-272), 43 (101609), 44 (121811 - listing of Common Names located under *Rhynchelytrum repens* (Willd.) C.E. Hubb.), 46 (recorded as *Rhynchelytrum roseum* (Nees) Stapf & Hubb., Page 138), **56**, **57**, 63 (121811 - color presentation), 77 (recorded as *Rhynchelytrum repens* (Willd.) C.E. Hubb.), **85** (121811 - color presentation including habitat), 124 (121811 - no record of genus or species), 140 (Page 300 - recorded as *Melinis repens* (Willdenow) Zizka subsp. *repens* [*Rhynchelytrum repens* (Willdenow) C.E. Hubbard])*

Muhlenbergia microsperma (A.P. de Candolle) C.B. von Trinius: Littleseed Muhly

COMMON NAMES: Liendrilla Chica (Spanish); Liendrilla Fina (Spanish); Little Seed Muhly; Little-seed Muhley; Little-seed Muhly; Little-seeded Muhley; Little-seeded Muhli; Little-seeded Muhly; Littleseed Muhly; Small-seeded Muhlenbergia. DESCRIPTION: Terrestrial annual tufted graminoid (spreading decumbent, geniculate and/or erect culms 4 to 40 inches in height); the foliage may be purplish turning red with age; the inflorescence is tinged with purple; the spikelets (flowers) are dark pink or purplish; the anthers are purplish; flowering generally takes place between late January and mid-June (additional records: one for early January, one for early September, one for mid-September, one for late September, one for mid-October, one for late October, one for early November, three for mid-November, three for mid-December and two for late December; flowering beginning in October and ending in May has been reported); the caryopsis (fruit) is reddish-brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mountainsides; mesas; rocky cliffs; along bases of cliffs; bouldery, bouldery-rocky-sandy, rocky and sandy canyons; rocky canyon walls; rocky, rocky-silty, sandy and sandy-loamy canyon bottoms; gorges; scree; talus slopes; crevices in rocks; bluffs; buttes; rocky ledges, rocky and cobbly-sandy-loamy ridges; clayey ridgetops; margins of meadows; foothills; rocky and rocky-sandy hills; rocky, rocky-cobbly, rocky-gravelly and gravelly hillsides; bouldery, bouldery-sandy, bouldery-loamy, rocky, rocky-gravelly, rocky-sandy, rocky-loamy-clayey, rocky-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy, loamy, loamy-clayey, clayey and clayey-loamy slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders; lava bluffs; lava slopes; along lava slides; dunes; gravelly outwash plains; sandy plains; bouldery, rocky-sandy, gravelly and sandy flats; rocky-gravelly coastal slopes; coastal plains; sandy coastal flats; gravelly valley floors; along railroad right-of-ways; bouldery-gravelly-loamy and sandy roadsides; sandy arroyos; in the shade of mesquite trees in the bottoms of arroyos; draws; gulches; rocky-sandy ravines; springs; along streams in the partial shade of Mexican Blue Oaks; rocky and rocky-sandy streambeds; along creeks; along rivers; along and in rocky, rocky-silty, gravelly, gravelly-sandy and sandy washes; silty-clayey drainages; drainage ways; gravelly-sandy tinajas; depressions; along (rocky, gravelly-sandy and sandy) banks of arroyos, streams, washes and drainages; edges of gullies; margins of riverbeds; benches; bottomlands; rocky-sandy-loamy and sandy floodplains; mesquite bosques; around stock tanks (charcos); rocky margins of reservoirs; along and in ditches; sandy riparian areas and disturbed areas growing in wet, moist and dry gravelly desert pavement; bouldery, bouldery-rocky-sandy, bouldery-sandy, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; bouldery loam, bouldery-gravelly loam, rocky-sandy loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky clay, rocky-loamy clay, loamy clay, silty clay and clay ground, and rocky silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This grass sometimes forms dense mound-like colonies. *Muhlenbergia microsperma* is native to southwest-central and southern North America; Central America; northern and western South America, and islands in the North Pacific Ocean. *5, 6, 15, **16**, 30, 33 (Pages 195-196), 43 (101609), 44 (121911), 46 (Page 109), 63 (121911 - color presentation), 77, **85** (121911 - color presentation including habitat), **89** (reported as being a perennial herb located on Tumamoc Hill), 124 (121911 - no record of species; genus record), 140 (Pages 212 & 301)*

***Muhlenbergia porteri* F.L. Scribner ex W.J. Beal: Bush Muhly**

COMMON NAMES: Bakú (Tarahumara in Chihuahua)[140]; Bush Grass (a name also applied to other species); Bush-grass (a name also applied to other species); Bush Muhly (a name also applied to other species); Hoe Grass (a name also applied to other species); Hoegrass; Liendrilla Amacollada (Hispanic); Mesquite Grass (a name also applied to other species); Mesquite Muhley; Mesquite Muhly; Mesquitegrass; Porter Muhlenbergia; Porter's Muhlenbergia; Porter Muhley; Porter Muhly; Porter's Muhley; Porter's Muhly; Telaraña (Hispanic); Zacate Aparejo (Spanish: Sonora)[140]. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass with spreading, trailing prostrate, decumbent, geniculate, ascending and/or erect culms 10 to 44 inches in height/length and 18 inches to 10 feet in width; one plant was observed and described as being 20 inches in height and 40 inches in width, several plants were observed and described as being 28 inches in height and 6½ feet in width, several plants were observed and described as being 3 feet in height and 10 feet in width); the stems are dull green but, and along with the leaves, may be tinged with purple; the leaves are green, purplish-green or yellow-green curing to buff; the panicles (compound inflorescences) are usually purple; the spikelets (flowers) are green becoming purple when mature; the anthers are purple to yellow; flowering generally takes place between late February and late October (additional records: one for late November and one for early December); the caryopsis (fruit) is yellowish-brown the aggregate of which covers the plants in a misty shroud. HABITAT: Within the range of this species it has been reported from mountains; rocky and stony-sandy mountainsides; mesas; rocky cliffs; bouldery and rocky canyons; rocky canyonsides; rocky-sandy and gravelly canyon bottoms; gorges; bouldery talus slopes; crevices in rocks; buttes; along sandy-silty and silty ledges; ridges; rocky ridgetops; rocky foothills; rocky and sandy hills; bouldery-sandy and rocky hillsides; rocky escarpments; along bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-loamy, gravelly, gravelly-loamy, sandy and sandy-loamy slopes; bajadas; rocky outcrops; gravelly bases of rock outcrops; amongst boulders and rocks; alcoves; clefts in rocky hillsides; sandy lava flows; lava fields; sand dunes; dune-like areas of fine blow-sand deposits; gravelly-sandy banks; gravelly plains; rocky, gravelly-sandy, sandy and sandy loamy flats; open sandy ground amongst Ephedra and Larrea; basins; sandy valley floors; valley bottoms; along rocky, rocky-gravelly, gravelly, gravelly-loamy and sandy roadsides; rocky arroyos; within draws; bottoms of draws; gulches; ravines; springs; bouldery streambeds; along rivers; along and in rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along drainages; bouldery-cobbly and rocky drainage ways; around ponds; margins of washes; sandy-silty and silty benches; gravelly terraces; sandy floodplains; sandy mesquite bosques; around represos; riparian areas, and disturbed areas growing in damp and dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-cobbly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and cobbly-sandy silty, sandy silty and silty ground often found growing in the protection of shrubs and trees, occurring from sea level to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. In areas where it occurs naturally, consider including Bush Muhly seed in reseeding mixtures. According to the USDA Forest Service Fire Effects Information System, Bush Muhly germinates best when temperatures are at 86 degrees Fahrenheit (30 degrees Centigrade). When re-vegetating desert washes consider planting Bush Muhly along with Whitethorn Acacia (*Acacia constricta*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Limberbush (*Jatropha cardiophylla*), Triangleleaf Bursage (*Ambrosia deltoidea*) and White Bursage (*Ambrosia dumosa*). Bush Muhly is browsed by the Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). This plant is a host for the smut fungus *Ustilago muhlenbergiae*. *Muhlenbergia porteri* is native to southwest-central and southern North America. *5, 6, 15, **16**, 30, 33 ("Bush Muhly originally existed in extensive stands on the open range lands of southern Arizona but now occurs for the most part in the protection of shrubs and subshrubs and is seldom locally abundant. It is highly palatable and well liked by livestock despite the wiry culms.", Pages 201-202), 43 (101709), 44 (121911), 46 (Page 111), 48, 58, 63 (121911 - color presentation including habitat), 77, **85** (121911 - color presentation including habitat), **89** (reported as being a half-shrub located on the Mesa-like Mountain Slopes), 105 ("This was formerly one of the most abundant and important grasses of southern Arizona, but is found now largely as individual plants under the protection of shrubs. ... Where possible this grass should be allowed to set a full crop of seed during the summer growing season at least every second or third year. Deferment of grazing during July and August every year is recommended on run-down ranges."), 124 (121911), 140 (Pages 211, 212 & 301), **WTK** (August 12, 2005)*

***Panicum* C. Linnaeus: Panicgrass**

COMMON NAME: One Glumed Grass; One-glume Grass; Panic; Panic Grass; Panic-grass; Panicgrass; Panick Grass; Panick-grass; Panickgrass; Panicum; Tickle Grass; Tickle-grass (Nebraska); Tumble Grass (Nebraska); Tumble-grass (Nebraska); Witch Grass; Witch-grass; Witchgrass. *33 (Pages 277-292), 43 (051710), 44 (122111), 46 (Pages 134-137), 63 (122011 - color presentation), 85 (122011), **89** (reported as being a summer annual herb located on from the Mesa-like Mountain Slopes), 124 (122011)*

***Panicum antidotale* A.J. Retzius: Blue Panicum**

COMMON NAMES: Blue Panic; Blue Panic Grass; Blue Panic-grass; Blue Panicgrass; Blue Panicum; Giant Panic (a name also applied to other species); Giant Panic Grass (a name also applied to other species); Giant Panicum (a name also applied to other species); Panic Bleu (French); Pánico Azul (Spanish); Panizo Azul (Spanish). DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms (becoming somewhat woody) 20 inches to 10 feet in height and up to 40 inches in width at the base; one plant was described as being 5 feet in height and 40 inches in width at the base); the foliage is bluish-green to pale green; the spikelets (flowers) are purplish or reddish; the anthers are yellow; based

on few flowering records located, flowering generally takes place between late August and late September (flowering records: one for mid-January, one for early June, one for late August, two for early September and two for late September). HABITAT: Within the range of this species it has been reported from mountains; canyons; rocky slopes; dunes; blow-sand deposits; flats; valley floors; along gravelly roadsides; arroyos; along rivers; riverbeds; along sandy washes; lakebeds; depressions; along banks of rivers, riverbeds and washes; edges of washes; margins of arroyos; sandy benches; sandy terraces; bottomlands; floodplains; fencerows; sandy, sandy-clayey and clayey riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground; loam ground, and sandy clay and clay ground, occurring from sea level to 4,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Panicum antidotale* is native to western and southern Asia. *5, 6, 22 (color photograph bottom of page 25), 33 (Page 292), 43 (101709), 44 (122311 - color photograph), 46 (Page 137), **56**, **57**, 58, 63 (122311 - color presentation of seed), 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning. This plant is also listed as a Poisonous Cropland and Garden Plant, severe losses from pulmonary emphysema and edema have been reported in Texas from grazing fertilized and irrigated pastures of this introduced, perennial grass, but no losses have been reported from it in Arizona.), **85** (122311 - color presentation including habitat), 105, 124 (122311 - no record of species; genus record)*

Panicum arizonicum (see *Urochloa arizonica*)

***Panicum capillare* C. Linnaeus: Witchgrass**

SYNONYMY: *Panicum capillare* C. Linnaeus var. *brevifolium* G. Vasey ex P.A. Rydberg & C.L. Shear, *Panicum capillare* C. Linnaeus var. *occidentale* P.A. Rydberg. COMMON NAMES: Annual Witchgrass; Barbed Witch Grass (a name also applied to other species); Barbed Witch-grass (a name also applied to other species); Capillare Witch Grass; Capillare Witch-grass; Capillare Witcchgrass; Capillary Panic Grass; Capillary Panic-grass; Capillary Panicgrass; Capillary Witch-grass; Capillary Witchgrass; Capim Mimoso (Portuguese: Brazil); Capim-mimoso; Common Panic Grass (a name also applied to other species); Common Witch Grass; Common Witch-grass; Common Witchgrass; Cushion Witch Grass; Cushion Witchgrass; Fool Hay (a name also applied to other species); Fool-hay (a name also applied to other species); Hair-stalk Panic Grass; Hair-stalked Panic Grass; Hair-stalked Panic-grass; Hair-stalked Panicgrass; Old Panic Grass; Old Panicgrass; Old Witch Grass (a tumbleweed); Old-witch Panic-grass; Old-witch Panic-grass; Old Witch-grass; Old Witchgrass; Old-witch Grass; Old-witch Panic-grass; Old-witch-grass; Old-witch Panicgrass; Panic Capillaire (French); Panicgrass (a name also applied to the genus *Panicum*); Pânico-capilare (Portuguese: Brazil); Tickle Grass (a name also applied to other species and the genus *Panicum*); Tickle-grass (a name also applied to other species and the genus *Panicum*); Ticklegrass (a name also applied to other species); Tumble Grass (a name also applied to other species and the genus *Panicum*); Tumble Panic; Tumble Panic Grass; Tumble Panic-grass; Tumble Panicgrass; Tumble Weed (a name also applied to other species); Tumble Weed Grass; Tumble-weed (a name also applied to other species); Tumble-weed Grass; Tumbleweed (a name also applied to other species); Tumbleweed Grass; Western Witch Grass (a name also applied to other species); Western Witch-grass (a name also applied to other species); Witch Grass (a name also applied to other species and the genus *Panicum*); Witches Hair; Witch-grass (a name also applied to other species and the genus *Panicum*); Witchgrass (a name also applied to other species and the genus *Panicum*). DESCRIPTION: Terrestrial annual graminoid (decumbent and/or erect culms 6 to 60 inches in height; plants were observed and described as being 30 inches in height and width); the foliage is bluish, purplish or yellow-green; the spikeletes may be green, green-purple, purple, reddish-purple or whitish; flowering generally takes place between early June and late October (additional records: one for early May and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; clayey mountainsides; moist cliffs; gravelly-loamy canyons; rocky and sandy canyon bottoms; chasms; crevices in rocks; shaley bluffs; rocky buttes; rocky ledges; ridges; ridgetops; openings in forests; along meadows; foothills; gravelly and sandy hills; clayey hillsides; rocky, rocky-gravelly, rocky-loamy, shaley-loamy, gravelly, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey-loamy, loamy, clayey and clayey-loamy slopes; pediments; rocky outcrops; amongst boulders; lava flows; sand hills; uplands; prairies; sandy plains; muddy, rocky, gravelly, gravelly-sandy, sandy, sandy-clayey, sandy-clayey-loamy, clayey-loamy and silty flats; clayey valley floors; valley bottoms; along gravelly railroad right-of-ways; roadcuts; along cindery, gravelly, gravelly-sandy, sandy, loamy and clayey roadsides; bottoms of arroyos; within shaley-silty, sandy, loamy, loamy-clayey and silty draws; gulches; ravines; along sandy seeps; around and in springs; along streams; along rocky-sandy, gravelly, sandy and loamy-clayey streambeds; gravelly-loamy soils along and in creeks; along and in sandy creekbeds; along rivers; sandy and clayey riverbeds; along and in gravelly, gravelly-sandy and sandy washes; within gravelly-sandy and clayey drainages; rocky drainage ways; around and in pondbeds; clayey lakebeds; playas; along freshwater marshes; swamps; bowls; clayey depressions; along sloughs; along (muddy, bedrock, cobbly and sandy) banks of streams, streambeds, creeks, creekbeds and rivers; (alkaline) borders of hot springs; along (rocky and sandy) edges of springs, seeps, creeks, rivers, pools, lakes, marshes and mudflats; along margins of hot springs, streams, creeks and lakes; along (rocky, gravelly-clayey, sandy-loamy, clayey-loamy and clayey) shores of creeks, ponds and lakes; sandy-clayey areas of drawdown; mudflats; cobbly-gravel and sand bars; stony, gravelly-sandy and sandy beaches; sandy benches; along sandy-loamy terraces; sandy bottomlands; mucky, gravelly, gravelly-sandy, sandy and clayey floodplains; along meanders; lowlands; sandy fencelines; along rock dams; along and in loamy-clayey and clayey-loamy reservoirs; along and in sandy ditches; along clayey ditch banks; stony, cobbly, gravelly, gravelly-sandy, sandy, sandy-loamy and silty riparian areas; waste places, and disturbed areas growing in shallow water; mucky and muddy, and wet, moist, damp and dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, cobbly-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, shaley loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam

ground; rocky clay, gravelly clay, sandy clay, loamy clay and clay ground, and shaley silty and sandy silty and silty ground, occurring from sea level to 9,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber (used in making brooms) crop; it was also noted as having been used as a drug or medication. *Panicum capillare* is native to central and southern North America and coastal islands in the North Atlantic and North Pacific Oceans and sporadically in South America. *5, 6, 15, 33 (Pages 282-283), 43 (072309), 44 (041811), 46 (recorded as *Panicum capillare* L. var. *occidentale* Rydb., Page 136), 63 (122611 - color presentation), 68, 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning.), 85 (122611 - color presentation of seed and dried material), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (color photograph), 124 (041811), 127*

Panicum capillare var. *occidentale* (see *Panicum capillare*)

Panicum capillare var. *stramineum* (see *Panicum hirticaule* var. *stramineum*)

Panicum fasciculatum (see *Urochloa fusca*)

Panicum fasciculatum var. *reticulatum* (see *Urochloa fusca*)

Panicum fuscum (see footnote 89 under *Urochloa fusca*)

***Panicum hirticaule* J.S. Presl: Mexican Panicgrass**

COMMON NAMES: Capim Lanudo (Portuguese, for *P.h.* var. *stramineum*); Chiri Chiri (Spanish, for *P.h.* var. *hirticaule*); Mexican Panic Grass; Mexican Panic-grass; Mexican Panicgrass; Mexican Witch Grass; Mexican Witch-grass; Mexican Witchgrass; Panizo Cauchin (Spanish); Rough Panic Grass; Rough Panic-grass; Rough-stalk Witch Grass; Rough-stalk Witch-grass; Rough-stalk Witchgrass; Rough-stalked Witchgrass; Roughstalk Witchgrass; Roughstalked Witchgrass; Sauhui (Spanish, for *P.h.* var. *hirticaule*); Sonora Panic (for *P.h.* var. *hirticaule*); Sonoran Panicgrass (for *P.h.* var. *stramineum*); Sowi Millet (for *P.h.* var. *hirticaule*); Triguillo (Spanish, for *P.h.* var. *hirticaule*); Witchgrass (a name also applied to the genus *Panicum*); Woodland Panic; Zacahuastle (Spanish, for *P.h.* var. *verrucosum*); Zacate de Año (Spanish, for *P.h.* var. *hirticaule*); Zacate Peludo Perdis (Spanish, for *P.h.* var. *hirticaule*). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 2 to 44 inches in height); the spikelets may be reddish-brown; flowering generally takes place between early August and early November (additional records: one for mid-May and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky, gravelly and sandy mesas; bases of cliffs; rocky and gravelly canyons; gravelly, gravelly-sandy and sandy canyon bottoms; soil pockets in bedrock and rocks; rocky ridgetops; meadows; rocky foothills; rocky and rocky-loam hills; hilltops; bedrock, rocky, rocky-gravelly, rocky-clayey and gravelly hillsides; bouldery-rocky, rocky, cindery, gravelly, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy and sandy-clayey slopes; alluvial fans; bajadas; amongst boulders and rocks; bases of boulders and rocks; sand hills; dunes; rocky and sandy plains; rocky, sandy-loamy, clayey and sandy-silty flats; basins; valley floors; valley bottoms; along railroad right-of-ways; along rocky, rocky-loamy, sandy and silty roadsides; sandy arroyos; bottoms of arroyos; within sandy draws; ravines; along seepages; along streams; along bouldery-sandy and gravelly-sandy streambeds; along bouldery creeks; rocky creekbeds; along rivers; along and in gravelly, gravelly-sandy, sandy, clayey, silty and silty-clayey washes; drainages; within sandy and clayey drainage ways; oases; clayey depressions; sink-holes; clayey-loamy and silty swales; (rocky-sandy) banks of washes, drainages and drainage ways; along (bouldery) margins of creeks, washes and sloughs; sand bars; benches; rocky shelves; along gravelly-sandy and sandy floodplains; gravelly lowlands amongst Creosote Bushes; mesquite bosques; around stock tanks; along ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam and clayey loam ground; rocky clay, gravelly clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Panicum hirticaule* is native to southwest-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 15, **16**, 30, 33 (recorded as *Panicum capillare* L. var. *hirticaule* (Presl) Gould, Page 283; *Panicum capillare* L. var. *pampinsonum* (Hitchc. & Chase) Gould, Page 284; *Panicum capillare* L. var. *stramineum* (Hitchc. & Chase) Gould, Page 283, and *Panicum sonorum* Beal, Page 282), 43 (122711), 44 (122711), 46 (Page 136), 58, 63 (122711 - color presentation of seed), 77 (recorded as *Panicum hirticaule* Presl **[***Panicum capillare* L. var. *hirticaule* (Presl) Gould]), 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning.), **85** (122711 - color presentation), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recorded as *Panicum hirticaulum* Presl), 124 (122711), 127, 140 (Pages 204, 213,214 & 301 - recorded as *Panicum hirticaule* J. Presl var. *hirticaule* [*Panicum capillare* Linnaeus var. *hirticaule* (J. Presl) Gould])*

***Panicum hirticaule* J.S. Presl var. *stramineum* (A.S. Hitchcock & M.A. Chase) A.A. Beetle: Sonoran Panicgrass**

SYNONYMY: *Panicum capillare* C. Linnaeus var. *stramineum* (A.S. Hitchcock & M.A. Chase) F.W. Gould, *Panicum stramineum* A.S. Hitchcock & M.A. Chase. COMMON NAMES: Capim Lanudo (Portuguese); Sonoran Panicgrass; Witchgrass (a name also applied to the species, to other species and to the genus *Panicum*). DESCRIPTION: Terrestrial annual graminoid (erect culms 6 inches to 3 feet in height); flowering generally takes place between August and October (flowering record: one for early October). HABITAT: Within the range of this variety it has been reported from mountains; mountainsides; hills; slopes; sandy plains; clayey flats; valley floors; along railroad right-of-ways; roadsides; rivers; along clayey washes; pondbeds; clayey depressions; margins of sloughs; bottomlands; mesquite bosques; ditches, and disturbed areas growing in moist and dry sandy ground and clay ground, occurring from sea level to 4,700 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Panicum hirticaule*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Panicum hirticaule* var. *stramineum* is native to southwest-central and southern North America and South America. *5, 6, 30 (species), 33 (recorded as *Panicum capillare* L. var. *stramineum* (Hitchc. & Chase) Gould, Page 283), 43 (122711 - *Panicum hirticaule* var. *stramineum* (Hitchc. & Chase) Beetle), 44 (122711 - no record of variety; genus and species records), 46 (recorded as *Panicum stramineum* Hitchc. & Chase, Page 136), **56**, **57**, 58, 63 (122711), 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning.), **85** (122711), 124 (122711 - no record of the variety; genus and species records), 127 (species)*

Panicum hirticaulum (see footnote 89 under *Panicum hirticaule*)

***Panicum obtusum* K.S. Kunth: Vine Mesquite**

SYNONYMY: *Hopia obtusa* (K.S. Kunth) F.O. Zuloaga & O. Morrone. COMMON NAMES: Blunt Panic Grass; Blunt Panic-grass; Grape Vine Grass; Grape-vine Grass; Grapevine-grass; Grape-vine Mesquite; Grapevine Mesquite; Obtuse-flower Panicum; Obtuse-flowered Panicum; Panic Grass (a name also applied to other species and the genus *Panicum*); Range Grass; Triguillo (Spanish); Vine Mesquite; Vine Mesquite Grass; Vine-mesquite; Vine-mesquite Grass; Wire Grass (a name also applied to other species and to the genus *Aristida*); Wiregrass; Zacate Gramilla (Spanish); Zacate Guia (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a sodgrass with decumbent, ascending and/or erect culms 6 to 32 inches in height or length; produces short rhizomes and 1 to 10 foot long stolons); the foliage is light bluish-green or yellow-green curing to reddish-straw and then gray-tan; the flowers are purple; the anthers are maroon or purple; flowering generally takes place between early July and late September (additional records: two for late October; flowering beginning as early as May has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bouldery and gravelly-sandy mesas; rocky canyons; sandy canyon bottoms; clayey bluffs; gravelly buttes; knolls; ledges; along gravelly ridges; sandy meadows; foothills; hills; hillsides; rocky, shaley-sandy, gravelly, gravelly-loamy, sandy-loamy, loamy, clayey and silty-clayey slopes; sandy-loamy bottoms of slopes; amongst boulders; sandy dunes; sandy prairies; gravelly-sandy, sandy-loamy and clayey-loamy plains; rocky, sandy, sandy-loamy and loamy flats; rocky basins; sandy valley floors; sandy-silty valley bottoms; along rocky, gravelly, gravelly-loamy and sandy roadsides; arroyos; rocky and loamy draws; silty bottoms of draws; gullies; ravines; seeps; springs; along streams; along streambeds; creeks; sandy soil along rivers; along sandy riverbeds; along and in rocky and sandy washes; within sandy and clayey-loamy drainages; along rocky drainage ways; pondbeds; playas; boggy areas; ciénegas; marsh lands; swampy areas; silty-clayey depressions; within loamy, clayey and silty swales; along (gravelly, sandy and sandy-silty) banks of arroyos, streams, rivers and washes; borders of washes; edges of springs, rivers and deltas; shores of lakes; mudflats; sand bars; rocky beaches; benches; cobbly-sandy-silty terraces; bottomlands; along floodplains; lowlands; mesquite bosques; sandy margins of stock tanks (charcos); along and in ditches; sandy riparian areas, and disturbed areas growing in wet (sometimes seasonally), moist and dry bouldery, rocky, rocky-gravelly, shaley, shaley-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; sandy clay, silty clay and clay ground, and cobbly-sandy silty, sandy silty and silty ground, occurring from 1,000 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fodder crop; it was also noted as having been used as a drug or medication and as a commodity used in personal hygiene. This plant is useful in binding soils and controlling erosion, it grows best in areas receiving an average of 10 to 18 inches annual precipitation with a May to October active growing period. The foliage is browsed by Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), ground squirrels, jackrabbits, prairie dogs, Pronghorn (*Antilocapra americana*) and some small mammals; Gambel's Quail (*Callipepla gambelii*), Northern Bobwhite (*Colinus virginianus*), Mourning Dove (*Zenaida macroura*) and Scaled Quail (*Callipepla squamata*) feed on the seed, and the dense stands of Vine-mesquite Grass provide cover for rodents and upland game birds. *Panicum obtusum* is native to south-central and southern North America. *5, 6, 33 (Page 287), 43 (101809), 44 (122711- no record of species; genus record), 46 (Page 137), 48, **57**, 58, 63 (122811 - color presentation), 77, 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning.), **85** (122811 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 105, 124 (122711), 127*

Panicum saccharatum (see footnote 89 under *Digitaria californica*)

Panicum stramineum (see *Panicum hirticaule* var. *stramineum*)

Pappophorum apertum (see *Pappophorum vaginatum*)

Pappophorum mucronulatum (see *Pappophorum vaginatum*)

***Pappophorum vaginatum* S.B. Buckley: Whiplash Pappusgrass**

SYNONYMY: *Pappophorum apertum* W. Munro ex F. Lamson-Scribner, *Pappophorum mucronulatum* auct. non C.G. Nees von Esenbeck. COMMON NAMES: Mucronulate Pappusgrass; Pappusgrass; Pima Pappusgrass; Whiplash Pappus Grass; Whiplash Pappusgrass. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 16 to 52 inches in height); the foliage is gray-green or light green; the inflorescence is usually whitish and may be tinged with purple; based on few flowering records available, flowering generally takes place between late March and late October (flowering records: two for late March, one for late April, one for early July, one for late August, three for early September, one for mid-September and one for late October; flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; bases of cliffs; along rocky canyons; ridgetops; foothills; hills; rocky hillsides; rocky, sandy and clayey slopes; bajadas; rocky plains; gravelly and sandy-silty flats; basins; valley floors; valley bottoms; coastal dunes; sandy coastal flats; along railroad right-of-ways; along stony and sandy roadsides; along sandy gullies; along creeks; along and in gravelly washes; along drainage ways; depressions; banks of washes; along edges of washes; margins of washes; floodplains; dams; within sandy ditches, and disturbed areas growing in moist and dry rocky, stony, gravelly and sandy ground; clayey loam ground; clay ground, and sandy silty ground, occurring from sea level to 4,800 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Pappophorum vaginatum* is native to southwest-central and southern North America and southern South America. *5, 6, 15, **16**, 33 (recorded as *Pappophorum mucronulatum* Nees., Page 103), 43 (101809), 44 (123011 - no record of genus or species), 46 (recorded as *Pappophorum mucronulatum* Nees., Page 91), 48, 63 (123011 - color presentation of seed), 77, **85** (123011 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Pappophorum apertum* Munro), 105 (recorded as *Pappophorum mucronulatum* Nees.), 124 (123011 - no record of genus or species)*

Pappophorum wrightii (see *Enneapogon desvauxii*)

***Paspalum distichum* C. Linnaeus: Knotgrass**

COMMON NAMES: Capim-arame (Portuguese: Brazil); Couch Paspalum; Devil's Grass (a name also applied to other species); Devil's-grass (a name also applied to other species); Ditch Grass; Elliott's Paspalum; Eternity Grass; Finger-shaped Paspalum; Fort Thompson Grass; Ft. Thompson Grass; Ft. Thompsongrass; Ginger Grass; Grama Colorada (Spanish); Grama-braba (Portuguese: Brazil); Grama-da-praia (Portuguese: Brazil); Grama-doce (Portuguese: Brazil); Grama-rasteira-da-praia (Portuguese: Brazil); Gramilla Blanca (Spanish); Joint Grass (a name also applied to other species); Joint-grass (a name also applied to other species); Jointgrass (a name also applied to other species); Ginger Grass; Grama Colorada (Spanish); Grama-de-Joanópolis (Portuguese: Brazil); Gramilla Blanca (Spanish); Joint Grass; Joint Paspalum; Joint Paspalum Grass; Jointed Crown-grass; Jointed Crowngrass; Jointed Knotgrass; kishū-suzume-no-hie (Japanese Rōmaji); Knot Grass (a name also applied to other species); Knot-grass (a name also applied to other species); Knotgrass (a name also applied to other species); Knot Paspalum; Knot-root Paspalum; Knotroot Paspalum; Mercer Grass; Paspalum (a name also applied to the genus *Paspalum*); Moddeid (Arabic); Salt Jointgrass (a name also applied to other species); Seashore Paspalum (a name also applied to other species); Seaside Millet (a name also applied to other species); Shuang Sui Que Bai (transcribed Chinese); Summer Seep-grass; Thompson Grass; Thompsongrass; Turfgrass (a name also applied to other species); Water Couch (a name also applied to other species); Water Finger Grass; Water Finger-grass; Water-finger Grass. DESCRIPTION: Terrestrial (and semi-aquatic) perennial rhizomatous graminoid (erect culms with creeping stems/stolons 2 to 26 inches in height; one record reported stems reaching 10 to 12 feet in length); the foliage is blue-green or dark green with a bluish cast; the leaf sheaths may be purple; the spikelets are green or green and partially purple; the anthers are black or dark purple; the stigmas are black or dark purple; flowering generally takes place between mid-May and mid-November. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon bottoms; meadows; foothills; gravelly hills; hillsides; rocky, sandy, sandy-loamy, loamy, clayey and clayey-loamy slopes; dunes; prairies; clayey-loamy flats; muddy basins; valley floors; coastal saltmarshes; coastal shorelines; gravelly roadsides; arroyos; bottoms of draws; seeps; around and in gravelly, gravelly-sandy, sandy, sandy-loamy and clayey springs and outflows; along and in streams; along and in gravelly, gravelly-sandy and sandy streambeds; along and in creeks; along and in rivers; sandy, sandy-loamy, silty-clayey and clayey riverbeds; sandy washes; along drainages; sandy waterholes; around and in pools; around and in ponds; around and in lakes; lakebeds; ciénegas; along and in freshwater and saltwater marshes; swampy areas; depressions; along (muddy and sandy) banks of streams and rivers; along (gravelly and sandy) edges of springs, streams, streambeds, creeks, rivers, washes, waterholes, pools, ponds, lakes, lagoons and sloughs; (sandy) margins of streams, creeks, ponds and lagoons; (sandy) shores of rivers, ponds and lakes; mudflats; sand bars; beaches; sandy benches; coves; terraces; sandy bottomlands; sandy floodplains; around stock tanks (represos); around reservoirs; along and in

ditches; along ditch banks; sandy and sandy-loamy riparian areas, and disturbed areas growing in shallow water; mucky; muddy, and wet, moist and damp rocky, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam and loam ground, and silty clay and clay ground, occurring from sea level to 6,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Investigate to determine the possibly of using Knotgrass in the place of Bermudagrass as an irrigated lawn; it forms dense mats, and it may be useful as a soil binder. This grass is browsed by ducks and Whitetail Deer. *Paspalum distichum* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 33 (Pages 292-294), 43 (101809), 44 (042111 - color photograph), 46 (Page 134), 58, 63 (010112 - color presentation), **85** (010112 - color presentation of seeds and dried material), **89** (reported as being a perennial herb located on the Santa Cruz River and Irrigation Ditches), 124 (010112), 140 (Page 301)*

***Pennisetum ciliare* (C. Linnaeus) J.H. Link: Buffelgrass**

SYNONYMY: *Cenchrus ciliaris* C. Linnaeus. COMMON NAMES: African Buffel Grass; African Buffel-grass; African Buffelgrass; African Foxtail; African Foxtail Grass; Alien Buffel Grass; Alien Buffelgrass; Anjangrass; Blue Buffalo Grass; Buffel (Spanish); Buffel Grass; Buffle Grass; Buffel-grass; Buffle-grass; Büffelgras (German); Buffelgrass; Bufflegrass; Bufle; Cadillo Buffel (Hispanic); Cenchrus Cilié (French); Common Buffel Grass; Common Buffel-grass; Common Bufflegrass; Common Bufflegrass; Dhaman (India); Hairy Buffelgrass; Huizapol (Hispanic); Introduced Buffel Grass; Introduced Pasture Buffel Grass; Invasive African Buffel Grass; Invasive Buffel-grass; Invasive Buffelgrass; Non-native Buffel Grass; Non-native Buffelgrass; Nonnative Buffel-grass; Nonnative Buffelgrass; Pasto Buffel (Spanish); Pasture Buffel Grass; Perennial Buffel Grass; Sabat (Arabic); Sandbur (a name also applied to other species); South African Buffel Grass; South African Buffelgrass; Weedy Buffel Grass; Zacate Buffel (Spanish: Mexico); Zacate Buffle (Hispanic). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 4 inches to 5 feet in height); the leaves are green; the spikelets are reddish turning a golden-brown when dry; flowering may take place several times a year when sufficient moisture is available (flowering records: two for mid-February, one for early April, one for mid-April, one for early June, one for mid-August, one for late September, two for early October, four for mid-October, one for late October, one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; bases of cliffs; along rocky and sandy canyons; canyon bottoms; rocky-gravelly-clayey bluffs; buttes; ridges; ridgetops; foothills; rocky hills; rocky hillsides; rocky and gravelly slopes; alluvial fans; bajadas; rocky and rocky-gravelly outcrops; cobbly and sandy plains; rocky-loamy, gravelly-sandy and sandy flats; sandy uplands; valley floors; along rocky and sandy roadsides; along and in rocky and sandy arroyos; bottoms of arroyos; within draws; ravines; springs; along creeks; cobbly creekbeds; rocky, rocky-cobbly-sandy and cobbly riverbeds; along and in gravelly-sandy washes; along drainages; oases; marshes; within sandy depressions; (rocky-sandy) banks of washes; edges of arroyos and washes; (sandy) sides of rivers; sandy beaches; floodplains; lowlands; mesquite bosques; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam and loam ground; rocky-gravelly clay ground, and sandy-silty (loess) ground, occurring from sea level to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Pennisetum ciliare* is native to southeastern Europe and coastal islands in the Mediterranean Sea; western and southern Asia, and Africa. *5, 6, **16**, 22 (color photograph), 30, 33 (Page 266), 43 (101909), 44 (010112 - Common Names listed under *Cenchrus ciliaris* L.), 46 (Supplement Page 1041), **56**, **57**, 63 (010112 - color presentation), 77, **85** (010112 - color presentation), 124 (010112 - no record of species; genus record), **ADS** (July 30, 2008, Section B, Pages 1&2), **KOLD** (July 29, 2008, News at 5), **WTK** (October 28, 2009)*

Pennisetum ruppelii (see *Pennisetum setaceum*)

***Pennisetum setaceum* (P. Forsskål) E. Chiovenda: Crimson Fountaingrass**

SYNONYMY: *Pennisetum ruppelii* E.G. von Steudel. COMMON NAMES: African Fountain Grass (a name also applied to other species); Annual Fountain Grass; Crimson Fountain Grass; Crimson Fountain-grass; Crimson Fountaingrass; Fjäderborstgräs (Swedish); Fountain Grass (a name also applied to the genus *Pennisetum*); Fountain-grass (a name also applied to the genus *Pennisetum*); Fountaingrass (a name also applied to the genus *Pennisetum*); Plumitas (Spanish); Pronkgras (Afrikaans); Purple Fountain Grass (a name also applied to other species); Red Fountain Grass; Red Fountain-grass; Red Fountaingrass; Tender Fountain Grass; Tender Fountain-grass; Tender Fountaingrass; Zacate de la Fuente. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 1 to 5 feet in height; one clump was noted as being 5 feet in height and width); the leaves are green; the inflorescences are purplish; flowering generally takes place from early March to mid-December (additional record: one for early February); the fruits are purplish. HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; canyons; canyon walls; rocky and rocky-sandy and sandy canyon bottoms; crevices in rocks; ridges; swards; rocky foothills; rocky hills; hilltops; rocky hillsides; bouldery, bouldery-sandy, rocky and loamy slopes; rocky-sandy-loamy alluvial fans; bajadas; amongst boulders and rocks, rocks cobbles and gravels; flats; coastal dunes; rocky coastal beaches; railroad right-of-ways; along rocky-clayey roadsides; draws; along streams; along and in creeks; riverbeds; along and in rocky and sandy washes; drainages; drainage ways; banks of drainages; along (pebbly-sandy and sandy) edges of creeks and lakes; margins of washes, pools and ponds; lake shores; sand bars; rocky strands; mesquite bosques; rocky edges of reservoirs; canals; culverts; ditches; riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, cobbly, cobbly-gravelly, gravelly, pebbly-sandy and sandy ground;

rocky-sandy loam and loam ground, and rocky clay and clay ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Pennisetum setaceum* is native to western and southern Asia and northern, eastern and southern Africa. *5, 6, **16**, 22 (color photograph), 26 (color photograph), 33 (recorded as *Pennisetum ruppelii* Steud., Page 266), 43 (101909), 44 (010512), 46 (Page 140), 63 (010512), 77, **85** (010512 - color presentation), 109, 124 (010512 - no record of species; genus record), **WTK** (October 28, 2009)*

***Phalaris caroliniana* T. Walter: Carolina Canarygrass**

COMMON NAMES: Alpist; Baabkam <papkam> (Akimel O'odham)[140]; California Timothy (a name also applied to other species); California Timothy Grass (a name also applied to other species); Canary Grass (a name also applied to the genus *Phalaris*); Canary-grass (a name also applied to the genus *Phalaris*); Canarygrass (a name also applied to the genus *Phalaris*); Carolina Canary Grass (a name also applied to the genus *Phalaris*); Carolina Canary-grass; Carolina Canarygrass; Fox-tail Grass; Gilbert's Relief Grass; May Grass (a name also applied to other species); May-grass (a name also applied to other species); Maygrass (a name also applied to other species); Ribbon Grass (a name also applied to other species); Southern Canary Grass; Southern Canary-grass; Southern Canarygrass; Southern Reed (a name also applied to other species); Southern Reed Canary Grass; Southern Reed Grass (a name also applied to other species); Stewart's Canary Grass; Stewart's Canary-grass; Wild Canary Grass (a name also applied to other species). DESCRIPTION: Terrestrial annual graminoid (with culms being decumbent and/or somewhat geniculate 10 inches to 5 feet in height); the foliage is shiny blue-green or green; based on few records located, flowering generally takes place between early April and mid-July (flowering records: one for early April, two for mid-April and one for mid-July; flowering beginning as early as February and ending as late as August has been reported). HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; slopes; flats; valley floors; along roadsides; bottoms of draws; along seeps; springs; in sand along streams; sandy streambeds; creeks; along rivers; sandy and sandy-clayey riverbeds; along gravelly and sandy washes; within drainages; drainage ways; along watercourses; depressions; in pools; marshes; swampy areas; muddy swales; along (sandy-clayey) edges of streams, creeks, washes, ponds, playas and swamps; mudflats; shoals; benches; bottomlands; sandy-silty and silty floodplains; silty lowlands; around stock tanks; loamy canals; along and in ditches; ditch banks; riparian areas; waste areas, and disturbed areas growing in wet, moist, damp and dry gravelly and sandy ground; sandy loam and loam ground; sandy clay ground, and sandy silty and silty ground, occurring from 100 to 6,100 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Canary grass has been reported to be grazed by American Bison (*Bos bison*); Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*); deer, and Pronghorn (*Antilocapra americana*). *Phalaris caroliniana* is native to south-central and southern (Baja Norte) North America. *5, 6, 15, 33 (Page 263), 43 (102009), 44 (010712), 46 (Page 131), **56**, **57**, 58, 63 (010712 - color presentation), **85** (010712 - color presentation of dried material), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain), 124 (010712), 127, 140 (Pages 205 & 301)*

***Phalaris minor* A.J. Retzius: Littleseed Canarygrass**

COMMON NAMES: Alfarino (Portuguese: Brazil); Alpisillo; Alpiste Silvestre; Alpiste Vahillo (Spanish); Annual Canary Grass (a name also applied to other species); Bristle-spike Canary Grass; Canarygrass (a name also applied to other species and the genus *Phalaris*); Dwarf Canary Grass; Kleines Glanzgras (German); Lesser Canary Grass; Lesser Canary-grass; Lesser Canarygrass; Little Canary Grass; Little Canary-grass; Litlle Canarygrass; Little Seed Canary Grass; Little Seed Canarygrass; Little Seeded Canary Grass; Little-seed Canary Grass; Little-seed Canary-grass; Little-seed Canarygrass; Little-seeded Canary Grass; Little-seeded Canary-grass; Littleseed Canary Grass; Littleseed Canarygrass; Pasto Romano (Spanish); Pasto Romano (Spanish); Pasto-romano (Portuguese: Brazil); Phalaris Mineur (French); Småflen (Swedish); Small Canary Grass; Small Canary-grass; Small Canarygrass; Small Seed Canarygrass; Small-seed Canary Grass; Small-seed Canarygrass; Small-seeded Canary Grass; Small-seeded Canary-grass; Smallseed Canary Grass; Talaceiro (Portuguese); Wild Canary Grass (A name also applied to other species). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending or erect culms 4 inches to 6 feet in height); flowering generally takes place between early March and early June. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; sandy canyon bottoms; bases of cliffs; rocky hills; rocky, rocky-loamy-clayey and rocky-clayey slopes; amongst rocks; sand dunes; sandy plains; clayey flats; sandy basins; sandy valley floors; along sandy and gravelly-loamy roadsides; along sandy bottoms of arroyos; within gullies; seeps; along streams; along rivers; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; drainage ways; around poolbeds; lakebeds; depressions; (sandy) banks of rivers; along margins of washes, pools, ponds and depressions; mudflats; sandy terraces; loamy bottomlands; sandy floodplains; edges of stock tanks; reservoirs; along canals; along ditches; banks of ditches; sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam and loam ground, and rocky-loamy clay, rocky clay, clay ground, occurring from sea level to 5,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. *Phalaris minor* is native to southern Europe and coastal islands in the Mediterranean Sea; western and southern Asia, and northern Africa and islands in the North Atlantic Ocean. *5, 6, **16**, 33 (Page 263), 43 (102009), 44 (010712), 46 (Page 131), 63 (010712 - color presentation of seed), **77**, **85** (010712 - color presentation), 101 (color photograph), 124 (010712 - no record of species; genus record), 127*

***Phragmites australis* (A.J. Cavanilles) C.B. von Trinius ex E.G. von Steudel: Common Reed**

SYNONYMY: *Phragmites communis* C.B. Trinius. COMMON NAMES: Abo'djigûn ("something turned out or over", Chippewa); Bennels; Bog Reed; Bog-reed; Bous (Arabic); Cane Grass (a name also applied to the genus *Phragmites*); Caniço (Portuguese); Carizo; Carrizo (a name also applied to the genus *Phragmites*, Spanish: New Mexico and Mexico); Carrizo Común (Spanish); Carrizo Grass; Common Phragmites; Common Reed; Common Reed Grass (a name also applied to the genus *Phragmites*); Common Reed-grass (a name also applied to the genus *Phragmites*); Common Reedgrass; Danube Grass; Ditch Reed; Dutch Reed; Dutch-reed; Galdae (transcribed Korean); Ghab (Arabic); Giant Reed Cane; Giant Reed Grass; Phragmite Commun (French); Phragmites (a name also applied to the genus *Phragmites*); Plume Grass (South Dakota); Pole Grass; Pole Reed; Pole-grass; Pole-reed; Qassab (Arabic); Reed (a name also applied to the genus *Phragmites*); Reed Grass (a name also applied to the genus *Phragmites*); Roseau Cane; Roseau Commun (French); Roseau Grass; Schilf (German); Schilfrohr (German); Spires; Tall Reed Grass; Tall Reed-grass; Wild Broom Corn; Wild Broom-corn. DESCRIPTION: Terrestrial (semi-aquatic) perennial graminoid, subshrub or shrub (ascending and/or erect culms 40 inches to 20 feet in height); the foliage is green; the panicles (compound inflorescences) are purplish when young maturing to straw; the anthers are purplish; flowering generally takes place between early August and early December (additional records: one for mid-January, one for late January, one for early February, one for early March, one for late March, one for early May, two for mid-May, one for late June, three for early July, three for mid-July and one for late December; flowering beginning as early as May and ending as late as January has been reported). HABITAT: Within the range of this species it has been reported from mountains; plateaus; sandy cliffs; hanging gardens; bases of cliffs; rocky canyons; canyon bottoms; meadows; hills; alcoves; prairies; along sandy and sandy-loamy flats; uplands; basins; valley bottoms; along coastlines; railroad right-of-ways; along roadsides; along sandy seeps; around springs; along streams; along sandy streambeds; along creeks; along creekbeds; along rivers; along rocky, gravelly-sandy and sandy riverbeds; in rocky washes; drainages; drainage ways; along waterways; waterholes; pools; around ponds; around lakes; loamy playas; ciénegas; freshwater and saltwater marshes; within swampy areas; depressions; sloughs; swales; along (bouldery, rocky, gravelly, sandy and sandy-clayey) banks of streams, streambeds, creeks, rivers and sloughs; along edges of springs, rivers, lagoons, marshes and swampy areas; margins of springs, creeks, lakes and saltmarshes; along shores of rivers and lakes; mudflats; sand bars; sandy-clayey beaches; along rocky-silty-loamy and silty-loamy terraces; rocky bottomlands; floodplains; lowlands; along bay levees; shores of reservoirs; along canals; along canal banks; along and in ditches; along ditch banks; sandy riparian areas; gravelly waste places, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry (seldom reported) bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-silty loam, sandy loam and silty loam ground; sandy clay and clay ground; silty ground, occasionally forming floating mats or rafts, occurring from below sea level (50 feet below) to 8,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Common Reed may not be 'historically' native to eastern Pima County, it was not recorded as occurring along either the Santa Cruz or San Pedro Rivers. This tall and graceful grass may be an attractive component of a restored native habitat and may be useful in controlling erosion; however, it may be invasive. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food or fiber crop; it was also noted as having been used as a tool, for jewelry, as a musical instrument, as a toy or in games, as a drug or medication, as a decoration and as a ceremonial item. The common Reed may be useful in controlling erosion, and it was noted that one strain may be invasive while other strains are not. Clones may live for more than 1,000 years; however, no portion of a clone lives for more than 8 years (USDA Forest Service Fire Effects Information System). The Common Reed provides shelter, nesting cover and food for many species of crustaceans; birds; fishes; aquatic insects, and mammals. One source reported *Phragmites australis* subsp. *berlandieri* as being a strain that is native to southwestern Arizona. *Phragmites australis* is native to northern, central and southern North America; Central America and coastal islands in the Caribbean Sea; northern, western and southern South America; Australia; Europe and coastal islands in the North Atlantic Ocean and Mediterranean Sea; Asia and coastal islands in the North Pacific Ocean, and Africa and islands in the North Atlantic and western Indian Oceans. *5, 6, **16**, 30, 33 (recorded as *Phragmites communis* Trin., Page 93), 43 (010812), 46 (recorded as *Phragmites communis* Trin., Page 89), 63 (010812 - color presentation), **77**, **85** (010812 - color presentation including habitat), 124 (010812), 127*

Phragmites australis subsp. *berlandieri* (see NOTES under *Phragmites australis*)

Phragmites communis (see *Phragmites australis*)

***Pleuraphis mutica* S.B. Buckley: Tobosagrass**

SYNONYMY: *Hilaria mutica* (S.B. Buckley) G. Bentham. COMMON NAMES: Black Grama; Black Gramma; Galleta (a name also applied to the genus *Pleuraphis*); Galetta Grass (a name also applied to the genus *Pleuraphis*); Gieta (a name also applied to the genus *Pleuraphis*); Gietta (a name also applied to the genus *Pleuraphis*); Guyetta (a name also applied to the genus *Pleuraphis*); Tobosa; Tobosa Grass; Tobosa-grass; Tobosagrass. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass with decumbent (bases), geniculate (at middle nodes) and/or erect culms 1 to 3 feet in height); the foliage is dull bluish-green or gray-green curing to gray; the inflorescence (erect spike 1½ to 3 inches in length) is purplish, straw or white; the spikelets are greenish-tan or tinged with pink; flowering generally takes place between early April and early November; however, under favorable conditions, flowering may take place throughout the year (flowering records: one for early April, one for mid-April, two for late April, one for early May, one for early July, six for mid-August, four for late August, three for early

September, three for mid-September, one for mid-October, one for late October and two for early November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; bouldery and gravelly-sandy mesas; canyons; buttes; gravelly-sandy-clayey ridges; rocky ridgetops; foothills; rocky and sandy-loamy hills; rocky hilltops; rocky and sandy hillsides; across bouldery, bouldery-rocky-clayey, rocky, rocky-clayey, cobbly-clayey, gravelly-sandy-clayey, gravelly-clayey-loamy, sandy, sandy-loamy and clayey slopes; alluvial fans; sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocky-gravels; lava hills; lava fields; prairies; gravelly plains; gravelly, sandy, sandy-clayey, sandy-silty, loamy and clayey flats; uplands; basins; rocky and sandy valley floors; valley bottoms; along gravelly-sandy roadsides; arroyos; gullies; along creeks; along and in bedrock, rocky and sandy washes; drainages; along drainage ways; clayey depressions; swales; along banks of washes; along margins of washes; benches; terraces; floodplains; lowlands; mesquite bosques, and ditches growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground, rocky-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; bouldery-rocky clay, rocky clay, cobbly clay, gravelly-sandy clay, sandy clay, silty clay and clay ground, and rocky-gravelly silty and silty ground, occurring from 1,100 to 6,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Pleuraphis mutica* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Hilaria mutica* (Buckl.) Benth.), 33 (recorded as *Hilaria mutica* (Buckl.) Benth., Page 161), 43 (102009, *Hilaria mutica* Benth.), 44 (010812 - no listing under Common Name; genus record), 46 (recorded as *Hilaria mutica* (Buckl.) Benth., Page 122), 48, 63 (010812 - color presentation), 77 (recorded as *Hilaria mutica* (Buckl.) Benth.), 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Tobosa (*Hilaria mutica*) can be a host of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information. Tobosa is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. This perennial grass "may become infected with Ergot (Claviceps) and cause Ergot poisoning of livestock."), **85** (010812 - color presentation including habitat), **89** (reported as being a half-shrub located on Tumamoc Hill, recorded as *Hilaria mutica* (Buckl.) Benth.), 105 (recorded as *Hilaria mutica* (Buckl.) Benth.), 124 (010812)*

Poa annua C. Linnaeus: Annual Bluegrass

COMMON NAMES: Annual Blue Grass; Annual Blue-grass; Annual Bluegrass; Annual Meadow Grass; Annual Meadow-grass; Annual Meadowgrass; Annual Poa; Annual Spear Grass (a name also applied to other species); Annual Wildgrass; Causeway Grass (a name also applied to other species); Creeping Bluegrass; Dwarf Lawn Grass; Dwarf Meadow Grass; Dwarf Meadow-grass; Dwarf Meadowgrass; Dwarf Spear Grass; Dwarf Spear-grass; Dwarf Speargrass; Einjähriges Rispengras (German); Espiguilla (Spanish); Goose Grass (a name also applied to other species); Hierba de Punta (Spanish); Low Spear Grass; Low Spear-grass; Low Speargrass; May Grass (a name also applied to other species); Maygrass (a name also applied to other species); Mjatlik Odnoletnij (transliterated Russian); Pâturin Annuel (French); Saepoapul (transcribed Korean); Six-weeks Grass (a name also applied to other species); Suffolk-grass; Suffolk Grass; Suffolk-grass; Summer Grass (a name also applied to other species); Summer-grass (a name also applied to other species); Suzume-no-katabira (Japanese); Vitgröe (Swedish); Walk Grass; Walk-grass; Walkgrass; Winter Grass (a name also applied to other species); Zao Shu He (transcribed Chinese). DESCRIPTION: Terrestrial annual tufted graminoid (prostate, decumbent (at base) and/or erect culms 2 inches to 1 foot in height); the leaves are dull or bright green; the inflorescences are green; the flowers are whitish with white stigmas and yellow anthers; flowering generally takes place between early February and late August (additional records: one for mid-January, one for mid-September, one for late September, one for early October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; plateaus; cliff faces; gravelly canyons; rocky and sandy canyon bottoms; chasms; talus slopes; ridges; ridgetops; clearings in forests; gravelly-loamy and clayey meadows; foothills; bouldery and rocky hills; bouldery-rocky, rocky, gravelly-loamy, sandy, sandy-loamy, loamy, clayey-loamy and silty slopes; rocky outcrops; amongst rocks and gravel; alpine fellfields; steppes; sandy and silty flats; basins; bouldery valley floors; along coasts; sandy roadbeds; along gravelly and gravelly-sandy roadsides; sandy and clayey seeps; around springs; in rivulets; along streams; streambeds; in sand along creeks; sandy-loamy creekbeds; rivers; sandy riverbeds; drainages; ponds; pondbeds; ciénegas; freshwater marshes; clayey swamplands; swales; (clayey-loamy) banks of streams, rivers and lakes; (sandy) edges of streambeds, washes, ponds and saltmarshes; margins of streams and lakes; along (mucky) shores of ponds, lakes and lagoons; areas of drawdown; gravelly-sand and sand bars; gravelly beaches; terraces; sandy-loamy bottomlands; lowlands; around stock tanks; edges of beaver ponds; around and in (dry sandy beds) reservoirs; along canals; along muddy ditches; banks of ditches; riparian areas; waste places, and disturbed areas growing in shallow water; mucky; muddy, and wet, moist, damp and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, sandy loam, clayey loam, silty loam and loam ground; clay ground, and bouldery-gravelly-sandy silty and silty ground, occurring from sea level to 12,600 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Poa annua* is probably native to Europe. *5, 6, 15, 18, 33 (Page 65), 43 (102009), 44 (010912), 46 (Page 84), 58, 63 (010912 - color presentation), 68, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Bluegrasses of the genus *Poa* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in

small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), 85 (010912 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 101 (color photograph), 124 (010912)*

***Poa bigelovii* G. Vasey & F.L. Scribner: Bigelow's Bluegrass**

COMMON NAMES: Bigelow Blue Grass; Bigelow Blue-grass; Bigelow Bluegrass; Bigelow's Blue Grass; Bigelow's Blue-grass; Bigelow's Bluegrass; Zacate Azule Nativo. DESCRIPTION: Terrestrial annual tufted graminoid (rarely geniculate (at base), ascending and/or erect culms 1 to 28 inches in height); the inflorescences are greenish or silvery; flowering generally takes place between late February and late May (additional records: two for early February, four for late June, two for early July, two for mid-July, three for mid-August and two for late August). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; sandy cliffs; hanging gardens; rocky and gravelly-sandy canyons; bouldery, rocky, sandy, sandy-loamy and sandy-clayey canyon bottoms; chasms; along talus slopes; bases of cliffs; crevices in rocks; rocky and sandy ledges; ridges; clayey meadows; gravelly-sandy foothills; hills; rocky hillsides; bouldery, bouldery-gravelly, rocky, rocky-clayey-loamy, gravelly, gravelly-loamy, sandy, sandy-clayey-loamy, loamy, clayey-loamy and silty-loamy slopes; gravelly and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; coves; shelves; steppes; sandy plains; gravelly and sandy, loamy, clayey-loamy and silty-loamy flats; uplands; basins; rocky and sandy-clayey valley floors; valley bottoms; along gravelly roadsides; rocky, gravelly and sandy arroyos; rocky draws; bottoms of draws; ravines; seeps; bouldery and sandy springs; around seeping streams; along streams; streambeds; along creeks; sandy creekbeds; along rivers; riverbeds; along and in bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; drainages; within drainage ways; edges of washes; along (sandy) banks of arroyos, streams and washes; along edges of washes; shore of lakes; river channel bars; sandy beaches; sandy benches; terraces; gravelly-loamy and loamy bottomlands; sandy floodplains; rocky-sandy catchments; rocky margins of reservoirs; riparian areas, and disturbed areas growing in moist, damp and dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clay loam, silty loam and loam ground, and sandy clay and clay ground, occurring from 500 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Poa bigelovii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (Pages 64-65), 43 (102009), 44 (011012), 46 (Page 83), 48 (genus), **56**, **57**, 58, 63 (011012), 77, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Bluegrasses of the genus *Poa* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (011012 - color presentation including habitat), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain), 124 (010912 - no record of species; genus record), 140 (Page 301)*

***Polypogon monspeliensis* (C. Linnaeus) R.L. Desfontaines: Annual Rabbitsfoot Grass**

COMMON NAMES: Annual Beard Grass; Annual Beard-grass; Annual Beardgrass; Annual Rabbit's Foot Grass; Annual Rabbit-foot Grass; Annual Rabbit's-foot Grass; Annual Rabbits-foot Grass; Annual Rabbitfoot Grass; Annual Rabbitsfoot Grass; Ban Bai (Pima); Ban Bahi (Uto-Aztecan: Akimel O'odham)[140]; Beard Grass (a name also applied to other species and the genus *Polypogon*); Beard-grass (a name also applied to other species and the genus *Polypogon*); [Rabbitfoot] Beard-grass (English)[140]; Bearded Fox-tail Grass (a name also applied to other species); Ch'iił Ńdínísé <c'il dínesą́> (Athapascan: Navajo)[140]; [Zacate] Cola de Zorro ("Fox Tail [Grass]", Spanish: Sonora)[140]; Dhail Al Qut (Arabic); Dloziłgaii Bitsee' <ɬ̵ozilgai bice'> (Athapascan: Navajo)[140]; Hierba de Caso ("Event Herb", Spanish: Sonora)[140]; Montpellier Beard Grass; Montpellier Beard-grass; Montpellier Polypogon; Pata de Canejo ("Rabbit-foot Grass", Spanish: Sonora)[140]; Pombikanan (Uto-Aztecan: Tübatulabal)[140]; Rabbit-foot Grass (a name also applied to the genus *Polypogon*); Rabbit-foot Grass (English)[140]; [Annual] Rabbit('s)-foot Grass [Annual Rabbitfoot Grass] (English)[140]; Rabbit-foot Polypogon; Rabbit-foot-grass; Rabbitfoot Beard-grass; Rabbitfoot Beardgrass; Rabbitfoot Grass; Rabbitfoot Polypogon; Rabbitfoot-grass (a name also applied to the genus *Polypogon*); Rabbitfoot-grass (English)[140]; Rabbit's Foot Beardgrass; Rabbit's Foot Polypogon; Rabbit's-foot Polypogon; Rabbit'sfootgrass; Rabbitfootgrass; Rabbitsfoot Beardgrass; Rabbitsfoot Polypogon (English)[140]; Ṣa'i <sa'e> ("Grass", a word for grasses, Uto-Aztecan: Mountain Pima)[140]; Shelik Bahi <sheshelik baabhai pl.> (Uto-Aztecan: Akimel O'odham)[140]; Skäggräs (Swedish); Tawny Rabbit-foot Grass; Vaṣa'i ("Grass", a word for grasses, Uto-Aztecan: Mountain Pima)[140]; Waháↄ ("Grass" a word used for grasses, Uto-Aztecan: Northern Paiute)[140]; Waṣai ("Grass" a word used for grasses, Uto-Aztecan: Tohono O'odham)[140]; Xṭpa Nkʸšyułʸ (Yuman: Cocopa)[140]; Zacate Cola de Zorra (Spanish); 'Zee'iilwoii <'aze' i.l "o'i> ("Runs Into the Mouth", Athapascan: Navajo)[140]. DESCRIPTION: Terrestrial and/or semi-aquatic annual tufted graminoid (decumbent, geniculate, ascending and or erect culms 2 to 40 inches in height); the flowers may be brown, pale green, green, white or white-green; flowering generally

takes place between early March and early November (additional records: two for early February, one for late November and one for mid-December); the awns are yellow. HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy mesas; plateaus; cliff faces; hanging gardens; escarpments; rocky canyons; along bouldery-gravelly-sandy, rocky, rocky-sandy, shaley and sandy canyon bottoms; talus; crevices in rocks; bluffs; rocky buttes; ridges; clayey-loamy ridgetops; sandy, loamy and clayey meadows; foothills; rocky and sandy hills; rocky hillsides; escarpments; rocky, rocky-sandy, cobbly-sandy-clayey, gravelly, gravelly-loamy, sandy, loamy, loamy and clayey slopes; bedrock, rocky and sandy outcrops; lava beds; amongst rocks; sand dunes; hummocks; clayey-loamy steppes; prairies; sandy and chalky plains; along muddy, rocky, gravelly-silty, sandy, loamy and silty flats; sandy uplands; sandy basins; boggy hollows; valley floors; valley bottoms; coastal marshes; tidal flats; sandy-clayey roadbeds; along gravelly, gravelly-sandy and sandy roadsides; within arroyos; within muddy and sandy-loamy draws; bottoms of draws; gulches; gullies; sandy bottoms of gullies; silty ravines; muddy, rocky and sandy seeps; along and in gravelly, clayey and loamy springs; along and in gravelly-sandy, sandy and sandy-clayey soils along streams; along rocky, rocky-sandy, shaley, sandy, loamy-clayey and silty-loamy streambeds; along and in creeks; along and in rocky, stony and sandy creekbeds; in clayey soils along rivers; in rocky, rocky-clayey, rocky-silty, gravelly-sandy, sandy and sandy-clayey riverbeds; along and in bouldery-sandy, rocky-silty, gravelly and sandy washes; along and in drainages; mucky drainage ways; poolbeds; ponds; vernal ponds; freshwater pozos; in lakes; silty lakebeds; playas; boggy areas; ciénegas; in cindery and clayey freshwater and saltwater marshes; sandy swamps; depressions; sink holes; within clayey-loamy swales; along (muddy, muddy-sandy-silty, cobbly-silty, sandy, sandy-loamy, sandy-clayey, clayey and silty) banks of streams, creeks, creekbeds, rivers, riverbeds, washes, ponds and lakes; (muddy, rocky, rocky-clayey, cobbly, gravelly-sandy, sandy and loamy-clayey) edges of springs, streams, creeks, rivers, washes, pools, ponds, pozos, lakes, lagoons, salt-marshes, swamps and sloughs; along margins of streams, creeks, pools, backwaters and freshwater marshes; along (gravelly, gravelly-sandy, gravelly-clayey, sandy, sandy-clayey and clayey) shores of creeks, rivers, ponds and lakes; mudflats; muddy-sand, rocky-sand, stony-sand, gravel, gravelly-sand, sand and sandy-clayey-sand bars; rocky and sandy beaches; sandy benches; terraces; cobbly, cobbly-loamy and loamy bottomlands; along rocky-cobbly, gravelly-sandy, sandy-loamy, sandy-silty and silty-clayey floodplains; lowlands; mesquite bosques; along fencelines; dams; around stock tanks; around reservoirs; along canals; along canal banks; along mucky-sandy, sandy-clayey and clayey ditches; along silty-clayey ditch banks; muddy, rocky-sandy, gravelly-sandy, gravelly-loamy and sandy riparian areas; waste places, and disturbed areas growing in shallow water; peat deposits; mucky; muddy, and wet, moist, damp and dry bouldery, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-cobbly, rocky-sandy, shaley, stony, stony-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; cobbly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, rocky-stony clay, cobbly-sandy clay, sandy clay, loamy clay, silty clay and clay ground; rocky silty, cobbly silty, gravelly silty, sandy silty and silty ground, and chalky ground occurring from sea level to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as a drug or medication and as a soap to wash figurines before painting them. *Polypogon monspeliensis* is native to northern, eastern and southern Europe and coastal islands in the Mediterranean Sea; Asia and coastal islands in the North Pacific Ocean; northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, **16**, 33 (Pages 182-183), 43 (102109), 44 (011012), 46 (Page 104), 58, 63 (011012 - color presentation), 68, **77**, **85** (011012 - color presentation), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain), 101 (color photograph), 124 (011012), 127, 140 (Pages 214-215 & 301)*

Polypogon viridis (A. Gouan) M.A. Breistroffer: Beardless Rabbitsfoot Grass

SYNONYMY: *Agrostis semiverticillata* (P. Forsskål) C.F. Christensen. COMMON NAMES: Beardless Rabbit-foot Grass; Beardless Rabbitfoot Grass; Beardless Rabbitfootgrass; Beardless Rabbits-foot Grass; Beardless Rabbitsfoot Grass; Beardless Rabbitsfootgrass; Beardless Rabbit's Foot Grass; Beardless Rabbit's-foot Grass; Beardless Rabbit'sfootgrass; Cola de Ardilla (Hispanic); Cola de Zorra (Hispanic); Cola de Zorrillo (Hispanic); Green Bent Grass; Green Bent-grass; Green Bentgrass; Water Agrostis-like Beardgrass; Water Beard Grass; Water Beard-grass; Water Beardgrass; Water Bent; Water Bent Grass (a name also applied to other species); Water Bent-grass (a name also applied to other species); Water Bentgrass (a name also applied to other species); Water Polypogon; Water-bent; Waterbent; Whorled Bent Grass; Whorled Bent-grass; Whorled Bentgrass. DESCRIPTION: Terrestrial or semi-aquatic perennial graminoid (decumbent, geniculate and/or decumbent culms 4 to 36 inches in height); the foliage is bluish-green; the panicle (compound inflorescence) is pale green, green, purplish or reddish; flowering generally takes place between early May and late August (additional records: one for early January, one for early April, one for late September, two for early October and two for late October). HABITAT: Within the range of this species it has been reported from mountains; hanging gardens; bases of cliffs; along rocky and rocky-gravelly canyons; along canyon bottoms; chasms; crevices in rocks; loamy and clayey-loamy meadows; foothills; hills; hillsides; rocky, sandy, sandy-loamy, loamy, clayey and clayey-loamy slopes; amongst cobbles; coves; rock shelves; loamy, clayey and clayey-loamy flats; roadsides; arroyos; draws; gulches; sandy-clayey gullies; along sandy seeps; around and in gravelly, sandy-loamy and sandy-silty springs; stony and sandy ground along streams; along and in muddy, rocky and sandy streambeds; along and in bouldery and sandy creeks; along and in rocky, stony and gravelly creekbeds; in sandy, sandy-clayey and clayey soils along rivers; sandy riverbeds; in cobbly washes; along drainages; along and in sandy and sandy-loamy drainage ways; along watercourses; around ponds; in backwaters; boggy areas; marshy areas; (muddy-clayey and sandy) banks of springs, streams, creeks, rivers and ponds; along edges of streams, creeks and watercourses; along margins of streams and ponds; shores of lakes; mudflats; sandy beaches; sandy benches; sandy terraces; oxbows; bottomlands; sandy, sandy-clayey and clayey floodplains; dams; reservoirs; canal banks; along ditches; ditch banks; riparian areas and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery, rocky,

rocky-gravelly, rocky-sandy, stony, cobbly, gravelly and sandy ground; gravelly loam, sandy loam and loam ground, and sandy clay and clay ground, occurring from sea level to 12,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Polypogon viridis* is native to central, eastern and southern Europe and coastal islands in the Mediterranean Sea; western, central and southern Asia, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, 30, 33 (recorded as *Agrostis semiverticillata* (Forsk.) Christ., Pages 177-178), 43 (102209), 44 (011012 - listing of Common Names located under *Agrostis semiverticillata*), 46 (recorded as *Agrostis semiverticillata* (Forsk.) C. Chr., Page 103), 63 (011012 - color presentation), 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Agrostis* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (011012 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz River and Irrigation Ditches, recorded as *Agrostis verticillata* Vill.), 124 (011012), 140 (Page 301)*

Rhynchelytrum repens (see *Melinis repens*)

Rhynchelytrum roseum (see *Melinis repens*)

***Schismus arabicus* C.G. Nees von Esenbeck: Arabian Schismus**

COMMON NAMES: Abu Mashi (a name also applied to *Schismus barbatus*); Abu-mashi (a name also applied to *Schismus barbatus*); Arabian Grass (a name also applied to the genus *Schismus*); Arabian Mediterranean Grass; Arabian Mediterranean-grass; Arabian Mediterraneangrass; Arabian Schismus; Arabian Split Grass; Arabiangrass (a name also applied to the genus *Schismus*); Araby Grass; Camel Grass (a name also applied to other species); Zacate Arabe. DESCRIPTION: Terrestrial annual tufted graminoid (prostrate, ascending and/or erect culms 1 inch to 1 foot in height); the foliage is green; based on few records located, flowering generally takes place between late January and late May (flowering records: two for late January, one for early February, one for mid-February, one for mid-March, one for late March, five for early April, two for mid-April, two for late April, three for early May, two for mid-May and two for late May). HABITAT: Within the range of this species it has been reported from mountains; gravelly mountaintops; mesas; bases of cliffs; rocky and sandy canyons; bouldery canyon bottoms; bouldery talus slopes; crevices in boulders; buttes; gravelly ridges; gravelly and sandy foothills; rocky, gravelly-shaley and sandy hills; rocky hilltops; gravelly, gravelly-sandy and sandy hillsides; rocky, rocky-gravelly-loamy, gravelly and sandy slopes; rocky-sandy and sandy bajadas; rock outcrops; sandy lava flows; sandy dunes; plains; gravelly, sandy and sandy-clayey flats; basins; basin bottoms; valley floors; railroad right-of-ways; along gravelly and sandy roadsides; rocky draws; sandy springs; along streams; along and in sandy streambeds; gravelly-sandy and sandy riverbeds; along and in bouldery, gravelly, gravelly-sandy, sandy and sandy-silty washes; drainages; sandy drainage ways; along banks of arroyos; along (rocky-sandy) edges of washes and drainage ways; sandy benches; sandy floodplains; mesquite bosques; stock tanks; ditches; along ditch tops; sandy riparian areas, and disturbed areas growing in dry gravelly desert pavement; bouldery, bouldery-rocky-gravelly, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-silty-clayey loam and loam ground; sandy clay ground, and sandy silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Schismus arabicus* is native to southeastern Europe; western Asia, and northern Africa. *5, 6, 15, **16**, 22 (color photograph), 33 (Pages 173-174), 43 (102209), 44 (011112 - color photograph), 46 (Page 98), 63 (011112 - color presentation), 68, 77, **85** (011112 - color presentation including habitat), 124 (011112 - no record of genus or species)*

***Schismus barbatus* (P. Loefling ex C. Linnaeus) A. Thellung: Common Mediterranean Grass**

COMMON NAMES: Abu Mashi (a name also applied to *Schismus arabicus*); Abu-mashi (a name also applied to *Schismus arabicus*); Bearded Mediterranean Grass; Camel Grass (a name also applied to other species); Common Mediterranean Grass; Common Mediterranean Schismus; Common Mediterraneangrass; Kelch Grass; Kelch-grass; Mediterranean Grass (a name also applied to other species and the genus *Schismus*); Mediterranean Schismus; Mediterraneangrass (a name also applied to other species and the genus *Schismus*); Old Han Schismus; Zacate Mediterrane Comun. DESCRIPTION: Terrestrial annual tufted graminoid (prostrate, decumbent, geniculate, ascending and/or erect culms 1 to 14 inches in height); the foliage is green; the inflorescence is greenish-purple; the spikelets (flowers) may be purple tinged; flowering generally takes place between early January and early June (additional records: one for mid-October and one for late October, flowering beginning as early as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy and sandy-silty mesas; rocky cliffs; rocky and clayey canyons; sandy canyon bottoms; rocky talus; bluffs; rocky ridges; ridgetops; ridgelines; rocky, stony-gravelly, sandy-loamy and clayey hills; hilltops; rocky hillsides; along rocky, rocky-gravelly-loamy, rocky-loamy-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, loamy and clayey slopes; rocky alluvial fans; gravelly-sandy bajadas; rocky outcrops; amongst boulders; sand dunes; blow-sand deposits; shelves; gravelly-sandy plains; gravelly, gravelly-sandy, gravelly-loamy, sandy and silty flats; sandy valley floors; around wharves; roadbeds; along gravelly and sandy roadsides; springs; in sandy soils along streams; along gravelly-sandy and sandy creekbeds; along rivers;

along rocky, gravelly and clayey-loamy riverbeds; along and in rocky-sandy, rocky-silty, gravelly, gravelly-sandy and sandy washes; drainages; sandy and silty lakebeds; depressions; (sandy) banks of streams; borders of washes; (sandy) edges of streambeds and lakes; margins of washes; beaches; sandy benches; gravelly and sandy terraces; floodplains; canal banks; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky-loamy clay and clay ground, and rocky silty, gravelly silty, sandy silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Schismus barbatus* is native to southwestern Europe; western, central and southern Asia, and northern and southern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, **16**, 22 (color photograph), 33 (Pages 172-173), 43 (102209), 44 (011112 - color photograph), 46 (Page 98), 58, 63 (011112 - color presentation of seed), 68, 77, **85** (011112 - color presentation of dried material), 124 (011112 - no record of genus or species)*

***Setaria adhaerens* (P. Forsskål) E. Chiovenda: Bur Bristlegrass**

COMMON NAME: Adherent Bristle Grass; Adherent Bristle-grass; Bur Bristle Grass (a name also applied to other species); Bur Bristlegrass (a name also applied to other species); Burr Bristlegrass (a name also applied to other species); Clinging Bristlegrass; Trans Pecos Bristle Grass; Trans-Pecos Bristle Grass; Trans-Pecos Bristlegrass; Tropical Barbed Bristle Grass; Tropical Barbed Bristlegrass. DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 10 inches to 2 feet in height); the panicles (compound inflorescences) are green to purple; based on few records located, flowering generally takes place between late April and late November (flowering records: one for late April, two for mid-May, one for late May, one for late June, one for mid-July, one for late July, one for early August, one for late August, one for late September, two for late October, one for early November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; along rock walls; bases of cliffs; rocky canyons; hills; rocky and rocky-sandy slopes; gravelly flats; roadsides; riverbeds; within washes; along banks of rivers; sandy terraces; bottomlands; floodplains; mesquite bosques; edges of and in ditches; riparian areas, and disturbed areas growing in muddy and wet and dry rocky, rocky-sandy, gravelly and sandy ground; loam ground, and clay ground, occurring from sea level to 4,800 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Setaria adhaerens* may be native to the Mediterranean area. *5, 6, 33 (no record), 43 (102209), 44 (011112), 46 (no record), 63 (011112 - color presentation), **77**, **85** (011112 - color presentation), 106 (102209), 124 (011112 - no record of species; genus record)*

Setaria composita (see footnote 89 under *Setaria vulpiseta*)

***Setaria grisebachii* E.P. Fournier: Grisebach's Bristlegrass**

COMMON NAMES: Grisebach Bristlegrass; Grisebach's Bristle Grass; Grisebach's Bristlegrass; Cola de Zorra (Spanish). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 4 inches to 4 feet in height); the panicles (compound inflorescences) are purple; the flowers are yellow with purple spots; flowering generally takes place between late July and mid-October (flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; rocky bases of cliffs; rocky, gravelly-loamy and sandy canyons; sandy canyon bottoms; gorges; talus slopes; crevices; rocky ledges; along meadows; foothills; rocky hills; rocky, rocky-silty and gravelly-clayey hillsides; rocky, rocky-stony, gravelly, gravelly-clayey, gravelly-silty, sandy, sandy-loamy, loamy, clayey and clayey-loamy slopes; rocky outcrops; amongst boulders and rocks; sandy lava flows; gravelly-silty and clayey-loamy flats; valley floors; along railroad right-of-ways; along sandy roadsides; along and in arroyos; draws; bottoms of draws; rocky gulches; gravelly-sandy seeps; springs; along streams; along and in rocky-gravelly and gravelly streambeds; creeks; along rocky creekbeds; along sandy rivers; along and in sandy and clayey washes; along and in bouldery drainage ways; ciénegas; within swales; banks of washes; sandy benches; rocky bottomlands; sandy floodplains; mesquite bosques; along ditches; sandy riparian areas; waste areas, and disturbed areas growing in moist, damp and dry rocky, rocky-stony, rocky-gravelly, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; clay ground, and rocky silty, gravelly silty and sandy silty ground, occurring from 1,200 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Setaria grisebachii* is native to southwest-central and southern North America; Central America, and northwestern South America. *5, 6, 15, 33 (Page 269), 43 (102209), 44 (011112 - no record of species; genus record), 46 (Page 139), 58, 63 (011112 - color presentation), 77, 85 (011112 - color presentation of dried material), **89** (reported as being a summer annual herb located on Tumamoc Hill), 124 (011112 - no record of species; genus record), 140 (Page 301)*

***Setaria leucopila* (F.L. Scribner & E.D. Merrill) K.M. Schumann: Streambed Bristlegrass**

SYNONYMY: *Chaetochloa leucopila* F.L. Scribner & E.D. Merrill. COMMON NAMES: Bristlegrass (a name also applied to other species and the genus *Setaria*); Plains Bristle Grass (a name also applied to other species); Plains Bristlegrass (a name also applied to other species); Stream-bed Bristle Grass; Streambed Bristle Grass; Streambed Bristlegrass; White-haired Bristlegrass; Yellow Bristlegrass; Yellow Foxtail; Zacate Tempranero (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 8 inches to 4 feet in height and to 20 inches in width at the base); the foliage is green; the spike-like panicles (compound inflorescence) are pale green; based on

few records located, flowering generally takes place between early July and early November (additional records: one for early March, three for mid-March, one for late April, two for mid-June and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; rock walls; bases of cliffs, monoliths and rock walls; canyons; sandy canyon bottoms; gorges; talus slopes; crevices in rocks; buttes; crests of rocky buttes; ridges; ridgetops; foothills; rocky, gravelly and gravelly-sandy hills; rocky and rocky-sandy hillsides; escarpments; sandy bases of escarpments; rocky, rocky-clayey-loamy, gravelly, gravelly-sandy and sandy-loamy slopes; bases of slopes; alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; rocky and sandy lava flows; sand dunes; sandy steppes; sandy plains; gravelly, gravelly-sandy, sandy, sandy-loamy and sandy-silty flats; basins; valley floors; valley bottoms; coastal sand dunes; coastal flats; coastal beaches; railroad right-of-ways; roadbeds; along rocky, gravelly and sandy-loamy roadsides; along and in rocky-gravelly arroyos; bottoms of arroyos; rocky and gravelly-sandy-loamy draws; gulches; within rocky ravines; seeps; in sand around streams; bouldery streambeds; along creeks; in rocky and gravelly creekbeds; in sand along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within sandy drainages; within drainage ways; along (sandy-loamy) banks of draws, streams, rivers and washes; edges of arroyos, springs, washes, pools and marshes; margins of rivers and washes; sand bars; rocky benches; terraces; sandy-loamy bottomlands; floodplains; lowlands; mesquite bosques; sandy mottes; along and in ditches; clayey-loamy water tanks; gravelly and sandy riparian areas, and disturbed areas growing in wet, moist and dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and clayey loam ground; rocky clay and clay ground, and rocky silty and sandy silty ground often reported as growing at the base or under shrubby mesquites and other protected areas, occurring from sea level to 6,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Setaria leucopila* is native to southwest-central and southern North America. *5, 6, 33 (no record of species), 43 (061110), 44 (011212 - no record of species; genus record), 46 (included under *S. macrostachya* in the "first edition", Page 139, and Supplement Page 1041), 48, 63 (011212 - color presentation), 77, **85** (011212 - color presentation), 124 (011212), 140 (Page 301)*

***Setaria liebmannii* E.P. Fournier: Liebmann's Bristlegrass**

COMMON NAMES: Bristlegrass (a name also applied to other species and the genus *Setaria*); Hayás Guasia (Spanish); Liebmann Bristlegrass; Liebmann's Bristlegrass. DESCRIPTION: Terrestrial annual graminoid (6 to 40 inches in height); the inflorescence may be greenish-red; flowering generally takes place between mid-August and mid-October (additional record: one for early November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; rocky and gravelly mesas; rocky cliffs; bases of cliffs; bouldery-rocky and rocky canyons; canyon bottoms; rocky talus slopes; rocky ridgetops; sandy openings in forests; rocky hills; hilltops; rocky hillsides; rocky and gravelly slopes; bajadas; amongst rocks; llanos; cobbly plains; flats; beach dunes; along roadbeds; along roadsides; along sandy arroyos; sandy bottoms of arroyos; streambeds; riverbeds; along washes; within rocky drainages; ciénegas; marshy areas; (rocky) banks of arroyos; edges of arroyos; along ditches; bottomlands; riparian areas, and disturbed areas growing in wet and dry bouldery-rocky, rocky, cobbly, gravelly and sandy ground, occurring from sea level to 4,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Setaria liebmannii* is native to southwest-central and southern North America and Central America. *5, 6, **16**, 33 (Pages 269-270), 43 (102309), 44 (011212 - no listing under Common Names; genus record), 46 (*Setaria liebmanni* Fourn., Page 139), 63 (011212), 77, **85** (011212), 124 (011212 - no record of species; genus record)*

Setaria macrostachya (see NOTES and related footnotes 33, 46, 85, 105 and 140 under *Setaria vulpiseta*)

***Setaria vulpiseta* (J.B. de Lamarck) J.J. Roemer & J.A. Schultes: Plains Bristlegrass**

COMMON NAMES: Assaak; Bristle-grass (a name also applied to other species and the genus *Setaria*); [Plains, Summer] Bristle-grass (a name applied to *S. macrostachya*, English)[140]; Bristlegrass (a name also applied to other species and the genus *Setaria*); Foxtail [Wild] Millet (a name applied to *S. macrostachya*, English)[140]; Hasac (a name applied to *S. macrostachya*, Hokan: Seri)[140]; Ne-kuuk-suuk (a name applied to *S. macrostachya*, Mayan: Maya)[140]; Plains Bristle-grass (a name also applied to other species); Plains Bristlegrass (a name also applied to other species); Summer Bristle-grass; Waṣai ("Grass" a word applied to any grass, Uto-Aztecan: Tohono O'odham)[140]; Xica Quiix ("Globular Things" a name applied to *S. macrostachya*, Hokan: Seri)[140]; Xikkaa Kiix; Zacate Tempranero [Temprano] ("Early Grass" a name applied to *S. macrostachya*, Spanish: Chihuahua, Sonora)[140]; Zacate Temprano (a name applied to *S. macrostachya*); Zéé'iilwoii ("One That Goes Into the Throat" a name applied to *S. macrostachya*, Athapascan: Navajo)[140]. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 8 inches to 4 feet in height; one plant was observed and described as being 2 inches in width at the base, several plants were observed and described as being 8 to 16 inches in width at the base); the stems and leaves are pale to bright green sometimes with a bluish tinge curing to an orange-brown; the flowers may be orange and purple; flowering generally takes place between mid-April and mid-October (additional records: one for early March and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; bases of cliffs; rocky canyons; rocky canyonsides; rocky canyon bottoms; canyonettes; rocky talus; crevices in rocks; amongst rocky buttes; crests of buttes; rocky ledges; ridges; openings in woodlands; foothills; rocky hills; hilltops; rocky hillsides; rocky, rocky-loamy, gravelly, gravelly-loamy, sandy and clayey slopes; bajadas; rocky outcrops; amongst boulders and rocks; sandy dunes; sandy mesquite hummocks; plains; gravelly flats; valley floors; valley bottoms; along gravelly roadsides; rocky arroyos; bottoms of arroyos; gravelly-sandy-loamy draws; streambeds; sandy creeks; sandy riverbeds; along and in

gravelly washes; within drainages; drainage ways; depressions; ciénegas; (gravelly-sandy) banks of streambeds, creeks, rivers and washes; (rocky) edges of streambeds and washes; benches; sandy-loamy bottomlands; sandy floodplains; mesquite bosques; stock tanks; riparian areas, and disturbed areas growing in muddy and moist and dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, sandy loam and clayey loam ground; sandy clay and clay ground, and cobbly-sandy silty ground sometimes in the partial shade of shrubs and trees, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: *Setaria vulpiseta*, the Plains Bristlegrass has been recorded in many texts as *Setaria macrostachya*; however, it has been reported that *Setaria macrostachya*, with the common name Large-spike Bristlegrass is an EXOTIC species that may also be found in Arizona. There appears to be some confusion as to what's what with this species with regard to its taxonomy. The native Plains Bristlegrass may be an attractive component of a restored native habitat, and the plant is reportedly a good soil binder. Plains Bristlegrass is an important forage grass with a high palatability; however, it is often selectively grazed over other range grasses and does not stand up well to heavy grazing. The seeds are eaten by doves, quails, sparrows and other songbirds. *Setaria vulpiseta* is native to south-central (again, some authors say that it is native and other authors say that it isn't) and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 15 (recorded as *Setaria macrostachya* H.B.K.), **16** (recorded as *Setaria macrostachya* H.B.K.), 33 (recorded as *Setaria macrostachya* H.B.K., Plains Bristlegrass, Page 270), 43 (102409), 44 (011212 - no record of species; genus record), 46 (recorded as *Setaria macrostachya* H.B.K., Plains Bristlegrass, Page 139 and Supplement, Page 1041), 48 (recorded as *Setaria macrostachya*), **56** (recorded as *Setaria macrostachya* H.B.K.), **57** (recorded as *Setaria macrostachya* H.B.K.), 58 (recorded as *Setaria macrostachya* H.B.K.), 63 (011212 - color presentation of seed), 77 (recorded as *Setaria macrostachya* H.B.K.), 85 (011312 - *Setaria macrostachya* Kunth and *Setaria vulpiseta* (Lam.) Roemer & J.A. Schultes, color presentation of dried material), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Setaria composita* H.B.K.), 105 (recorded as *Setaria macrostachya* H.B.K.), 124 (011212 - no record of species; genus record), 140 (Pages 215-216 & 301 - recorded *Setaria macrostachya* Kunth)*

Sitanion hystrix (see *Elymus elymoides* subsp. *elymoides*)

***Sorghum bicolor* (C. Linnaeus) C. Moench: Sorghum**

COMMON NAMES: African Millet (for the species, subsp. *bicolor* and other species); Battari (Subda Isles); Black Amber; Black Indian Millet; Black Millet (for the species, subsp. *bicolor* and other species); Broom Corn (for subsp. *bicolor*, other species and the genus *Sorghum*); Broom Corn Grass (for subsp. *bicolor*); Broom-corn (for subsp. *bicolor*, other species and the genus *Sorghum*); Broom-corn Grass (for subsp. *bicolor*); Broomcorn (for subsp. *bicolor* and other species); Brown Durra (for subsp. *bicolor*); Chicken Corn (Iowa); Chicken-corn (for the species and subspecies *drummondii*); Chickencorn (for the species and subspecies *drummondii*); Chinese Sugar Cane (for the species, subsp. *bicolor* and other species); Chinese Sugar-cane (for subsp. *bicolor* and other species); Chinese Sugarcane (for the species, subsp. *bicolor* and other species); Chocolate Corn (for subsp. *bicolor*); Chocolate-corn (for subsp. *bicolor*); Coffee Corn (for subsp. *bicolor* and other species); Common Sorgho; Common Sorghum (for subsp. *bicolor*); Common Sorgo; Common Wild Sorghum (for subspp. *arundinaceum* and *verticilliflorum*); Cultivated Sorghum; Daza (Spanish, for subsp. *bicolor*); Dokhna (or Dokhn, Arabia); Doura (for subsp. *bicolor*); Doura Corn (for the species and subspecies *bicolor*); Dourra (for subsp. *bicolor*, modern Egypt); Drummond Broomcorn (for subsp. *drummondii*); Drummond's Broomcorn (for subsp. *drummondii*); Drummond's Shattercane (for subsp. *drummondii*); Durra (Swedish, for subsp. *bicolor*); Egyptian Corn (for subsp. *bicolor* and other species); Egyptian Rice Corn; Egyptian Rice-corn (a name also applied to other species); Feterita (for subsp. *bicolor*); Forage Sorghum (for the species and subspecies *bicolor*); Gewöhnliche Mohrenhirse (German, for subsp. *bicolor*); Goose-neck Sorghum; Gooseneck Sorgho; Gooseneck Sorghum; Grain Sorghum (for subsp. *bicolor*); Grass Sorghum; Great Millet (for the species, subsp. *bicolor* and other species); Gros Mil (French, for subsp. *bicolor*); Guiana Corn (a name also applied to other species); Guinea Corn (for the species and subspecies *bicolor*); Guinea-corn; Imphee (for the species and subspecies *bicolor*); Indian Millet (for the species and subsp. *bicolor*, other species and the genus *Sorghum*); Jerusalem Corn (for the species and subspecies *bicolor*); Johnson Grass (a name also applied to other species); Johnson-grass (a name also applied to other species); Jowar (Gujarati); Kaffir Corn (for subsp. *bicolor*); Kaffir-corn (for the species and subspecies *bicolor*); Kafir (for subsp. *bicolor*); Kafir Corn (Iowa); Kao-liang (Chinese "Tall or Great Millet"); Kenike (Bamanankan); Mabele (Setswana); Milium (Pliny 77 AD possibly a reference to this species); Millet (a name also applied to other species); Millo Maize (for subsp. *bicolor*, New Mexico); Milo (for subsp. *bicolor*, Oklahoma); Milo Maize (for subsp. *bicolor*, Oklahoma); Milo-maize; Mississippi Chicken Corn; Morokoshi (Japanese Rōmaji, for subsp. *bicolor*); Mtama (Swahili); Muvya (Kikamba); Negro Corn (for subsp. *bicolor*); Nickende Mohrenhirse (German, for subsp. *bicolor*); Pampas Rice (for the species and subspecies *bicolor*); Pampas-rice; Pasto Sudán (Spanish, for subsp. *drummondii*); Pearl Millet (for subsp. *bicolor* and other species and other species); Rhodesian Sudan Grass; Rice Corn (for the species and subspecies *bicolor*); Shallu (for subsp. *bicolor*); Shallu Sorghum; Shatter Cane; Shatter-cane; Shattercane (for the species and subspecies *drummondii*); Small Maize (for the species and subspecies *bicolor*); Sordan (for subsp. *drummondii*); Sorgho (French, for subsp. *bicolor*); Sorgho du Soudan (French, for subsp. *drummondii*); Sorgho Menu (French, for subsp. *drummondii*); Sorgho Sucre (for subsp. *bicolor*); Sorghum (for the species and subspecies *bicolor*, other species and to the genus *Sorghum*); Sorghum Sugar Cane (for subsp. *bicolor*); Sorghum-sudangrass (for subsp. *drummondii*); Sorgo (Portuguese & Spanish, for the species and subsp. *bicolor*); Sorgo Forrajero (Spanish, for subsp. *bicolor*); Sudan Grass (for subsp. *drummondii*); Sudan Sorghum (for subsp. *drummondii*); Sudan-grass (for subsp. *drummondii*); Sudangras (German, for subsp. *drummondii*); Sudangrass (for subsp. *drummondii*); Sugar Cane (for subsp. *bicolor*, other species and the genus *Sorghum*); Sugar Sorghum (for subsp. *bicolor*); Sugar-cane (for subsp. *bicolor* and other species); Sugarcane (for subsp. *bicolor* and other species); Susu

(transcribed Korean); Sweet Sorgho (for subsp. *bicolor*); Sweet Sorghum (for the species and subspecies *bicolor*); Sweet Sorghum Corn (for subsp. *bicolor*); Tasseled Sorghum Grass; Tennessee Rice (for subsp. *bicolor*); Tree Millet (Herodotus 450 BC possibly a reference to this species); Wild Cane (a name also applied to other species); Yellow Milo; Zuckerhirse (German, for subsp. *bicolor*). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent and/or erect culms 20 inches to 16½ feet in height); the flowers are greenish (young) to reddish; based on few records located, flowering generally take place between early August and late November (flowering records: one for early May, one for early August, three for early September, one for early October, one for mid-October and one for late November); yellow fruits blacken as they mature. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon bottoms; meadows; rocky hills; rocky and sandy-loamy slopes; alluvial fans; plains; sandy-loamy flats; valley floors; clayish valley bottoms; along gravelly-sandy and sandy roadsides; springs; sandy riverbeds; silty pondbeds; clayey lakebeds; marshes; banks of springs; benches; along fencelines; edges of canals; ditches; riparian areas; recently burned areas, and disturbed areas growing in muddy and moist and dry rocky, gravelly-sandy and sandy ground; sandy loam ground, and clay ground, and silty ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Sorghum bicolor* subsp. *arundinaceum* may be considered to be the wild progenitor of cultivated strains. *Sorghum bicolor* is native to Africa. *5, 6, 33 (genus, no record of this species, Pages 310-313), 43 (061110), 44 (011312 - color photograph), 46 (recorded as *Sorghum sudanense* (Piper) Stapf. a synonym for *Sorghum bicolor* subsp. *drummondii*, Page 143), 63 (011312 - color presentation of seed), **85** (011312 - color presentation), 101 (note), 106 (071610 - color presentation), 124 (011312)*

Sorghum halepense (C. Linnaeus) C.H. Persoon: Johnsongrass

COMMON NAMES: Alabama Guinea Grass; Alabama Guinea-grass; Aleppo Grass; Aleppo Millet Grass; Aleppo Milletgrass; Aleppo Sorgho; Aleppo Sorgo; Aleppo Sorghum; Aleppo-grass; Aleppohirse (German); Arabian Millet; Arabian Millet Grass (Utah); Australian Grass (a name also applied to other species); Cañota (Spanish); Chinese Sugarcane (a name also applied to other species); Common Johnson Grass; Common Johnson-grass; Common Johnsongrass; Cuba Grass; Doura; Egyptian Grass; Egyptian Millet (a name also applied to other species); Egyptian Rice-corn (a name also applied to other species); Evergreen Millet; False Guinea Grass; False Guinea-grass; False Guineagrass; Great Millet (a name also applied to other species); Green Valley Grass; Green Valley-grass; Green-valley Grass; Guinea Corn (a name also applied to other species); Guinea Grass; Halepa Grass; Halepa Sorghum; Herbe d'Alep (French); Herbe de Cuba; Hierba Johnson (Spanish); Imphee; Indian Millet (a name also applied to other species and the genus *Sorghum*); Johnson Grass (a name also applied to other species); Johnson-grass (a name also applied to other species); Johnsongras (Afrikaans); Johnsongrass (a name also applied to other species); Johnson Sorghum; Johnson's Sorghum; Maiden Cane (a name also applied to other species); Maiden-cane (a name also applied to other species); Meanie Grass; Mean's Grass; Means Grass; Means' Grass; Means-grass; Millet Seed; Morocco Millet; Ogräsdurra (Swedish); Racehorse Grass; Racehorse-grass; Saint Mary's Grass (a name also applied to other species); Shi Mao (transcribed Chinese); Sorgho d'Alep (French); Sorgo de Alepo; Sorgo de Aleppo (Spanish); St. Mary's Grass (a name also applied to other species); Syria Grass; Syria Millet; Syrian Grass; Syrian Millet; Wilde Mohrenhirse (German); Zacate Johnson (Spanish); Zacate Nilo (Spanish). DESCRIPTION: Terrestrial perennial graminoid (erect culms 20 inches to 8 feet in height, reportedly may reach 12 feet in flower); the foliage is green; the flowers may be cream-purple, greenish-purple, dark red-purple or purplish; flowering may take place year-round. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; sandy canyon bottoms; bluffs; meadows; foothills; hills; rocky hillsides; rocky, sandy, sandy-loamy, sandy-silty and clayey-loamy slopes; amongst boulders and rocks; sand hummocks; rocky mudflows; sandy steppes; prairies; plains; gravelly, sandy, loamy and clayey-loamy flats; valley floors; coastal prairies; along cindery railroad right-of-ways; along gravelly-sandy, gravelly-loamy and sandy roadsides; arroyos; bottoms of arroyos; gulches; springs; rocky-sandy soil along streams; along and in streambeds; along and in rocky and rocky-gravelly-sandy creeks; along creekbeds; in sandy soil along and in rivers; along and in rocky and sandy riverbeds; within rocky and sandy washes; drainages; ciénegas; freshwater marshes; depressions; (sandy) banks of creeks, rivers and washes; edges of streams; gravel and sand bars; cobbly-sandy and sandy benches; cobbly-sandy and sandy terraces; sandy, loamy and silty bottomlands; sandy and sandy-loamy floodplains; mesquite bosques; silty-clayey stock tanks; along canals; along canal banks; along and in sandy-loamy ditches; along clayey and clayey-loamy ditch banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam, silty-clayey loam and loam ground; silty clay and clay ground, and sandy-silty and silty ground, occurring from sea level to 7,500 feet elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a fodder and as a toy or in games (Kiowa children used stems and leaves to make grass whistles). Johnsongrass was reportedly introduced into the United States around 1830. *Sorghum halepense* readily hybridizes with *Sorghum bicolor* (Sorghum) which is also an exotic. *Sorghum halepense* is native to western, middle and southern Asia and northern Africa. *5, 6, 15, **16**, 22 (color photograph), 33 (Pages 310-313), 43 (102409), 44 (011312 - color photograph), 46 (Page 143), **56**, **57**, 58, 63 (011312 - color presentation including habitat), 68 ("Johnsongrass ordinarily is good feed, but sometimes the plant, particularly the leaves, contain hydrocyanic (prussic) acid, a cyanide type of poisoning. Any factor which interrupts normal growth may cause the release of HCN within plants. Rapid growth of new leaves, wilting due to drought, frost, freezing, cutting, or trampling are the most dangerous events." See text for additional information), 77, 80 (Johnsongrass is Listed as a Major Poisonous Range Plant. "Most losses from Johnsongrass are due to hydrocyanic-acid poisoning, but plants also accumulate dangerous levels of nitrate. Danger from HCN poisoning is greatest when soils are high in available nitrogen and low in phosphorus, when plants have been

exposed to drouth or disease which results in slow or stunted growth, and when plants are making rapid regrowth or have been frosted. Leaves are more toxic than stems, and young plants are more toxic than mature ones.... Management to defer pastures during dangerous periods of growth, and feeding of animals before turning them on pastures containing Johnsongrass are the best preventive measures. " See text for additional information.), **85** (011312 - color presentation including habitat), **89** (reported under Miscellaneous Introduced Species as being a perennial herb), 101 (color photograph), 105, 124 (042711), 127, 140 (Page 301)*

***Sporobolus airoides* (J. Torrey) J. Torrey: Alkali Sacaton**

COMMON NAMES: Alkalai Drop-seed; Alkalai Dropseed; Alkalai Sacaton; Alkalai Sacaton Grass; Alkali Drop-seed; Alkali Dropseed; Alkali Grass (a name also applied to other species); Alkali Sacaton; Alkali Sacaton Grass; Alkali Sacatone; Alkali Zacaton; Alkalai-sacaton; Alkali-sacaton; Alkili Sacatone; Big Alkali Sacaton (more commonly refers to *Sporobolus wrightii*); Bunch Grass (a name also applied to other species); Bunch-grass (a name also applied to other species); Dropseed (a name also applied to other species, the genus *Sporobolus* and historically to the genus *Muhlenbergia*); Dropseed (English)[140]; Fine Top (Kansas); Fine Top Grass (a name also applied to other species); Fine-top Grass (a name also applied to other species); Fine-top Salt Grass; Fine-top Salt-grass; Finetop Saltgrass; Hair Grass (a name also applied to other species); Hair Grass Dropseed; Hair-grass Drop-seed; Hair-grass Dropseed; Hairgrass Dropseed; Noǫ̣ <nawt, not> (Uto-Aztecan: Akimel O'odham and Tohono O'odham)[140]; Nöönö <nɜ́:nɜ́> (Uto-Aztecan: Hopi)[140]; Rush Grass (a name also applied to other species and the genus *Sporobolus*); Sacaton (a name also applied to the genus *Sporobolus*); [Big Alkali] Sacaton (English)[140]; Tava'i (Yaqui); Salt Grass (a name also applied to other species); Salt-grass (a name also applied to other species); Tłaltso ("Big Grass", Athapascan: Chiricahua and Mescalero Apache)[140]; Tl'oh Dahikalii (Navajo); Tł'oh Ts'ósí <y'oh c'o's> ("Slender Grass", Athapascan: Navajo)[140]; Zacatón <sacatón> (Spanish)[140]; Zacaton Alcalino. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 14 to 100 inches in height developing clonal rings up to 3 to 7 feet in width; 3 plants were observed and described as being 44 inches in height (with inflorescences to 6 feet in height) and 32 inches in width at the base, plants were observed and described as being 5 feet in height and over 40 inches in width at the base); the color of the foliage has been described as grayish-green; the spikelets are brownish or lead-colored; the florets are pale green; flowering generally takes place between mid-April and late November. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly-sandy and sandy-loamy mesas; sandy plateaus; canyon rims; sandy bases of cliffs; rocky canyons; bouldery-sandy, rocky, sandy and sandy-silty canyon bottoms; rocky bluffs; sandy-clayey buttes; sandy knolls; sandy and clayey ridges; ridgetops; meadows; foothills; rocky, shaley, sandy and clayey hills; gravelly-silty hilltops; along rocky, rocky-sandy and sandy hillsides; sandy hillocks; mounds; escarpments; bouldery-clayey, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, shaley-loamy, stony-gravelly-loamy, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, clayey and powdery-loamy slopes; gravelly alluvial fans; rocky and gravelly outcrops; bases of outcrops; alcoves; sand dunes; sandy hummocks; breaks; rocky-clayey and clayey patches; sandy steppes; sandy, clayey, silty-loamy-clayey and silty-clayey prairies; gravelly-sandy and sandy plains; rocky, shaley, cobbly, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, clayey and clayey-loamy flats; rocky-sandy and sandy uplands; cobbly and sandy basins; basin bottoms; sandy, clayey and silty-loamy valley floors; sandy valley bottoms; along railroad right-of-ways; along gravelly, gravelly-sandy, sandy, sandy-loamy, clayey and silty roadsides; within gravelly and clayey-loamy arroyos; sandy bottoms of arroyos; along and in draws; bottoms of draws; shaley-sandy gulches; rocky and sandy-clayey gullies; ravines; sandy-loamy seeps; around springs; around seeping springs; along clayey streambeds; along creeks; creekbeds; in sandy and loamy soils along rivers; gravelly-sandy and sandy riverbeds; along and in gravelly and sandy washes; along and in sandy, sandy-clayey and clayey drainages; within gravelly, sandy and sandy-clayey drainage ways; pools; lakebeds; sandy-loamy and clayey playas, boggy peat deposits; ciénegas; marshy areas; swampy areas; gravelly-sandy, sandy and sandy-loamy depressions; clayey sloughs; clayey swales; along (sandy and clayey) banks of streams, creeks, creekbeds, rivers, drainages, ponds and lakes; (rocky-clayey and sandy) edges of seepages, rivers, ponds and marshes; (sandy) margins of draws, streams, creeks, rivers, washes, pools, lakes and marshes; (clayey) berms and rims at edges of wetlands; along (sandy) shores of drainages and lakes; mudflats; cobbly, cobbly-silty, sandy, sandy-silty and silty bars; sandy beaches; clayey benches; sandy, sandy-clayey and sandy-silty terraces; sandy bottomlands; along cobbly, sandy and loamy-clayey floodplains; sandy lowlands; mesquite bosques; fencelines; in clayey soils around stock tanks; sandy, sandy-clayey and clayey banks of reservoirs; canal banks; in loamy soils along ditches; sandy ditch banks; rocky, gravelly, sandy and clayey-loamy riparian areas, and disturbed areas growing in shallow water and in wet, moist, damp and dry bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; shaley loam, stony-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam, silty loam, powdery loam and loam ground; bouldery clay, rocky clay, sandy clay, loamy clay, silty clay, silty-loamy clay and clay ground, and cobbly silty, gravelly silty, sandy silty and silty ground, occurring from sea level to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (utilized as food during times of famine) crop; it was also noted as having been used as a tool (moist grass laid on hot stones to keep steam from escaping). It is useful in stabilizing soils in disturbed areas and slowing erosion. The establishment of seedlings may require frequent irrigations, but once established it is tolerant of both drought and flooding. It grows best where it receives 12 to 18 inches of mean annual precipitation. Earl F. Aldon (Aldon, Earl F. 1975. Establishing alkali sacaton on harsh sites in the Southwest. Journal of Range Management. 28(2): 129-132. [2872], found in the United State Department of Agriculture Forest Service, Fire Effects Information System) developed the following guidelines for

establishing alkali sacaton from seed on harsh sites: plant when soil moisture is at least 14% or higher; plant when probabilities for weekly precipitation are greatest and soil temperatures will be near 86 ^{o} Fahrenheit (30^{o} Centigrade); use large seeds at least 1 year old; saturate the planting site just prior to planting; cover seed with about ½ inch (13 mm) of mulch to keep conditions moist and dark, and if rainwater does not deposit at least 6 mm of rain within the first 5 days, rewater to bring the soil to saturation. Alkali Sacaton may be browsed by Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), Pronghorn (*Antilocapra americana*), small mammals and birds. *Sporobolus airoides* is native to west-central, southeast-central and southern North America. *5, 6, 18, 33 (Pages 228-229), 43 (102409), 44 (011312), 46 (Page 114), 48, **56**, **57**, 63 (011312 - color presentation including habitat), 77, **85** (011412 - color presentation), 105, 124 (011312), 127, 140 (Pages 216-218 & 301 - recorded as *Sporobolus airoides* (J. Torrey) J. Torrey [*S. wrightii* Munro ex Scribner, *S. airoides* Torrey var. *wrightii* (Munro ex Scribner) Gould])*

Sporobolus airoides var. *airoides* (see *Sporobolus airoides*)

Sporobolus airoides var. *wrightii* (see *Sporobolus wrightii*)

***Sporobolus contractus* A.S. Hitchcock: Spike Dropseed**

COMMON NAMES: Dropseed (a name also applied to other species and the genus *Sporobolus*); Narrow Spike Dropseed; Narrow-spike Dropseed; Narrow-spiked Dropseed; Spike Drop Seed; Spike Drop-seed; Spike Dropseed; Spike Dropseed Grass; Spike-dropseed; Zacate Alcalino Espigado (Spanish); Zacatón de Arena (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 16 inches to 6½ feet in height and 4 to 12 inches in width at the base; plants were observed and reported as being 16 inches in height and 8 inches in width at the base); the spikelets may be brownish, lead colored or whitish; the anthers are a light yellowish; flowering generally takes place be between early August and late October (additional records: one for mid-June and one for early July; flowering as early as June has been reported). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; plateaus; hanging gardens; bases of cliffs; rocky and gravelly canyons; along sandy and sandy-clayey canyon bottoms; talus slopes; bluffs; knolls; bases of ridges; sandy meadows; sandy foothills; sandy hills; rocky and sandy hillsides; rocky, rocky-clayey, rocky-clayey-loamy, cindery, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy and clayey-loamy slopes; alluvial fans; bajadas; rocky outcrops; coves; sand hills; sand dunes; mesquite hummocks; rock shelves; sandy plains; gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey and clayey flats; sandy basins; oak glens; sandy valley floors; sandy valley bottoms; railroad right-of-ways; along cindery-gravelly, gravelly-loamy, sandy and sandy-loamy roadsides; sandy arroyos; clayey bottoms of arroyos; bottoms of gulches; bouldery ravines; seeps; springs; bouldery streambeds; sandy soils along creeks; creekbeds; in sandy soils along rivers; sandy riverbeds; along and in gravelly, gravelly-clayey, sandy and silty-clayey washes; drainages; drainage ways; depressions; pot holes; cindery swales; (sandy) banks of creeks and rivers; (gravelly-sandy and sandy) edges of washes and drainage ways; (silty and silty-clayey) margins of seeps and washes; sand bars; sandy beaches; sandy benches; bouldery-gravelly-sandy, gravelly and sandy terraces; floodplains; mesquite bosques; along fencelines; in ditches; sandy ditch banks; sandy riparian areas, and disturbed areas growing in moist, damp and dry bouldery, bouldery-gravelly-sandy, rocky, cindery, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam and clayey loam ground; rocky-sandy clay, rocky clay, gravelly clay, sandy clay, sandy-silty clay, silty clay and clay ground, and gravelly-clayey silty, clayey silty and silty ground, occurring from sea level to 9,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. Spike Dropseed is useful in proving cover for wildlife, as a forage grass, in controlling erosion and in the re-vegetation of disturbed areas. *Sporobolus contractus* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (Pages 225-226), 43 (102409), 44 (011412), 46 (Page 114), 48, 58, 63 (011412 - color presentation of seeds), 77, **85** (011412 - color presentation including habitat), 124 (011412 - no record of species; genus record), 127, 140 (Pages 218 & 301)*

***Sporobolus cryptandrus* (J. Torrey) A. Gray: Sand Dropseed**

COMMON NAMES: Covered Spike Drop-seed; Covered-spike Drop-seed; Covered-spike Dropseed; Cryptandrous Dropseed; Dropseed (a name also applied to other species and the genus *Sporobolus*); Drop Seed Grass (a name also applied to other species); Drop-seed Grass (a name also applied to other species and the genus *Sporobolus*); Hidden-spike Dropseed; Large-panicle Vilfa; Larfe-panicled Vilfa; Lesser Dropseed; Prairie Grass; Prairie-grass; Sand Drop-seed; Sand Dropseed; Sand Rush Grass; Sand Rush-grass; Sand Rushgrass; Sporobole à Fleurs Cacnées (French, alternate spelling Sporobole à Fleures Cachées also observed); Vai Tava'i (Yaqui, also called this grass “Vaso” which is the Yaqui generic name for grass); Zacate de Arena (Spanish); Zacate Encubierto (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent (rarely), ascending and/or erect culms 1 to 4 feet (one record of 6½ feet) in height and up to 1 to 12 inches in width at the base; plants were observed and reported as being 40 inches in height and 4 to 6 inches in width at the base); the foliage may be bluish-green, light green, dark green or purple curing to light straw-yellow; the spikelets may be brownish, purplish, bright red-maroon or yellow; the anthers may be purplish to yellowish or white; flowering generally takes place between late April and late October (additional records: one for late January and one for early April; flowering ending as late as November has been reported); the fruits are light brown to reddish-orange. HABITAT: Within the range of this species it has been reported from

mountains; gravelly mountaintops; bouldery, rocky, gravelly-sandy, sandy and sandy-loamy mesas; sandy plateaus; rocky and sandy rims of canyons; cliffs; gravelly and sandy bases of cliffs; rocky and gravelly-loamy canyons; along bouldery-cobbly-sandy, gravelly, gravelly-sandy and sandy canyon bottoms; gorges; bouldery talus slopes; sandy crevices in boulders and rocks; pockets of sandy soil in rocks; bluffs; gravelly sides of bluffs; along tops of bluffs; buttes; sandy knolls; rocky ledges; along rocky, gravelly-loamy and sandy ridges; ridgetops; openings in woodlands; glades; sandy, sandy-loamy and clayey meadows; tops of cinder cones; sandy foothills; shaley, gravelly, gravelly-sandy and sandy hills; rocky and sandy hillsides; escarpments; along bedrock, bouldery, bouldery-cobbly-clayey, rocky, rocky-gravelly, rocky-sandy, rocky-sandy-loamy, rocky-loamy, shaley, cobbly, gravelly, gravelly-sandy-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey, loamy, clayey, clayey-loamy, silty-clayey and silty-clayey slopes; alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; sheltered nooks of rim rock; sandy lava flows; sand hills; sand dunes; sand hummocks; steppes; sandy and sandy-loamy prairies; pebbly, gravelly-sandy, sandy and sandy-clayey plains; bouldery, rocky, rocky-sandy, gravelly, sandy, sandy-loamy, sandy-clayey, sandy-silty, loamy, clayey, clayey-loamy, silty-loamy and silty-clayey flats; sandy and clayey uplands; sandy basins; basin floors; sandy bowls; gravelly-sandy and sandy-loamy valley floors; valley bottoms; coastal dunes; sandy coastal plains; sandy coastal flats; along gravelly railroad right-of-ways; sandy roadways; sandy and clayey roadcuts; along rocky-sandy, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, sandy-silty and clayey roadsides; sandy and clayey arroyos; sandy bottoms of arroyos; within sandy draws; bottoms of draws; sandy ravines; sandy, sandy-clayey and clayey seeps; sandy, sandy-clayey and clayey springs; gravelly-loamy soils along streams; along and in sandy, sandy-silty-clayey and clayey streambeds; along creeks; rocky and sandy creekbeds; along rivers; along and in sandy, sandy-clayey and clayey riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-loamy, clayey and silty-clayey washes; within rocky-clayey-silty and sandy drainages; drainage ways; clayey playas; blowouts; gravelly-sandy, sandy and silty-clayey depressions; sandy and clayey swales; along (muddy, sandy and sandy-loamy) banks of arroyos, springs, streams, creeks, rivers, washes and lakes; (rocky, gravelly and sandy) edges of draws, gullies; streams, drainage ways, pools and depressions; margins of streams, creeks, rivers, pools and lakes; (gravelly-sandy and sandy) shores of rivers and lakes; areas of drawdown; mudflats; sand and silty-sand bars; gravelly and sandy beaches; gravelly and sandy benches; stony-loamy, cobbly-gravelly, cobbly-sandy, sandy, sandy-loamy, silty and silty-clayey terraces; sandy, sandy-clayey, loamy and clayey bottomlands; gravelly-sandy, sandy and clayey floodplains; lowlands; mesquite bosques; along sandy fencerows; around stock tanks (charcos); gravelly banks and sandy shores of reservoirs; along and in sandy, sandy-clayey, loamy and clayey ditches; ditch banks; rocky, gravelly, gravelly-sandy and sandy riparian areas; sandy and loamy waste places, and disturbed areas growing in muddy and wet, moist, damp and dry rimrock; bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony-gravelly, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, stony loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, sandy-silty loam, silty loam, silty-clayey loam and loam ground; bouldery-cobbly clay, cobbly-sandy clay, gravelly clay, gravelly-sandy clay, sandy-clay, sandy-silty clay, silty clay and clay ground, and rocky-clayey silty, gravelly silty, sandy silty and silty ground, occurring from sea level to 10,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, established plants are drought resistant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. When using this plant in landscaping and re-vegetation projects use plants and/or seed collected from as local a population as possible. Rocky Mountain Bighorn Sheep (*Ovis canadensis*) browse this plant, Scaled Quail (*Callipepla squamata*), Black-tailed Jackrabbits (*Lepus californicus*), Black-tailed Prairie Dogs (*Cynomys ludovicianus*) feed on this plant, small mammals and birds also utilize this plant. *Sporobolus cryptandrus* is native to central and southern North America and southern South America (report for Argentina found in the Germplasm Resources Information Network). *5, 6, 15, **16**, 33 (very similar to *Sporobolus flexuosus* and difficult to distinguish without having mature panicles, Pages 226-227), 43 (102409 - *Sporobolus cryptandrus* A. Gray), 44 (011412), 46 (Page 114), 48, **56**, **57**, 58, 63 (011412 - color presentation including habitat), **77**, **85** (011612 - color presentation including habitat), 105, 124 (011412), 127, 140 (Page 301)*

Sporobolus cryptandrus var. *flexuosus* (see *Sporobolus flexuosus*)

***Sporobolus flexuosus* (G. Thurber ex G. Vasey) P.A. Rydberg: Mesa Dropseed**

SYNONYMY: *Sporobolus cryptandrus* (J. Torrey) A. Gray var. *flexuosus* G. Thurber. COMMON NAME: Mesa Drop Seed; Mesa Drop-seed; Mesa Dropseed; Mesa Drop Seed Grass; Mesa Dropseed Grass. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with decumbent (rarely) and/or erect culms 1 to 4 feet in height); the foliage is purplish; the anthers are yellow; based on few records located, flowering generally takes place between mid-August and early October (additional records: one for mid-May, one for early July, two for late July and one for late October; flowering beginning as early as June and ending as late as November has been reported); the fruits are brownish to reddish-orange. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; hanging gardens; bases of cliffs and walls; sandy rims of canyons; rocky canyons; gravelly-sandy and sandy canyon bottoms; talus slopes; sandy crevices in rock; pockets of sandy soil in rock; bedrock and sandy rincons; knolls; sandy meadows; rocky and sandy foothills; sandy and clayey-sandy hills; hillsides; bouldery, rocky, gravelly, sandy and sandy-loamy slopes; bases of slopes; amongst boulders and rocks; sand dunes; mesquite hummocks; blow-sand deposits; gravelly plains; sandy flats; sandy valley floors; along railroad right-of-ways; along rocky-sandy, gravelly, sandy and sandy-loamy roadsides; arroyos; sandy and clayey bottoms of arroyos; sandy gullies; springs; along creeks; riverbeds; along and in sandy washes; along and in sandy drainages; playas; marshes; swales, banks of rivers; (cobbly) edges of rivers; (bouldery and rocky) shores; bars; sandy beaches; bouldery-gravelly-sandy and sandy floodplains; sandy ditches;

ditch banks, and sandy riparian areas growing in moist and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly, cindery, gravelly, sandy, loamy sandy and clayey sandy ground; cindery-gravelly-loamy, gravelly loam, sandy loam and silty-loamy ground, and sandy clay and clay ground, occurring from 1,300 to 7,600 feet in elevation; useful as an ornamental in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it has a life expectancy of up to 4 to 5 years. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Black-tailed Jackrabbits (*Lepus californicus*) and Pronghorn (*Antilocapra americana*) feed on this grass. *Sporobolus flexuosus* is native to southwest-central and southern North America. *5, 6, 33 (very similar to *Sporobolus cryptandrus* and difficult to distinguish without having mature panicles, Pages 227-228), 43 (011612 - *Sporobolus flexuosus* Rydb., *Sporobolus cryptandrus* var. *flexuosus* Thurb.), 44 (011612), 46 (Page 114), 48, 63 (011612 - color presentation), **85** (011612 - color presentation of dried material), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Sporobolus cryptandrus* (Torr.) Gray var. *flexuosus* Thurb.), 124 (011612), 127*

***Sporobolus wrightii* W. Munro ex F.L. Scribner: Big Sacaton**

SYNONYMY: *Sporobolus airoides* (J. Torrey) J. Torrey var. *wrightii* (W. Munro ex F.L. Scribner) F.W. Gould. COMMON NAMES: Alkali Sacaton; Big Alkalai Sacaton; Big Alkali Sacaton (a name also applied to *Sporobolus airoides*); Big Sacaton; Big Sacaton Grass; Dropseed (a name applied to *Sporobolus airoides*, other species, the genus *Sporobolus* and historically to the genus *Muhlenbergia*); Dropseed (English)[140]; Giant Alkali Sacaton; Giant Sacaton; Giant Sacaton Grass; Noḍ <nawt, not> (a name applied to *Sporobolus airoides*, Uto-Aztecan: Akimel O'odham and Tohono O'odham)[140]; Nöönö <nɜ́:nɜ́> (Uto-Aztecan: Hopi)[140]; Sacaton (a name also applied to other species and the genus *Sporobolus*); [Big Alkali] Sacaton (English)[140]; Sacaton Grass (a name also applied to the genus *Sporobolus*); Tłaltso ("Big Grass", Athapascan: Chiricahua and Mescalero Apache)[140]; Tl'oh Dahikalii (Navajo); Tł'oh Ts'ósí <y'oh c'o's> ("Slender Grass", Athapascan: Navajo)[140]; Wright Dropseed; Wright Sacaton; Wright's Dropseed; Wright's Sacaton; Zacatón <sacatón> (a name also applied to *Sporobolus airoides*, Spanish)[140]. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 36 to 100 inches in height and 20 inches to 3 feet in width at the base); the foliage is pale green with a gray cast; the spikelets are greenish, purplish or whitish; the anthers are purplish to yellowish; based on few records located, flowering generally takes place between early August and late September (additional records: one for mid-April, one for late April, three for mid-June, (two for early August, four for mid-August, four for late August, five for early September, three for mid-September, one for late September) and one for mid-October; flowering beginning as early as March and ending as late as November has been reported); the fruits are blackish or reddish-brown. HABITAT: Within the range of this species it has been reported from mountains; gravelly-sandy mesas; plateaus; canyons; canyon bottoms; bases of cliffs; rock ledges; meadows; hills; rocky hillsides; escarpments; rocky, stony-loamy, gravelly and sandy-loamy slopes; amongst rocks; plains; clayey flats; basins; basin bottoms; sandy-clayey valley floors; tidal flats; along railroad right-of-ways; along gravelly-loamy and sandy-loamy roadsides; along arroyos; rocky-sandy bottoms of arroyos; along creeks; along rivers; along riverbeds; along and in gravelly and sandy washes; within drainages; bolson depressions; playas; cienegas; marshes; depressions; banks of rivers; (rocky) edges of washes; around margins of ponds; benches; terraces; bottomlands; sandy floodplains; lowlands; mesquite bosques; in clayey-loamy soils around stock tanks; along sandy ditches; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam and silty-clayey loam ground; sandy clay ground, and gravelly silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and useful in slowing runoff, enhancing infiltration and controlling erosion. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. An estimated 95% of the original stands of Big Sacaton have been lost or degraded due to channelization, erosion and overgrazing. Attempts should be made to restore this grassland. This plant provides cover for wildlife including the Collard Peccary (*Peccari tajacu*), Botteri's Sparrow (*Aimophila botterii*) and other birds, Diamondback Rattlesnakes (*Crotalus atrox*) and rodents. *Sporobolus wrightii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (recorded as *Sporobolus airoides* (Torr.) Torr. var. *wrightii* (Munro) Gould, Pages 230-231), 43 (102409), 44 (011612), 46 (Page 114), 44 (042811), 48, 58, 63 (011612 - color presentation including habitat), **77**, **85** (011612 - color presentation including habitat), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 105, 124 (011612 - no record of species; genus record), 127, 140 (Pages 216, 217, 218 & 301 - recorded as *Sporobolus airoides* (J. Torrey) J. Torrey [*S. wrightii* Munro ex Scribner, *S. airoides* Torrey var. *wrightii* (Munro ex Scribner) Gould])*

Trichachne californica (see *Digitaria californica*)

Trichachne insularis (see *Digitaria insularis*)

***Trichloris crinita* (M. Lagasca y Segura) L.R. Parodi: False Rhodes Grass**

SYNONYMY: *Chloris crinita* M. Lagasca y Segura, *Trichloris mendocina* (R.A. Philippi) F. Kurtz. COMMON NAMES: False Rhodes Grass; False Rhodesgrass; Feather Fingergrass; Multiflowered Chloris; Rhodes Grass; Twoflower Chloris; Twoflower Trichloris. DESCRIPTION: Terrestrial perennial graminoid (ascending and/or erect culms 2 to 5 feet in height); the foliage is green or reddish; based on few flowering records observed, flowering generally takes place between late April and mid-October (flowering records: one for late April, one for mid-July and one for mid-October, flowering has been

generally described as taking place from late spring to fall). HABITAT: Within the range of this species it has been reported from mountains; mesas, canyons, crevices in rocks; pockets of soil; rocky hills, slopes; bajadas; plains; gravelly-sandy and sandy flats; coastal plains; along railroad right-of-ways; along sandy-loamy roadsides; along bottoms of arroyos; along seeps; along sandy washes; drainages; depressions; loamy benches; terraces; floodplains; sandy lowlands, and disturbed areas growing in dry rocky, gravelly-sandy and sandy ground and loam ground, occurring from sea level to 4,200 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This large, showy grass may be an attractive component of a restored native habitat. *Trichloris crinita* is native to southwest-central and southern North America and western and southern South America. *5, 6, 15 (recorded as *Chloris crinita* (Lag.) Parodi), 33 (recorded as *Trichloris mendocina* (Phil.) Kurtz, Page 134), 43 (102509), 44 (011612 - no record of species or genus), 46 (Page 126), 63 (011612 - color presentation), 58 (recorded as *Chloris crinita* Lag.), **85** (011612 - color presentation including habitat), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Trichloris fasiculata* Fourn.), 124 (011612 - no record of species or genus)*

Trichloris fasiculata (see footnote 89 under *Trichloris crinita*)

Trichloris mendocina (see *Trichloris crinita*)

***Tridens muticus* (J. Torrey) G.V. Nash: Slim Tridens**

COMMON NAMES: Awned Fluff Grass; Awnless Fluff Grass; Rough Tridens; Slim Fluffgrass; Slim Tridens; Tridente (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 3 to 32 inches in height and 3 to 4 inches in width at the base; one plant was observed and described as being 32 inches in height and 4 inches in width at base); the foliage is bluish-green or gray-green curing to a light straw-yellow; flowering generally takes place between early March and early June and again between early August and mid-November (additional records: one for mid-January and one for early July). HABITAT: Within the range of this species it has been reported from mountains; gravelly peaks; mesas; rocky cliffs; along bouldery and rocky canyons; canyon walls; along rocky and gravelly canyon bottoms; gorges; bouldery-sandy grottos; talus slopes; crevices in rocks; rocky ledges; bedrock, gravelly and gravelly-sandy-clayey ridges; bouldery and rocky ridgetops; rocky foothills; rocky and gravelly hills; bouldery, rocky, rocky-gravelly-sandy and gravelly hillsides; rocky, rocky-sandy-loamy, gravelly, loamy, clayey and clayey-loamy slopes; rocky bajadas; boulder, rocky, shaley and chalky outcrops; amongst boulders and rocks; bases of rocks; lava flows; lava fields; plains; sandy-clayey flats; uplands; basins; valley floors; railroad right-of-ways; along rocky, gravelly-sandy and sandy roadsides; within rocky and gravelly arroyos; sandy bottoms of aroyos; draws; rocky and sandy-loamy ravines; seeps; springs; along streams; in sand along rivers; bouldery-sandy riverbeds; along and in rocky, gravelly, gravelly-loamy and sandy washes; drainage ways; sandy depressions; around pools; (rocky) banks of washes; borders of washes; (gravelly) edges of streambeds; (rocky) margins of arroyos; benches; stock tanks; riparian areas, and disturbed areas growing in dry rocky and gravelly desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, gravelly-sandy clay, sandy clay and clay ground; sandy silty ground, and chalky ground, occurring from 500 to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Slim Tridens is browsed by Collard Peccary (*Peccari tajacu*), Mule Deer (*Odocoileus hemionus*) and other herbivores and birds and rodents feed on the seed. *Tridens muticus* is native to south-central and southern North America. *5, 6, 15, **16**, 33 (Page 98), 43 (102509 - *Tridens muticus* Nash,), 44 (011612), 46 (Page 91), 63 (011612 - color presentation including habitat), 77, **85** (011712 - color presentation including habitat), 105, 124 (011612)*

***Tridens muticus* (J. Torrey) G.V. Nash var. *muticus*: Slim Tridens**

SYNONYMY: *Triodia mutica* (J. Torrey) F.L. Scribner. COMMON NAMES: Slim Tridens (a name also applied to the species); Slim Triodia (a name also applied to the species); Tridente (a name also applied to the species, Spanish); Tridente Esbelto (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgras) with ascending and/or erect culms 8 to 20 inches in height and 3 to 4 inches in width at the base); base on few records located, flowering generally takes place between early April and early June and again between early August and mid-November (additional record: one for early July); the seed head may be purple tinted. HABITAT: Within the range of this species it has been reported from bouldery mountains; along rocky canyons; rocky canyon bottoms; rocky and clayey knolls; rocky ledges; ridges; bouldery ridgetops; foothills; rocky hills; rocky hillsides; rocky, rocky-clayey and gravelly slopes; bajadas; amongst boulders and rocks; plains; sandy-clayey and sandy-clayey-loamy flats; uplands; roadsides; gravelly arroyos; bottoms of arroyos; draws; springs; along rocky washes; along banks of streams, and riparian areas growing in dry bouldery, rocky, rocky-gravelly, gravelly and sandy ground; gravelly-clayey loam and sandy-clayey loam ground, and rocky clay, sandy clay and clay ground, occurring from 1,200 to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Slim Tridens is browsed by Collard Peccary (*Peccari tajacu*), Mule Deer (*Odocoileus hemionus*) and other herbivores and birds and rodents feed on the seed. *Tridens muticus* var. *muticus* is native to southwest-central and southern North America. *5, 6, 33 (species, Page 98), 43 (102509 - *Tridens muticus* Nash, *Triodia mutica* Benth. ex S. Watson), 44 (011612 - no listings under "Common Names"; genus and species records), 46 (Page 91), 48, 63 (011612), **85** (011712), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Triodia mutica* (Torr.) Benth.), 105 (species), 124 (011612 - no record of variety *muticus*; genus and species records)*

Tridens pulchellus (see *Dasyochloa pulchella*)

Triodia mutica (see *Tridens muticus* var. *muticus*)

Triodia pulchella (see *Dasyochloa pulchella*)

***Trisetum interruptum* S.B. Buckley: Prairie False Oat**

COMMON NAMES: Prairie False Oat; Prairie Trisetum; Slender Oat Grass; Slender Oat-grass. DESCRIPTION: Terrestrial annual or perennial tufted graminoid (ascending and/or erect culms 2 inches to 2 feet in height); the panicles (compound inflorescences) are green or tan; based on very few flowering records located, flowering generally takes place between late March and mid-August (flowering records: one for late March, two for mid-April, one for early May and one for mid-August). HABITAT: Within the range of this species it has been reported from mountains; canyons; crevices in rocks; pockets of soil in bedrock; ledges; along ridges; foothills; rocky hills; hillsides; escarpments; rocky slopes; amongst rocks; lava flows; rocky shelves; plains; gravelly flats; railroad right-of-ways; along roadsides; within arroyos; springs; along rivers; along and in gravelly and sandy washes; around ponds; banks of rivers; (rocky and gravelly) edges of washes; margins of lakes; channel bars; benches; floodplains, and riparian areas growing in moist, damp and dry rocky, gravelly and sandy ground, occurring from 1,300 to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Prairie Trisetum is very similar in general appearance to Common Mediterranean Grass (*Schismus barbatus*) and may also be weedy. *Trisetum interruptum* is native to south-central and southern North America. *5, 6, 15, **16**, 33 (Page 171), 43 (102609), 44 (011712 - no record of species; genus record), 46 (Page 99), 58, 63 (011712), 77, **85** (011712 - color presentation), 124 (011712), 140 (Page 301)*

***Urochloa arizonica* (F.L. Scribner & E.D. Merrill) O. Morrone & F.O. Zuloaga: Arizona Signalgrass**

SYNONYMY: *Brachiaria arizonica* (F.L. Scribner & E.D. Merrill) S.T. Blake, *Panicum arizonicum* F.L. Scribner & E.D. Merrill. COMMON NAMES: Arizona Panicgrass; Arizona Panicum; Arizona Signal Grass; Arizona Signal-grass; Arizona Signalgrass; Piojillo de Arizona. DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate and/or erect culms 6 to 26 inches in height); the flowers are purple; flowering generally takes place between late July and early November (flowering beginning as early as June has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; canyon bottoms; chasms; rocky talus; meadows; foothills; rocky hills; hilltops; rocky and rocky-clayey hillsides; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-loamy, sandy, sandy-clayey loam, loamy and clayey slopes; alluvial fans; gravelly bajadas; sand dunes; rocky banks; rock outcrops; amongst boulders; bases of rocks; sand dunes; sandy flats; coastal dunes; coastal plains; along roadsides; arroyos; bottoms of arroyos; sandy draws; along rocky ravines; seeps; rivulets; along and in gravelly-sandy streambeds; along and in rocky, gravelly and sandy washes; drainages; within clayey drainage ways; (rocky-sandy and sandy) banks of washes; shores of lakes; benches; terraces; sandy floodplains; mesquite bosques; margins of stock tanks; ditches; riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, stony, gravelly and sandy ground; gravelly loam, gravelly-clayey loam, sandy-clayey loam and loam ground, and rocky clay, sandy clay and clay ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Urochloa arizonica* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Brachiaria arizonica* (Scribn. & Merr.) S.T. Blake), **16** (recorded as *Panicum arizonicum* Scribn. & Merr.), 33 (*Panicum arizonicum* Scribn. & Merr., Page 281), 43 (102609), 44 (011712), 46 (recorded as *Panicum arizonicum* Scribn. & Merr., Page 135), **56** (recorded as *Brachiaria arizonica* (Scribn. & Merr.) Blake), **57** (recorded as *Brachiaria arizonica* (Scribn. & Merr.) Blake), 58 (recorded as *Brachiaria arizonica* (Scribn. & Merr.) S.T. Blake), 63 (011712), 68, 77 (recorded as *Brachiaria arizonica* (Scribn. & Merr.) S.T. Blake), **85** (011711 - color presentation), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recorded as *Panicum arizonicum* Scribn. & Merrill), 124 (011712 - no record of species or genus), 140 (Page 299 - recorded as *Brachiaria arizonica* (Scribner & Merrill) S.T. Blake)*

Urochloa fasciculata (see *Urochloa fusca*)

***Urochloa fusca* (O. Swartz) B.F. Hansen & R.P. Wunderlin: Browntop Signalgrass**

SYNONYMY: *Brachiaria fasciculata* (O. Swartz) L.R. Parodi, *Panicum fasciculatum* O. Swartz, *Panicum fasciculatum* O. Swartz var. *reticulatum* (J. Torrey) W.J. Beal, *Urochloa fasciculata* (O. Swartz) R.D. Webster, nom. illeg. COMMON NAMES: Brown Top Millet; Brown-top Millet; Brown-top Panicum; Brown-top Signal Grass; Browntop Panicum; Browntop Signalgrass; Fieldgrass. DESCRIPTION: Terrestrial annual or perennial graminoid (decumbent, spreading and/or erect culms 12 to 40 inches in height); the spikelets (flowers) may be blackish, golden-tinged, greenish, red or yellowish-brown; flowering generally takes place between mid-August and mid-October (additional records: two for mid-May, one for mid-July, one for late July, one for early November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky and rocky-clayey mountainsides; rocky canyons; openings in woodlands; rocky hills; hilltops; rocky slopes; along rocky outcrops; banks; llanos; cobbly plains; clayey flats; valley floors; coasts; roadbeds; along rocky and clayey roadsides; riverbeds; along sandy washes; along drainages; drainage ways; pondbeds; depressions; edges of arroyos; terraces; floodplains; mesquite bosques; along ditches; riparian areas; waste places, and disturbed areas growing in wet, moist and dry rocky, cobbly and sandy ground; rocky-sandy loam and clayey loam ground, and rocky clay and clay ground, occurring

from sea level to 4,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Urochloa fusca* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 33 (recorded as *Panicum fasciculatum* Swartz var. *reticulatum* (Torr.) Beal, Pages 280-281), 43 (102609), 44 (011712 - no record of species), 46 (recorded as *Panicum fasciculatum* Swartz var. *reticulatum* (Torr.) Beal, Page 135), **56** (*Brachiaria fasciculata* (Swartz) Parodi), **57** (*Brachiaria fasciculata* (Swartz) Parodi), 63 (011712 - color presentation), 68, **85** (011712 - color presentation), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain, recorded as *Panicum fuscum* Sw.), 124 (011712 - species recorded under *Urochloa fasciculata* (Sw.) R. Webster)*

Vulpia myuros (C. Linnaeus) C.C. Gmelin: Rat-tail Fescue

SYNONYMY: *Festuca megalura* T. Nuttall, *Festuca myuros* C. Linnaeus, *Festuca myuros* C. Linnaeus var. *hirsuta* (E. Hackel) P.F. Ascherson & K.O. Graebner. COMMON NAMES: Annual Fescue (a name also applied to the genus *Vulpia*); Capon's Tail Grass; Capon's-tail Grass; False Foxtail Fescue; Fox Tail Fescue; Fox-tail Fescue; Foxtail Fescue; Festuca-rabo-de-rato (Portuguese: Brazil); Hair Sixweeksgrass; Mouse Tail; Mouse Tail Grass; Mouse-tail Grass; Mousetail; Myur Fescue; Rat's Tail Fescue Grass; Rat-tail Fescue; Rat-tail Fescue Grass; Rat's-tail Fescue; Rat's-tail Fescue Grass; Rat-tail Six-weeks Grass; Rat-tail Sixweeks Grass; Rat-tailed Fescue; Rattail Annual Fescue; Rattail Grass; Rattail Six Weeks Fescue; Rattail Fescue; Rattail Six-weeks Fescue; Rattail Six-weeks Grass; Rattail Sixweeks Fescue; Rattail Sixweeks Grass; Råttsvingel (Swedish); Red-tail Fescue; Silver Grass; Vulpia-rabo-de-rato (Portuguese: Brazil); Zorro Annual Fescue; Zorro Fescue. DESCRIPTION: Terrestrial annual solitary or loosely tufted graminoid (ascending and/or erect culms 1 to 36 inches in height); the foliage is yellowish-green; the inflorescence is yellow-green; flowering generally takes place between late February and late June (additional records: five for early February, one for late September, one for early December and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; sandy and clayey mesas; plateaus; canyons; rocky and gravelly-sandy canyon bottoms; along ridges; along ridgetops; sandy clearings in forests and woodlands; meadows; rocky foothills; rocky hills; rocky and sandy hillsides; bouldery, rocky, rocky-loamy-clayey, cobbly-sandy, cobbly-sandy-loamy, gravelly, sandy, loamy, clayey and clayey-loamy slopes; rocky outcrops; amongst rocks; boulder fields; tops of rock mounds; clayey breaks; prairies; plains; sandy flats; sandy valleys; slopes of coastal shorelines; along gravelly-sandy, gravelly-sandy-loamy, sandy and sandy-loamy roadsides; seeps; springs; along streams; rocky streambeds; along creeks; creekbeds; in rocky-sandy washes; banks of streams and rivers; edges of creeks and vernal pools; margins of streamlets, washes and ponds; sand bars; rocky-sandy benches; sandy-clayey shelves; sandy terraces; floodplains; lowlands; sandy banks of stock tanks; ditches; ditch banks; muddy and gravelly-sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry bouldery, rocky, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground, and rocky-loamy clay, rocky clay, sandy clay and clay ground, occurring from sea level to 7,700 in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Vulpia myuros* is native to northern, central, eastern and southern Europe and coastal islands in the North Atlantic Ocean and Mediterranean Sea; western, central and southern Asia and coastal islands in the Mediterranean Sea, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 33 (recorded as *Festuca megalura* Nutt., Pages 55-56 and *Festuca myuros* L., Page 57), 43 (102609), 44 (011712 - color photograph), 46 (recorded as *Festuca megalura* Nutt., Page 80 and *Festuca myuros* L., Page 80), 63 (011712 - color presentation of seed), 77, 85 (011712 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb, recorded as *Festuca myuros* L.), 101 (color photograph), 124 (011712)*

Vulpia octoflora (T. Walter) P.A. Rydberg: Sixweeks Fescue

COMMON NAME: Common Six Weeks Grass (for var. *octoflora*); Common Six-weeks Fescue (for var. *octoflora*); Common Six-weeks Grass (for var. *octoflora*); Common Sixweeks Fescue (for var. *octoflora*); Common Sixweeks Grass (for var. *octoflora*); Common Sixweeksgrass (for var. *octoflora*); Eight Flowered Fescue (for var. *octoflora*); Eight-flower Six Weeks Grass (for var. *octoflora*); Eight-flower Six-weeks Fescue (for var. *octoflora*); Eight-flower Six-weeks Grass (for var. *octoflora*); Eight-flower Sixweeks Grass (for var. *octoflora*); Eight-flowered Annual Fescue (for var. *octoflora*); Eight-flowered Fescue (for var. *octoflora*); Eight-flowered Six-weeks Grass (for var. *octoflora*); Eightflower Six Weeks Grass (for var. *octoflora*); Fescue Grass (for var. *octoflora*); Hairy Pullout Grass (for var. *hirtella*); Hairy Six Weeks Fescue (for var. *hirtella*); Hairy Six-weeks Fescue (for var. *hirtella*); Hairy Sixweeks Fescue (for var. *hirtella*); Pull-out Grass (for var. *octoflora*); Pull-out Vulpia (for var. *octoflora*); Pullout Grass (for var. *octoflora*); Six Weeks Fescue (a name also applied to the genus *Vulpia*); Six-weeks Fescue (a name also applied to the genus *Vulpia*); Six-weeks Grass; Six-weeks Rescue (for var. *octoflora*); Sixweeks Fescue (a name also applied to the genus *Vulpia*); Sixweeks Grass; Sixweeks Rescue (for var. *octoflora*); Slender Eight-flower Grass (for var. *octoflora*); Slender Eight-flowered Fescue (for var. *octoflora*); Slender 8-Flowered Fescue (for var. *octoflora*); Slender Fescue Grass (for var. *octoflora* and other species); Slender Fescue-grass (for var. *octoflora* and other species); Slender Rescue-grass (for var. *octoflora*). DESCRIPTION: Terrestrial annual solitary or loosely tufted graminoid (decumbent, geniculate, ascending and/or erect culms 2 inches to 2 feet in height); the foliage may be bright green or yellow-green; the florets are green; flowering generally takes place between early February and early August (additional record: one for mid-November). HABITAT: Within the range of this species it has been reported from bouldery mountains; rocky mountaintops; rocky mountainsides; gravelly, pebbly-sandy-silty, sandy and clayey-loamy mesas; plateaus; cobbly and sandy rims; rocky cliffs; sandy bases of cliffs; rocky canyons; canyon walls; bouldery, rocky, gravelly and sandy canyon bottoms; talus slopes; crevices in boulders and rocks; pockets of sandy soil in rock; gravelly-silty-clayey, sandy and chalky bluffs; rocky, rocky-gravelly-clayey, gravelly-sandy, gravelly-silty-

loamy and sandy-clayey buttes; rocky and sandy ledges; along bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, gravelly, sandy and silty-loamy ridges; sandy ridgetops; ridgelines; rocky-clayey patches; rocky and clayey balds; rocky-sandy and sandy meadows; rocky-sandy rims of craters; rocky foothills; rocky, stony, stony-sandy, stony-clayey, cobbly-sandy-loamy, cindery (scoria), gravelly, gravelly-clayey, sandy-loamy and silty-loamy hills; rocky hilltops; rocky, rocky-gravelly, rocky-silty, gravelly and gravelly-loamy hillsides; escarpments; bouldery, rocky, rocky-cobbly, rocky-gravelly, rocky-gravelly-loamy, rocky-sandy, rocky-clayey, shaley, shaley-clayey, stony-cobbly, stony-sandy, gravelly, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey, loamy, loamy-clayey, clayey, clayey-loamy and clayey-silty slopes; gravelly-sandy bases of slopes; rocky, rocky-sandy, rocky-sandy-loamy, gravelly-sandy and sandy alluvial fans; gravelly bajadas; bouldery, rocky, rocky-clayey, shaley and cindery (scoria) outcrops; sandy bases of outcrops; amongst boulders and rocks; rock beds; lava flows; sand hills; sand dunes; sandy and clayey breaks; benchlands; in silty-loam at edges of tablelands; clay pans; sandy steppes; gravelly, gravelly-sandy, sandy, sandy-loamy, loamy, loamy-clayey, silty, silty-loamy and silty-loamy-clayey prairies; stony and sandy plains; rocky, stony, gravelly, gravelly-clayey-loamy, sandy, sandy-clayey and clayey flats; rocky, gravelly, sandy, loamy, loamy-clayey, silty, silty-loamy and silty-loamy-clayey uplands; sandy and clayey basins; stony-clayey hollows; sandy-loamy valley floors, valley bottoms; coastal plains; coastal beaches; sandy coastal shorelines; railroad right-of-ways; sandy roadcuts; along rocky, gravelly, gravelly-sandy, gravelly-loamy, sandy, loamy-clayey, clayey and silty-loamy roadsides; along gravelly and sandy-loamy arroyos; bottoms of arroyos; sandy draws; sandy bottoms of draws; gulches; gullies; bottoms of gullies; ravines; sandy bottoms of ravines; rocky-clayey seeps; springs; humusy-loamy soils along streams; sandy streambeds; along creeks; rocky-sandy creekbeds; along rivers; gravelly-sandy and sandy riverbeds; along and in rocky-sandy, stony-gravelly, gravelly-sandy, sandy and sandy-loamy washes; along and in rocky-sandy, gravelly-sandy, clayey, silty-loamy and silty-clayey drainages; within sandy drainage ways; oases; around lakes; within sandy-silty-loamy buffalo wallows; sandy depressions; swales; along (gravelly-loamy, sandy, sandy-silty, loamy, loamy-clayey, silty and silty-clayey) banks of streambeds, creeks, rivers, washes and drainages; borders of washes; along (sandy) edges of washes; margins of streams, creeks, rivers, pools and ciénegas; (sandy) shorelines of rivers; areas of drawdown; gravel, gravelly-sand and sand bars; sandy beaches; cobbly-sandy-loamy and sandy benches; gravelly, gravelly-sandy and sandy terraces; sandy and loamy bottomlands; clayey floodplains; fencerows; clayey catchments; stock tanks (charcos); around reservoirs; ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry cryptogamic; rimrock pavement; bouldery, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, stony, stony-cobbly, stony-gravelly, stony-sandy, cindery (scoria), gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-clayey loam, cobbly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-silty loam, clayey loam, silty loam, humusy loam and loam ground; rocky clay, rocky-gravelly clay, shaley-clay, stony clay, gravelly clay, gravelly-silty clay, sandy clay, loamy clay, silty-loamy clay, silty clay and clay ground; rocky silty, pebbly-sandy silty, sandy silty, clayey silty and silty ground; chalky ground, and rocky-powdery ground, occurring from sea level to 10,600 feet in elevation in the forest, woodland; scrub, grassland, desertscrub and wetland ecological formations. NOTES: Sixweeks Fescue may be useful in the restoration of disturbed areas and acts as a soils stabilizer, once established it is very drought tolerant. The Creosote Bush may serve as a nurse plant for Sixweeks Fescue. This plant is browsed by Bison (*Bos bison*), Black-tailed Jack Rabbits (*Lepus californicus*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Lesser Prairie Chicken (*Tympanuchus pallidicinctus*), Pronghorn (*Antilocapra americana*), White-tailed Prairie Dogs (*Cynomys leucurus*) and other small mammals, and Ground Squirrels (Townsend Ground Squirrel noted), Kangaroo Rats (Merriam's Kangaroo Rat noted), Pocket Gophers (Plains Pocket Gopher noted), Pocket Mice (Bailey's and Rock Pocket Mice noted) and other small mammals and birds (Chukar and Sharp-tailed Grouse noted) feed on the seed. *Vulpia octoflora* is native to central and southern North America. *5, 6, 15, **16**, 33 (recorded as *Festuca octoflora* Walt., Page 55), 43 (102709), 44 (011912 - records located under *Festuca octoflora*), 46 (recorded as *Festuca octoflora* Walt., Page 80), 58, 63 (011712 - color presentation), **85** (011812 - color presentation including habitat), 124 (011712)*

Vulpia octoflora (T. Walter) P.A. Rydberg var. *hirtella* (C.V. Piper) J.T. Henrard: Sixweeks Fescue

SYNONYMY: *Festuca octoflora* T. Walter subsp. *hirtella* C.V. Piper, *Festuca octoflora* T. Walter var. *hirtella* (C.V. Piper) C.V. Piper ex A.S. Hitchcock. COMMON NAMES: Eight-flowered Fescue (a name also applied to var. *octoflora*); Fescua; Hairy Pullout Grass; Hairy Six Weeks Fescue; Hairy Six-weeks Fescue; Hairy Sixweeks Fescue; Six Weeks Fescue (a name also applied to var. *octoflora*); Six-weeks Fescue (a name also applied to the species); Sixweeks Fescue (a name also applied to the species); Sixweeks Grass (a name also applied to the species and other species); Tufted Fescue (a name also applied to var. *octoflora*). DESCRIPTION: Terrestrial annual solitary or loosely tufted graminoid (decumbent, geniculate, ascending and/or erect culms 2 inches to 2 feet in height); the foliage is bright green or yellow-green; the florets are green; flowering generally takes place between early February and late June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly and sandy mesas; rocky cliffs; rocky canyons; gravelly and sandy canyon bottoms; crevices in rocks; cobbly-loamy buttes; rocky ledges; along ridges; ridgetops; ridgelines; meadows; rocky foothills; rocky hills; bases of hills; rocky-gravelly hillsides; rocky, rocky-sandy, gravelly, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey, loamy and humusy-loamy slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders; lava flows; sand dunes; along sandy outwash fans; breaks; plains; stony, gravelly and sandy flats; sandy-loamy valley floors; valley bottoms; along roadsides; sandy arroyos; sandy draws; gulches; gullies; springs; humusy-loamy soils along streams; sandy streambeds; along creeks; rocky-sandy creekbeds; along rivers; riverbeds; along and in bouldery, stony-gravelly, gravelly-sandy, sandy and sandy-loamy washes; within sandy drainage ways; swales; around lakes; margins of cienegas; shores of lakes; sandy beaches; gravelly and sandy terraces; sandy and loamy bottomlands; floodplains; stock tanks (charcos); ditches; sandy riparian areas; waste places; recently burned areas, and disturbed areas growing in moist and

dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy, sandy and chalky ground; rocky-clayey loam, cobbly loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam, humusy loam and loam ground, and sandy clay and clay ground, occurring from 200 to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Sixweeks Fescue may be useful in the restoration of disturbed areas and acts as a soils stabilizer. This plant is browsed by Bison (*Bos bison*), Black-tailed Jack Rabbits (*Lepus californicus*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Lesser Prairie Chicken (*Tympanuchus pallidicinctus*), Pronghorn (*Antilocapra americana*), White-tailed Prairie Dogs (*Cynomys leucurus*) and other small mammals, and Ground Squirrels (Townsend Ground Squirrel noted), Kangaroo Rats (Merriam's Kangaroo Rat noted), Pocket Gophers (Plains Pocket Gopher noted), Pocket Mice (Bailey's and Rock Pocket Mice noted) and other small mammals and birds (Chukar and Sharp-tailed Grouse noted) feed on the seed. *Vulpia octoflora* var. *hirtella* is native to west-central and southern North America. *5, 6, 33 (recorded as *Festuca octoflora* var. *hirtella* Piper, Page 55), 43 (060710), 44 (011912 - records located under *Festuca octoflora*, color photograph), 46 (recorded as *Festuca octoflora* Walt. var. *hirtella* Piper, Page 80), **57**, 63 (011912), 77, 85 (011912), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Festuca octoflora* Walt. subsp. *hirtella* Piper), 124 (011912)*

***Vulpia octoflora* (T. Walter) P.A. Rydberg var. *octoflora*: Sixweeks Fescue**

SYNONYMY: *Festuca octoflora* T. Walter. COMMON NAMES: Common Six Weeks Grass; Common Six-weeks Fescue; Common Six-weeks Grass; Common Sixweeks Fescue; Common Sixweeks Grass; Common Sixweeksgrass; Eight Flowered Fescue; Eight-flower Six Weeks Grass; Eight-flower Six-weeks Fescue; Eight-flower Six-weeks Grass; Eight-flower Sixweeks Grass; Eight-flowered Annual Fescue; Eight-flowered Fescue; Eight-flowered Six-weeks Grass; Eightflower Six Weeks Grass; Fescue Grass; Pull-out Grass (a name also applied to the species); Pull-out Vulpia (a name also applied to the species); Pullout Grass (a name also applied to the species); Six-weeks Fescue (a name also applied to the species); Sixweeks Fescue (a name also applied to the species); Sixweeks Grass (a name also applied to the species and other species); Six-weeks Rescue; Sixweeks Rescue; Slender Eight-flower Grass; Slender Eight-flowered Grass; Slender Eight-flowered Fescue; Slender 8-flowered Fescue; Slender Fescue Grass; Slender Fescue-grass; Slender Rescue-grass; Tufted Fescue (a name also applied to var. *hirtella*). DESCRIPTION: Terrestrial annual solitary or loosely tufted graminoid (decumbent, geniculate, ascending and/or erect culms 2 inches to 2 feet in height); the foliage is bright green or yellow-green; the florets are green; flowering generally takes place between early February and late June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy and clayey-loamy mesas; plateaus; rocky cliffs; rocky canyons; rocky, gravelly and sandy canyon bottoms; sandy bases of cliffs; crevices in rocks; rocky ledges; along ridges; ridgelines; meadows; rocky foothills; rocky and stony-clayey hills; rocky, rocky-gravelly, gravelly and gravelly-loamy hillsides; rocky, rocky-sandy, gravelly, sandy and sandy-loamy slopes; bajadas; boulder and rock outcrops; amongst boulders and rocks; sand hills; dunes; sandy plains; stony, gravelly, sandy and sandy-loamy flats; basins; stony-clayey hollows; along gravelly-loamy, sandy and silty roadsides; along arroyos; gulches; gullies; sandy bottoms of ravines; springs; along streams; sandy streambeds; along creeks; rocky-sandy creekbeds; along rivers; sandy riverbeds; along and in stony-gravelly, gravelly-sandy and sandy washes; within sandy drainage ways; around lakes; swales; sandy banks of creeks; margins of cienegas; sand bars; gravelly and sandy terraces; sandy and loamy bottomlands; floodplains; stock tanks (charcos); ditches; sandy riparian areas; waste places, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy, sandy and chalky ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; stony clay, sandy clay and clay ground, and rocky silty and silty ground, occurring from 100 to 10,600 feet in elevation in the forest, woodland; scrub, grassland, desertscrub and wetland ecological formations. NOTES: Sixweeks Fescue may be useful in the restoration of disturbed areas and acts as a soils stabilizer. This plant is browsed by Bison (*Bos bison*), Black-tailed Jack Rabbits (*Lepus californicus*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Lesser Prairie Chicken (*Tympanuchus pallidicinctus*), Pronghorn (*Antilocapra americana*), White-tailed Prairie Dogs (*Cynomys leucurus*) and other small mammals, and Ground Squirrels (Townsend Ground Squirrel noted), Kangaroo Rats (Merriam's Kangaroo Rat noted), Pocket Gophers (Plains Pocket Gopher noted), Pocket Mice (Bailey's and Rock Pocket Mice noted) and other small mammals and birds (Chukar and Sharp-tailed Grouse noted) feed on the seed. *Vulpia octoflora* var. *octoflora* is native to central and southern North America. *5, 6, 33 (recorded as *Festuca octoflora* Walt., Page 55), 43 (102809), 44 (011912 - records located under *Festuca octoflora*), 46 (recorded as *Festuca octoflora* Walt., Page 80), **56**, 63 (011912), 77, 85 (011912 - color presentation of dried material), 124 (011912)*

Potamogetonaceae: The Pondweed Family

***Potamogeton pusillus* C. Linnaeus: Small Pondweed**

COMMON NAMES: Baby Pond-weed; Baby Pondweed; Dwarf Pondweed; Least Pondweed; Lesser Pond Weed; Lesser Pond-weed; Lesser Pondweed; Patamot Nain (French); Pondweed (a name also applied to other species); Slender Pondweed (a name also applied to other species); Small Pond Weed; Small Pond-weed; Small Pondweed; Tiny Pond-weed; Tiny Pondweed; Very Small Pond-weed; Very Small Pondweed. DESCRIPTION: Aquatic (floating and submerged) perennial forb/herb (7 inches to 5 feet in length); he stems are green; the flowers are brown or green with cream-white anthers; flowering generally takes place between early May and mid-October; the fruits are brown to green. HABITAT: Within the range of this species it has been reported from wet meadows; around and in springs; streams; creeks; creekbeds; pools; ponds; muddy pondbeds; lakes; shallow backwaters; coves; inlets; ciénegas; marshes; swamps; depressions; around banks of ponds; (in shallow water) at edges of creeks, rivers and lakes; shallow sandy margins of rivers, pools, lakes and lagoons; beaver ponds; catch basins;

stock tanks; reservoirs, and ditches growing submerged in water and rooted in mucky; muddy, and wet sandy ground and sandy silty and silty ground, occurring from sea level to 10,900 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: Ducks reportedly feed on the stems, leaves and seeds. *Potamogeton pusillus* is native to northwestern, northern, central and southern North America and islands in the North Atlantic Ocean; Central America; South America; Europe and islands in the North Atlantic Ocean and Mediterranean Sea; southern Asia and islands in the Philippine Sea and South Pacific Ocean; and Africa and islands in the North Atlantic Ocean. *5, 6, 43 (102809), 44 (011912), 46 (Page 66), 58, 63 (011912 - color presentation), 85 (011912 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz River and Irrigation Ditches), 124 (011912)*

Typhaceae: The Cat-tail Family

Typha angustata (see *Typha domingensis*)

Typha angustifolia (see Notes under *Typha domingensis*)

***Typha domingensis* C.H. Persoon: Southern Cattail**

SYNONYMY: *Typha angustata* J.B. Bory & L.A. Chaubard. COMMON NAMES: Cat-tail (a name also applied to other species; the genus *Typha*, and to the Typhaceae), Cattail (a name also applied to other species, the genus *Typha* and to the family Typhaceae); Dominican Cat-tail; Dominican Cattail; Lesser Reedmace; Narrow-leaf Cattail (a name also applied to other species); Narrow Leaf Cumbungi; Narrow-leaf Cumbungi; Narrow Leafed Cumbungi; Narrow-leafed Cumbungi; Narrow Leaved Cumbungi; Narrow-leaved Cumbungi; Piripepe (Spanish); Pirivevýi (Spanish); Santo Domingo Cattail; Southern Cat-tail; Southern Cattail; Southern Narrow-leaved Cat-tail; Southern Narrow-leaved Cattail; Southern Cat-tail; Southern Cattail; Southern Reed-mace; Southern Reedmace; Totora (Spanish); Tropical Cattail; Tule (a name also applied to other species, Spanish); Uḍvak <oodvak, otoxak> (Uto-Aztecan: Akimel O'odham)[140]; Woody Cattail. DESCRIPTION: Semi-aquatic perennial forb/herb (erect shoots 3 to 13 feet in height); the leaves may be dark green or light yellowish-green; the pistillate flowers are light brown, tawny-brown or brown becoming buff or grayish; the staminate flowers are golden-yellow or yellow-green; flowering generally takes place between early March and late November (flowering records: one for early March, one for early April, one for late April, two for early May, three for mid-May, two for late May, four for early June, four for mid-June, one for late June, two for early July, two for mid-July, three for late July, two for early August, one for late August, one for early September, one for late September, one for early October, one for late October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; canyons; rocky canyon bottoms; gorges; rocky hills; bouldery and rocky hillsides; muddy, rocky and clayey slopes; prairies; clayey flats; valley floors; draws; ravines; seeps; around and in gravelly and gravelly-sandy springs; along and in streams; along and in rocky-sandy and sandy streambeds, along and in creeks; cobbly creekbeds; along rivers; sandy and sandy-silty riverbeds; within rocky washes; along and in clayey drainages; waterholes (pozos); pools; around ponds; around lakes; lakebeds; lagoons (esteros); around bogs; boggy areas; ciénegas; along freshwater marshes; swamps; depressions; sinkholes; sloughs; (gravelly-sandy) banks of streams, rivers and washes; (silty) edges of creeks, rivers, pools; along shores of lakes; sand bars; sandy benches; bottomlands; sandy floodplains; lowlands; reservoirs; along canals; along ditches; muddy-sandy and gravelly-sandy riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist and damp bouldery, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; clayey loam ground; clay ground, and sandy-clayey silty and sandy silty ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and may be aggressively invasive in wetlands. Arizona specimens were historically referred to as *Typha angustifolia*. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. *Typha domingensis* is native to the subtropics; tropics, and warm-temperate regions of south-central and southern North America; Central America and coastal islands in the Caribbean Sea; South America; Eurasia, and Africa, and Australia and islands in the South Pacific Ocean. *5, 6, 15, **16**, 28 (color photograph), 43 (042911), 44 (042911 - color photograph), 46 (Page 64), 58, 63 (011912 - color presentation), 68, **77**, **85** (011912 - color presentation including habitat), 124 (042911), 127, 140 (Pages 34, 254 & 306), **WTK** (October 28, 2009)*

Zannichelliaceae: The Horned-pondweed Family

***Zannichellia palustris* C. Linnaeus: Horned Pondweed**

COMMON NAMES: Common Poolmat; False Pond-weed (a name also applied to other species); False Pondweed (a name also applied to other species); Horned Pond Weed; Horned Pondweed (a name also applied to the genus *Zannichellia*); Horned Pond-weed; Horned-pondweed (a name also applied to the genus *Zannichellia*); Horned Poolmat; Potamogeton Capillaceum Capitulis ad alas Trifidus (1622, C. Bauhin); Water-grass (a name also applied to other species, Nebraska); Zanichellia (South Dakota); Zannichellia Palustris Major Foliis Gramineis Acutis (Micheli); Zennichellia (a name also applied to the genus *Zannichellia*, Iowa). DESCRIPTION: Aquatic perennial forb/herb (stems to 20 inches in length); the foliage is green & brownish-purple or green-gray; the flowers are a clear white; flowering generally takes place between early April and mid-

September (additional records: one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from canyon bottoms; rocky and sandy-loamy slopes; rocky flats; draws; seeps; springs; along and in streams; streambeds; along and in creeks; creekbeds; along and in rivers; clayey-loamy washes; drainages; potholes; pools; ponds; muddy pondbeds; lakes; eddies; estuaries; inlets; boggy areas; ciénegas; marshes; swamps; (clayey-loamy) banks of streams, rivers and ponds; along edges of streams, creeks, rivers, lakes and marshes; along margins of rivers and ponds; along shores of lakes; sandy beaches; clayey-loamy floodplains; stock tanks; edges and margins of reservoirs; along and in canals; along and in ditches; troughs, and riparian areas growing on or in water, and/or rooted in mucky; muddy, and wet rocky, gravelly and sandy ground; sandy loam and clay loam ground, and cobbly-sandy silty ground, occurring from sea level to10,200 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: Ducks reportedly feed on the stems and leaves. *Zannichellia palustris* is native to northwestern, northern, central and southern North America; Central America and coastal islands in the Caribbean Sea; South America; Australia; Europe; Asia, and Africa. *5, 6, 43 (102909), 44 (043011 - color photograph), 46 (Page 67), 58, 63 (011912 - color presentation), **85** (011912 - color presentation of dried material), **89** (reported as being a perennial herb located on the Santa Cruz River and Irrigation ditches), 124 (043011)*

CLASS MAGNOLIOPSIDA: The DICOTS

Acanthaceae: The Acanthus Family

Anisacanthus thurberi (J. Torrey) A. Gray: Thurber's Desert Honeysuckle

COMMON NAMES: Anisacanthus; Buckbrush (English)[140]; Chuparosa (Spanish: Sonora)[140]; Chuparrosa (Spanish: Sonora); Cola de Gallo ("Rooster Tail", Spanish: Sonora)[140]; Colegallo <colegaiyo, colegayo> (Spanish: Chihuahua, Sonora)[140]; Desert Honeysuckle; [Thurber's] Desert Honeysuckle (English)[140]; Hierba de Cáncer ("Cancer Herb" a name also applied to other species, Spanish: Mexico)[140]; Lustich <lustiej> (Uto-Aztecan: Guarijío)[140]; Muicle (a name also applied to other species, Uto-Aztecan)[140]; Taparosa (Spanish)[140]; Thurber Anisacanthus; Thurber Desert-honeysuckle; Thurber's Desert Honeysuckle; Thurber's Desert-honeysuckle. DESCRIPTION: Terrestrial perennial cold deciduous shrub (3 to 8 feet in height; one plant was observed and described as being 6½ feet in height and 40 inches in width); the stems are pale gray, gray, tan or white; the leaves are green or yellow-green; the tubular flowers may be brick-red, brown-orange, brownish-red, burnt-orange, copper-red, orange, orange-brown, orange-red, orange with a purple fringe, orange-salmon, dull pink-orange, purplish, light red, red, red-orange, red-orange-brown, reddish-brown, reddish-orange or yellow; flowering generally takes place between late February and early August and again between late September and mid-December (additional records: one for early February and one for late August; flowering has also been reported as occurring mainly in the spring, but may take place almost throughout the year). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cliffs; gravelly bases of cliffs; along bouldery, rocky and sandy canyons; rocky canyon bottoms; meadows; foothills; hills; gravelly hilltops; rocky and rocky-gravelly-loamy hillsides; escarpments; rocky, rocky-gravelly, rocky-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy and sandy slopes; bajadas; rocky outcrops; amongst boulders; traces; plains; flats; valley floors; valley bottoms; along roadsides; along arroyos; bottoms of arroyos; draws; sandy bottoms of draws; grottos; gulches; ravines; springs; along streams; along and in streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in bouldery-rocky, rocky, gravelly and sandy washes; bouldery drainage ways; ciénegas; along (rocky and gravelly-sandy) banks of arroyos, rivers and washes; borders of washes; along edges of creeks and washes; rocky shelves; bottomlands; rocky-sandy floodplains; mesquite bosques; ditches, and bouldery riparian areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, pebbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam and gravelly loam ground; rocky clay and gravelly clay ground, and silty ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and is currently being used in plantings, often to attract hummingbirds. The Anna's Hummingbird (C*alypte anna*), Black-chinned Hummingbird (*Archilochus alexandri*), Broad-billed Hummingbird (*Cynanthus latirostris*), Costa's Hummingbird (*Calypte costae*) and Rufous Hummingbird (*Selasphorus rufus*) have been observed visiting the flowers, and the Verdin (*Auriparus flaviceps*) may use the flowers as a source of nectar. This plant is browsed by wildlife. *Anisacanthus thurberi* is native to southwest-central and southern North America. *5, 6, 10, 13 (Pages 216-217), 15, **16**, 18, 28 (color photograph 539), 43 (102909 - *Anisacanthus thurberi* A. Gray), 44 (012112 - no record of species or genus), 46 (Page 801), 48, **57**, 58, 63 (012112 - color presentation of seed), 77 (color photograph #1), **85** (012112 - color presentation), **89** (reported as being a shrub located on the Mesa-like Mountain Slopes), 91 (Pages 92-94), 115 (color presentation), 124 (012112 - no record of species or genus), 140 (Pages 27-28 & 281)*

Carlowrightia arizonica A. Gray: Arizona Wrightwort

COMMON NAMES: Arizona Carlowrightia; Arizona Wright wort; Arizona Wright-wort; Arizona Wrightwort; Chuparosa; Desert Honeysuckle; Hummingbird Bush; Lemilla; Rama de Toro; Rama Toro (Spanish); Ramoneada Flor Blanco (Spanish); Wrightwort (a name also applied to the genus *Carlowrightia*). DESCRIPTION: Terrestrial perennial subshrub or shrub (2 to 40 inches in height); the foliage is gray, pale green or green; the flowers are cream, lavender, white or white with

maroon or purple, reddish and yellow markings, or yellow reportedly opening shortly after sunrise and close late in the afternoon; based on few flowering records examined, flowering is scattered and generally taking place between mid-February and late May (flowering records: two for early January, five for mid-February, four for late February, three for mid-March, four for late March, four for early April, six for mid-April, seven for late April, four for early May, nine for mid-May, two for late May, one for mid-July, one for mid-August, one for mid-September, one for early October, three for mid-October, three for late October, one for mid-November and one for mid-December). HABITAT: Within the range of this species it has been range reported from mountains; mountainsides; mesas; cliffs; bases of cliffs; rocky canyons; along canyon walls; along rocky and gravelly canyon bottoms; crevices in rocks; buttes; along rocky ledges; rocky ridgetops; foothills; rocky hills; bouldery, rocky and gravelly hillsides; rocky, rocky, stony, gravelly, gravelly-sandy and sandy-loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; cobbly plains; loamy valley bottoms; coastal plains; coastal beaches; along gravelly roadsides; along and in sandy arroyos; sandy bottoms of arroyos; gulches; riverbeds; along and in gravelly, sandy and clayey-loamy washes; along and in bedrock drainages; in drainage ways; along margins of washes; benches; loamy bottomlands; floodplains; around stock tanks; ditches, and riparian areas growing in dry bouldery, rocky, stony, cobbly, gravelly, gravelly-sandy and sandy ground and sandy loam and clayey loam and loam ground, occurring from sea level to 5,900 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Arizona Wrightwort is browsed by Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Carlowrightia arizonica* is native to southwest-central and southern North America and Central America. *5, 6, 15, **16**, 43 (103009), 44 (012112), 46 (Page 800), **56**, **57**, 58, 63 (012112), 77 (color photograph #2), **85** (012212 - color presentation including habitat), **89** (reported as being a dwarf shrub located on Tumamoc Hill), 115 (color presentation), 124 (012112 - no record of species or genus), 140 (Pages 28 and 281)*

Dicliptera pseudoverticillaris (see *Dicliptera resupinata*)

***Dicliptera resupinata* (M.H. Vahl) A.L. de Jussieu: Arizona Foldwing**

SYSNONYMY: *Dicliptera pseudoverticillaris* A. Gray. COMMON NAMES: Alfalfilla (Spanish); Arizona Dicliptera; Arizona Foldwing; Dicliptera (a name also applied to the genus *Dicliptera*); Foldwing (a name also applied to the genus *Dicliptera*); Purple Drop; Ramoneada Flor Morada (Spanish); Twin Seed. DESCRIPTION: Terrestrial perennial forb/herb (12 to 32 inches in height); the stems are dark green; the leaves are dark green; the flowers may be lavender, lavender-pink, magenta, pink, dark pink, pink-lavender, pinkish-purple, purple, purple-blue, purple-green and rose; flowering generally takes place between early February and early November (additional records: two for early January, two for mid-December and three for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; bases of cliffs; along rocky canyons; canyon bottoms; foothills; rocky and gravelly hills; rocky hillsides; rocky, stony and stony-clayey slopes; bajadas; amongst rocks; stony flats; valley floors; roadsides; within gravelly and sandy arroyos; along gravelly and sandy bottoms of arroyos; along and in rocky streambeds; along creeks; along rivers; along and in rocky and sandy washes; drainage ways; swales; banks of arroyos and washes; borders of washes; sandy beaches; terraces; bottomlands; floodplains; lowlands; mesquite bosques; riparian areas, and disturbed areas growing in damp and dry rocky, stony, gravelly and sandy ground; rocky-sandy loam and silty-clayey loam ground, and rocky clay, stony clay and sandy clay ground, sometimes reported as growing in the shade, occurring from sea level to 6,100 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Dicliptera resupinata* is native to southwest-central and southern North America. *5, 6, 15, 43 (103009 - *Dicliptera resupinata* Juss.), 44 (012312 - no record of species or genus), 46 (Page 801), **56**, **57**, 63 (012312), **85** (012312 - color presentation), 115 (color presentation), 124 (012312 - no record of species; genus record), 140 (Pages 28 &281)*

***Justicia longii* R.A. Hilsenbeck: Longflower Tube Tongue**

SYNONYMY: *Siphonoglossa longiflora* (J. Torrey) A. Gray. COMMON NAMES: Longflower Tube Tongue; Long-flowered Justicia; Longflower Tubetongue; Longflowered Tube Tongue; Longflowered Tubetongue; Siphonoglossa (a name also applied to the genus *Siphonoglossa*); Tube-tongue; Tubetongue (a name also applied to the genus *Siphonoglossa*); White Needle Flower. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (8 to 40 inches in height, one plant was described as being 12 inches in height with a crown 12 inches in width, one plant was described as being 16 inches in height with a crown 16 inches in width); the foliage is gray-green or dark green; the flowers are white or light yellow; based on few records examined, flowering generally takes place between mid-April and early November (additional records: one for early February and one for mid-March); the green fruits turn dark brown when mature. HABITAT: Within the range of this species it has been reported from mountains; crevices in cliffs; canyons; canyon bottoms; bases of cliffs; rocky foothills; rocky and gravelly hills; bouldery-rocky, rocky and rocky-sandy hillsides; rocky and gravelly slopes; rocky outcrops; amongst boulders and rocks; plains; gravelly-sandy flats; basins; sandy arroyos; bottoms of arroyos; ravines; springs; along washes; within rocky and rocky-gravelly drainages; within drainage ways; along rocky banks of washes; margins of washes; mesquite bosques; , and bouldery-sandy riparian areas growing in dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground, occurring from 1,200 to 4,900 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the tubular flowers open in the evening and are reported to be slightly fragrant. This plant is browsed by wildlife and Hawkmoths reportedly visit the flowers. *Justicia longii* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Siphonoglossa longiflora* (Torr.) Gray), **16** (recorded as *Siphonoglossa longiflora* (Torr.) Gray), 28 (recorded as *Siphonoglossa longiflora*, color photograph), 43 (103009), 44 (012312 - no record of species; genus record lacks a listing under Common Names), 46 (recorded

as *Siphonoglossa longiflora* (Torr.) Gray, Page 802, 58 (recorded as *Siphonoglossa longiflora* (Torr.) Gray), 63 (103009), 77 (recorded as *Siphonoglossa longiflora*, color photograph #58), **85** (012312 - color presentation including habitat), **89** (reported as being a dwarf shrub located on Tumamoc Hill, recorded as *Siphonoglossa longiflora* (Torr.) Gray), 115 (color presentation), 124 (012312 - no record of species; genus record), 140 (Pages 28 & 281)*

Ruellia clandestina (see footnote 89 under *Ruellia nudiflora*)

***Ruellia nudiflora* (G. Engelmann & A. Gray) I. Urban (var. *nudiflora* is the variety reported as occurring in Arizona): Violet Wild Petunia**

SYNONYMY: (for *R.n.* var. *nudiflora*: *Ruellia nudiflora* (G. Engelmann & A. Gray) I. Urban var. *glabrata* E.C. Leonard). COMMON NAMES: Common Wild Petunia; Longneck Ruellia; Oregano de China; Rama de Toro (Spanish); Ruellia (a name also applied to the genus *Ruellia*); Violet Ruellia; Violet Wild Petunia; Wild Petunia (a name also applied to the genus *Ruellia*). DESCRIPTION: Terrestrial perennial evergreen forb/herb or subshrub (erect stems 12 to 40 inches in height); the flowers are blue, lavender or purple; flowering generally takes place between mid-March mid-October. HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; rocky canyons; rocky canyon bottoms; foothills; rocky hillsides; rocky and gravelly slopes; alluvial fans; bajadas; plains; amongst rocks; flats; valley floors; roadsides; sandy arroyos; sandy draws; along gullies; along streams; riverbeds; along and in rocky and sandy washes; ciénegas; swales; banks of arroyos and washes; bottomlands; floodplains; openings in mesquite bosques; margins of stock tanks (charcos); within ditches; along ditch banks; riparian areas, and disturbed areas growing in moist and dry rocky, gravelly, gravelly-sandy and sandy ground; loam ground, and clay ground often in shaded areas, occurring from sea level to 4,300 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Ruellia nudiflora* is native to south-central and southern North America. *5, 6, **16**, 43 (103109), 44 (012312 - no record of species or genus), 46 (Pages 799-800), **56**, **57**, 63 (012412 - color presentation), 77 (color photograph #3), **85** (012412 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Ruellia clandestina* L.), 115 (color presentation), 124 (012312 - no record of species; genus record), 140 (Page 281)*

Ruellia nudiflora var. *glabrata* (see *Ruellia nudiflora* var. *nudiflora*)

Siphonoglossa longiflora (see *Justicia longii*)

Aizoaceae: The Fig-marigold Family

***Trianthema portulacastrum* C. Linnaeus: Desert Horsepurslane**

COMMON NAMES: Black Pig Weed; Black Pig-weed; Black Pigweed; Desert Horse Purslane; Desert Horse-purslane; Desert Horsepurslane; Desert Purslane; Giant Pig Weed; Giant Pigweed; Horse Purslane (a name also applied to the genus *Trianthema*); Horse-purslane (a name also applied to the genus *Trianthema*); Jia Hai Ma Chi (transcribed Chinese); Kaach U An (Pima); Lowland-purslane (Lowland Purslane is a name that is also applied to other species); Mexican Watercress; Perennial Sea-purslane; Phak Bia Hin; Pigweed (a name also applied to other species); Purslane (a name also applied to other species); Shoreline Sea Purslane; Shoreline Sea-purslane; Shoreline Seapurslane; Verdolaga (Spanish); Verdolaga Blanca [Bronca] (Spanish); Verdolaga de Cochi (Spanish); Verdolaga Rastrera; Verdolagas (Spanish); Verdolago de Cochi (Spanish). DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate and/or decumbent stems that are to 1 to 2 or more feet in height and to 1 to 5 feet in length), the stems may be reddish; the succulent leaves are green; the calyx lobes (lacks flowers) are 1/3 inch in length and may be magenta, magenta-pink, pink, pink-magenta, purple, purple-pink, red, rose-pink, rose-purple, white & pink, yellow or yellow-red; flowering generally takes place between late June and late November (additional records: one for late January, one for late April and two for mid-May); the fruits are brick-red. HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; rocky canyons; canyon bottoms; sandy ridges; ridgetops; foothills; rocky hills; rocky hillsides; rocky, gravelly and clayey slopes; alluvial fans; bajadas; sand dunes; sand hummocks; blow-sand deposits; plains; gravelly-sandy, sandy, clayey and silty-loamy flats; valley floors; coastal dunes; sandy coastal plains; coastal flats; railroad right-of-ways; along gravelly, gravelly-loamy, sandy and sandy-loamy roadsides; arroyos; along seeps; springs; creekbeds; along rivers; sandy riverbeds; within sandy and sandy-silty washes; along and in drainages; palm oases; lakes; clayey and silty playas; ciénegas; marshes; depressions; sloughs; swales; along (clayey and silty) banks of creeks and rivers; (sandy and sandy-clayey) edges of playas, mudflats; sandy beaches; terraces; sandy and silty floodplains; mesquite woodlands; along canals; along silty ditches; along ditch banks; sandy and clayey riparian areas; waste places, and disturbed areas growing in moist and dry (seasonally) desert pavement; rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam and silty loam ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Desert Horsepurslane is an alternate host plant of the Beet Leafhopper (*Circulifer tenellus* Baker 1896). *Trianthema portulacastrum* is native to south-central and southern North America; Central America and islands in the Caribbean Sea; northern, western and southern South America; western, central, eastern and southern Asia and islands in the Indian Ocean and Philippine Sea, and Africa and islands in the Indian Ocean. *5, 6, 15, **16**, 43 (103109), 44 (012412 - color

photograph), 46 (Page 281), **56**, **57**, 58, 63 (012412), 68, 77, **85** (012412 - color presentation including habitat), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes), 106 (012412 - color photograph), 115 (color presentation), 124 (012412), 127, **ADS** (reported under the common names Verdolagas or Mexican Watercress, Neto's Tucson: Verdolagas, or Mexican watercress, a tasty part of our cultural heritage, Section B, Pages 1 and 2, Sunday, July 17, 2011), **WTK** (July 8, 2011)*

Amaranthaceae: The Amaranth Family

Amaranthus albus C. Linnaeus: Prostrate Pigweed

SYNONYMY: *Amaranthus graecizans* auct. non C. Linnaeus. COMMON NAMES: Bai Xian (transcribed Chinese); Carurú-branco (Portuguese: Brazil); Cochino; Iowa Pigweed (Iowa); Pale Amaranth; Pellitory-leaf Amaranth; Pellitory-leaved Amaranth; Pig Weed (a name also applied to other species); Pigweed (a name also applied to other species and the genus *Amaranthus*); Pigweed Amaranth; Prostrate Amaranth; Prostrate Pigweed (a name also applied to other species); Quelite Manchado; Stiff Tumbleweed; Tumble Amaranth; Tumble Amaranthus; Tumble Pigweed; Tumble Weed (a name also applied to other species); Tumble-weed (a name also applied to other species and the genus *Amaranthus*); Tumbleweed (a name also applied to other species and the genus *Amaranthus*); Tumbleweed Amaranth; Tumbleweed Amaranthus; Tumbleweed Pigweed; Tumble Pigweed; Tumbling Amaranth; Tumbling Amaranthus; Tumbling Pigweed; Vit Amarant (Swedish); White Amaranth; White Amaranthus; White Coxcomb; White Pigweed (a name also applied to other species); White Tumbleweed (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (almost prostrate (rarely) and/or erect stems 4 inches to 4 feet in height; one plant was observed and described as being 6 to 10 inches in height and 5 feet in width); the stems may be yellowish; the foliage is green; the inconspicuous flowers may be green, greenish, white, whitish-green or yellowish; flowering generally takes place between mid-May and mid-November (additional records: two for mid-January, two for mid-February, one for early March, one for mid-March, one for late March, two for early April, five for mid-April and two for early December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; gravelly bases of cliffs; canyons; rocky canyonsides; bouldery-gravelly-sandy, rocky, gravelly-sandy, sandy and clayey canyon bottoms; talus slopes; along bluffs; buttes; knolls; ridges; meadows; foothills; shaley and cindery (scoria) hills; bouldery and rocky hillsides; rocky, shaley, gravelly-sandy, gravelly-loamy, sandy and clayey-loamy slopes; lava beds; sand dunes; clay pans; clayey hardpans; prairies; sandy and silty plains; cindery, sandy, clayey and clayey-loamy flats; sandy-clayey-loamy basins; sandy and sandy-loamy valley floors; valley bottoms; along railroad right-of-ways; loamy roadbeds; sandy roadcuts; along gravelly, gravelly-loamy, sandy, sandy-loamy and loamy-clayey roadsides; along two-tracks; clayey arroyos; gravelly bottoms of arroyos; draws; ravines; seeps; along streams; along and in cobbly, sandy and loamy-clayey streambeds; gravelly-sandy creekbeds; along rivers; rocky-cobbly-sandy and sandy riverbeds; along and in rocky-sandy, gravelly, gravelly, gravelly-sandy-silty, sandy and silty washes; within drainages; vernal pools; clayey poolbeds; along ponds; around and in pondbeds; clayey lakebeds; bogs; freshwater marshes; swampy areas; freshwater marshes; blowouts; clayey depressions; sinks; swales; along (sandy and sandy and clayey-loamy) banks of springs, streams, rivers, riverbeds and lakes; along edges of rivers, washes, tanks, ponds and salt marshes; along margins of rivers, pools, ponds and lakes; mudflats; gravel and sand bars; stony beaches; sandy benches; rock shelves; stony-loamy and sandy terraces; bottomlands; rocky-sandy-clayey, sandy and clayey floodplains; clayey lowlands; around and in stock tanks; along banks and shorelines of reservoirs; along and in ditches; ditch banks; sandy riparian areas; sandy waste places, and disturbed areas growing in mucky; moist and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, shaley, stony, cobbly, cindery (scoria), gravelly, gravelly-sandy and sandy ground; stony loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky-sandy clay, gravelly clay, sandy clay, sandy-loamy clay, loamy clay and clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a ceremonial item. Prostrate Amaranth is considered to be one of Arizona's tumbleweeds. *Amaranthus albus* may be native to northwestern, central, and southern North America; however, its native range in North America is obscure and is considered to be an exotic plant by some authors. *5, 6, 15, 43 (103109), 44 (012512 - color photograph), 46 (Page 266), 58, 63 (012512 - color presentation), 68 (reported that *Amaranthus albus* was introduced from topical America), 85 (012612 - color presentation including habitat), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb, recorded as *Amaranthus graecizans* L.), 101 (color photograph), 124 (012512), 127*

Amaranthus blitoides S. Watson: Mat Amaranth

SYNONYMY: *Amaranthus graecizans* auct. non C. Linnaeus. COMMON NAME: Bei Mei Xian (transcribed Chinese); Creeping Amaranth; Creeping Pigweed; Mat Amaranth; Matweed (a name also applied to other species); Matweed Amaranth; Procumbent Amaranth; Procumbent Pigweed; Prostrate Amaranth; Prostrate Pigweed (a name also applied to other species); Tumble-weed (a name also applied to other species and the genus *Amaranthus*); Wiwa (Zuni). DESCRIPTION: Terrestrial annual forb/herb herb (prostrate, ascending and/or sub-erect (very rarely) stems 4 to 28 inches in length; one plant was observed and described as being 6 to 10 inches in height and 5 feet in width); the stems may be green, purplish or red, the leaves are green or dark green; the flowers are green or white-green; flowering generally takes place between early May and mid-November. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; silty-loamy mesas;

gravelly-sandy canyons; rocky and sandy canyon bottoms; talus slopes; bases of buttes; bluffs; sandy bases of bluffs; ledges; ridges; meadows; bottoms of craters; sandy foothills; rocky and cindery (scoria) hills; rocky, shaley and gravelly hillsides; along escarpments; bouldery, rocky, shaley, gravelly, gravelly-loamy, sandy, sandy-loamy, loamy and clayey slopes; sandy alluvial fans; rocky outcrops; bases of clinkers; sand dunes; banks; clayey hardpans; sandy-silty-loamy prairie; gravelly-sandy and sandy-clayey plains; sandy, sandy-loamy and clayey flats; uplands; valley floors; silty-loamy valley bottoms; railroad right-of-ways; sandy roadbeds; sandy roadcuts; along gravelly, gravelly-clayey, sandy, sandy-clayey, loamy and clayey roadsides; along and in sandy two-tracks; within arroyos; draws; gulches; ravines; springs; along streams; along creeks; along streams; along and in stony and sandy streambeds; along and in sandy creekbeds; sandy riverbeds; along and in rocky, stony-sandy-silty, gravelly-sandy and sandy washes; along and in drainages; drainage ways; silty lakebeds; swampy areas; dried clayey-loamy mud holes; sinks; swales; (sandy and clayey-loamy) banks of springs, streambeds and rivers; edges of washes and drainages; margins of rivers and washes; along (sandy) shorelines of lakes; rocky-gravelly-sandy areas of drawdown; mudflats; rocky-sand, gravel, sand and silty-sand bars; cobbly-sandy and sandy benches; sandy deltas; bottomlands; gravelly and silty floodplains; fencerows; clayey dams; around stock tanks; edges and margins of reservoirs; dry beds of reservoirs; along and in sandy ditches; sandy riparian areas; gravelly, sandy and clayey waste places, and disturbed areas growing in muddy and wet, moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly-sandy, cindery (scoria), gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-silty loam, clayey loam, silty loam and loam ground; gravelly clay, sandy clay and clay ground; stony-sandy silty, gravelly-sandy silty and silty ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as sheep forage and for making glue. *Amaranthus blitoides* is native to northwestern and central North America and the Gulf of St. Lawrence. *5, 6, 15, 43 (103109), 44 (012612), 46 (shown as a synonym for *Amaranthus graecizans* L., Page 266), 63 (012612 - color presentation of seeds), 68 (rcorded as *Amaranthus graecizans* L.), 85 (012712 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (color photograph), 124 (012612 - no record of species; genus record), 127*

Amaranthus fimbriatus (J. Torrey) G. Bentham ex S. Watson: Fringed Amaranth

SYNONYMY: *Amaranthus fimbriatus* (J. Torrey) G. Bentham ex S. Watson var. *fimbriatus*. COMMON NAMES: Agwáva <agwávic> (Yuman: Maricopa)[140]; Agwáve (Yuman: Havasupai)[140]; Akwa'av <akwavdh> (Yuman: Mohave)[140]; Akwav (Yuman: Yuma)[140]; Amaranth (a name also applied to other species and the genus *Amaranthus*); Amaranth (English)[140]; Ats (Uto-Aztecan: Shoshoni); Basorí <wasorí, waso-ri> (Uto-Aztecan: Tarahumara)[140]; Bledo (Spanish: Sinaloa)[140]; Blite; Chuuhuggia <chu-hy-ki-ia, tchohokia> ("Night Carrying", Uto-Aztecan: Akimel O'odham)[140]; Cuhkkia <cuhugia> (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Cuhugia <cuhkkia, chuhugia, teuhukia> (Uto-Aztecan: Tohono O'odham)[140]; Fringe Amaranth; Fringed Amaranth; Fringed Amaranthus; Fringed Pigweed; Góchi Bichan (Athapascan: Western Apache)[140]; Guey Cimarron (Mayo); Hué (Uto-Aztecan: Mayo)[140]; Hue-hué (Uto-Aztecan: Guarijío)[140]; K^{w}a:p <ko.p> (Yuman: Cocopa)[140]; Ndaji ("Black Eye", Athapascan: Chiricahua and Mescalero Apache)[140]; Pigweed (a name also applied to other species and the genus *Amaranthus*); [Fringed] Pigweed (English)[140]; Poosiw <pó:siowu> (Uto-Aztecan: Hopi)[140]; Quelite (Spanish)[140]; Quelite Cimarron (Mayo); Quelite de las Aguas ("Watery Greens", Spanish: Arizona, Sonora)[140]; Quelitillo; Red Root (a name also applied to other species, English)[140]; Siim (Seri); Su (Kiowa Tanoan: Tewa)[140]; Tł'ohdeeí'idí (Athapascan: Navajo)[140]; Toothed Amaranth; Tucugusa (Uto-Aztecan: Nevome)[140]; Tukya (Uto-Aztecan: Mountain Pima)[140]; Tukya <tungi'ia> (Uto-Aztecan: Onavas Pima)[140]; Wé'e <wée'e> (Uto-Aztecan: Yaqui)[140]; Wee'e (Yaqui); Xpši: <hdhpši> (immature plants or greens, Yuman: Cocopa)[140]; Ziim Caitic (Hokan: Seri)[140]. DESCRIPTION: Terrestrial annual forb/herb (erect stems 6 to 64 inches in height); the stems may be pale green, green, pink, pink-red or red; the foliage may be green or purple, pinkish-purple, pink-red or reddish; the flowers (in spikes) may be green, pink, pinkish-white or white; flowering generally takes place between early March and late November (additional records: two record for mid-December and two for late December), the fruits are pinkish-purple. HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; rocky canyons; rocky and gravelly-sandy canyon bottoms; ridgetops; foothills; bouldery, bouldery-gravelly and rocky hills; hilltops; bouldery and rocky hillsides; bouldery-rocky, rocky, gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey-loamy slopes; rocky alluvial fans; gravelly bajadas; bouldery and rocky outcrops; amongst boulders; sandy-silty lava flows; sand hills; sand dunes; sand hummocks; blow-sand deposits; sandy banks; sandy plains; gravelly and sandy flats; valley floors; coastal dunes; sandy coastal banks; coastal plains; coastal flats; along railroad right-of-ways; along gravelly and sandy roadsides; within rocky arroyos; bottoms of arroyos; draws; seeps; springs; riverbeds; along and in bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; waterholes; silty lakebeds; playas; marshes; along banks of rivers and washes; (sandy-clayey) edges of washes, lagoons and swales; margins of esteros; mudflats; cobbly and sandy beaches; sandy floodplains; sandy mesquite bosques; stock tanks (charcos), riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam ground; sandy clay ground, and sandy silty and silty ground, occurring from sea level to 5,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Amaranthus fimbriatus* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110109), 44 (012712), 46 (Page 266), 63 (012712), 68, 77 (recorded as *Amaranthus fimbriatus* (Torr.) Benth. ex S. Watson var. *fimbriatus*), **85** (043011 - color presentation), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes); 115 (color presentation), 124 (012712 - no record of species; genus record), 127, 140 (Pages 34-36 & 281)*

Amaranthus fimbriatus var. *fimbriatus*: (see *Amaranthus fimbriatus*)

Amaranthus graecizans (synonym historically misapplied to both *Amaranthus albus* and *Amaranthus blitoides*)

***Amaranthus obcordatus* (A. Gray) P.C. Standley: Trans-Pecos Amaranth**

COMMON NAMES: Amaranth (a name also applied to other species and the genus *Amaranthus*); Quelite (a name also applied to other species, Spanish); Trans-Pecos Amaranth. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 4 to 20 inches in height); the flowers (in spikes) are greenish-pinkish-white; based on few records located, flowering generally takes place between early August and mid-October (flowering records: one for early August, one for late August, two for late September and two for mid-October). HABITAT: Within the range of this species it has been reported from rocky hillsides; rocky bajadas; plains; flats; valley floors; roadsides; within arroyos; along sandy washes; floodplains; within ditches; gravelly riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground, occurring from 1,300 to 4,000 feet in elevation in the desertscrub and wetland ecological formations. NOTE: *Amaranthus obcordatus* is native to southwest-central and southern North America. *5, 6, 43 (110109), 44 (012812 - no record of species), 46 (Page 266), **56**, **57**, 63 (012812), **85** (012812 - color presentation of dried material), 124 (012812 - no record of species; genus record)*

***Amaranthus palmeri* S. Watson: Carelessweed**

COMMON NAMES: Agwáva <agwávic> (Yuman: Maricopa)[140]; Agwáve (Yuman: Havasupai)[140]; Akwav (Yuman: Yuma)[140]; Akwavdh (Yuman: Mohave)[140]; Amarante de Palmer (French); Ats (Uto-Aztecan: Shoshoni)[140]; Basori <wasorí, waso-ri> (Uto-Aztecan: Tarahumara)[140]; Bledo (Spanish: Sinaloa)[140]; [Palmer's] Carless [-weed] (English)[140]; Careless Weed (a name also applied to other species and the genus *Amaranthus*); Careless-weed (a name also applied to other species and the genus *Amaranthus*); Carelessweed (a name also applied to other species and the genus *Amaranthus*); Chuuhuggia <chu-hy-ki-ia, tchohokia> ("Night Carrying", Uto-Aztecan: Akimel O'odham)[140]; Cuhkkia <cuhugia> (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Cuhugia <cuhkkia, chuhugia, teuhukia> (Uto-Aztecan: Tohono O'odham)[140]; Dioecious Pigweed; Hué (Uto-Aztecan: Mayo)[140]; Huehué (Uto-Aztecan: Guarijío)[140]; Góchi Bichan, It'ąą Dit'ógé <it'ą ditote> (Athapascan: Western Apache)[140]; K^{w}a:p <ko.p> (Yuman: Cocopa)[140]; Keríba (Uto-Aztecan: Guarijío)[140]; Ndaji ("Black Eye", Athapascan: Chiricahua and Mescalero Apache)[140]; Palmer Amaranth (English)[140]; Palmer Amaranth Pigweed; Palmer Amaranthus; Palmer Careless Weed; Palmer Fuchsschwanz (German); Palmer Pig Weed; Palmer Pig-weed; Palmer Pigweed; Palmer's Amaranth; Palmer's Amaranthus; Palmer's Amaranth Pigweed; Palmer's Careless Weed; Palmer's Careless-weed; Palmer's Pig Weed; Palmer' Pigweed (a name also applied to other species); Palmer's Pig-weed; Palmer's Pigweed; Pigweed (a name also applied to other species and the genus *Amaranthus*); Pigweed (English)[140]; Poosiw <pó:siowu> (Uto-Aztecan: Hopi)[140]; Qo'u [Qó'^{u}] (Uto-Aztecan: Southern Paiute)[140]; Quelite (Spanish)[140]; Quelite Cimarron (Mayo); Quelite de las Aguas ("Watery Greens", Spanish)[140]; Red Root (English)[140]; Red-root; Red-root Pigweed; Rough Pig Weed; Shiipa (Keres: Acoma)[140]; Su (Kiowa Tanoan: Tewa)[140]; Tł'ohdeeí'idí <y'oh de.sk'idi> (Athapascan: Navajo)[140]; Tł'ohdeeí Hoshí (Athapascan: Navajo)[140]; Tsetayi (Keres: Laguna); Tucugusa (Uto-Aztecan: Nevome)[140]; Tukya (Uto-Aztecan: Mountain Pima)[140]; Tungi'ia (Uto-Aztecan: Onavas Pima)[140]; Wé'e <wée'e> (Uto-Aztecan: Yaqui)[140;] Xpši: <hdhpši> (immature plants or greens, Yuman: Cocopa)[140]. DESCRIPTION: Terrestrial annual forb/herb (erect stems 8 to 80 inches in height, sometimes to 15 feet in height); the stems may be green or red; the leaves are green, the flowers (in spikes) are hyaline cream with green midribs, green, pink or white-green; flowering generally takes place between early June and late December (additional records: one for early February, two for mid-March, two for early May and one for mid-May). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky and gravelly-loamy canyons; rocky and sandy canyon bottoms; talus slopes; gravelly ridgetops; meadows; foothills; rocky hills; rocky hillsides; rocky, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, sandy-loamy-silty and sandy-silty-loamy slopes, alluvial fans; bajadas; sand dunes; sandy plains; gravelly, gravelly-sandy, sandy and loamy flats; basins; valley floors; along railroad right-of-ways; along gravelly-loamy, sandy and sandy-silty roadsides; along rocky, stony and sandy arroyos; gravelly and sandy bottoms of arroyos; draws; springs; sandy streams; streambeds; creeks; creekbeds; along and in rocky-cobbly-sandy and sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; gravelly-sandy-loamy drainage ways; water holes; playas; ciénegas; swampy areas; silty swales; (sandy and silty) banks of streams, creeks, rivers and washes; (sandy) edges of washes and marshes; margins of washes; (sandy-loamy) shores of ponds; mudflats; beaches; gravelly-sand and sand bars; sandy benches; sandy terraces; bottomlands; along sandy and sandy-silty floodplains; sandy mesquite bosques; along fencelines; around stock tanks (represos); around reservoirs; along sandy and silty ditches; gravelly-sandy-silty, sandy and sandy-silty riparian areas; waste places, and disturbed areas growing in moist and dry rocky, rocky-cobbly-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, sandy-silty loam, humus-clayey loam and loam ground; sandy clay and clay ground, and gravelly-sandy silty, sandy silty, sandy-loamy silty and silty ground, occurring from sea level to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Mourning Doves (*Zenaida macroura*), Whitewing Doves (*Zenaida asiatica*), Killdeer (*Charadrius vociferus*) and Quail as well as other birds and mammals, including rabbits and kangaroo rats, feed on the seeds. *Amaranthus palmeri* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110109), 44 (033011), 46 (Page 266), **56**, **57**, 58, 63 (012812 - color presentation of seeds), 68 ("The plant is relished by livestock in all stages of growth, and is sometimes cut for hay or put into silos.... Palmer amaranth contains nitrate varying from a trace to over 9 percent. As in monolepis, the nitrate is not poisonous, but can be changed quickly into the toxic nitrite by

enzymatic action."), 77, 80 (This species is listed as a Major Poisonous Range Plant. "The poisonous principle is nitrate. Most plants contain small amounts of nitrate, but carelessweed, under favorable growth conditions will store up high concentrations. ... Carelessweed is relished by livestock, particularly during the earlier stages of growth. It usually is most dangerous immediately following significant environmental changes, but poisonings have occurred at all growth stages under a variety of conditions. The nitrate content of carelessweed has been found to be significantly higher in plant samples collected in the morning as compared to afternoon samples. Some plots of ground will produce carelessweed of higher nitrate content than others. ... Known areas of carelessweed should be avoided by livestock during the early stages of growth and following periods of sudden temperature changes as occur in the fall or mid-summer at the higher elevations in Arizona. Carelessweed may remain dangerous as a component of hay or ensilage." See text for additional information.), **85** (012812 - color presentation including habitat), **89** (repored as being a summer annual herb located on the Santa Cruz Flood-plain); 101 (color photograph), 115 (color presentation), 124 (033011 - no record of species; genus record), 127, 140 (Pages 35, 36-37 & 281)*

Cladothrix lanuginosa (see *Tidestromia lanuginosa*)

***Tidestromia lanuginosa* (T. Nuttall) P.C. Standley: Woolly Tidestromia**

SYNONYMY: *Cladothrix lanuginosa* T. Nuttall. COMMON NAMES: Cladothrix (a name also applied to the genus *Tidestromia*); Eliasson Tidestromia (for *T.l.* subsp. *eliassonii*); Eliasson's Tidestromia (for *T.l.* subsp. *eliassonii*); Espanta Vaqueras (Spanish); Espanta Vaqueros (a name also applied to other species, Spanish); Gray Tidestrom; Herba Lanuda; Hierba Ceniza; Honeymat; Honeysweet (a name also applied to the genus *Tidestromia*); Kau Ee Oona (Yaqui); White Mat; Woolly Honeymat; Woolly Honeysweet; Woolly Mat; Woolly Tidestromia; Wooly Honeysweet; Wooly Tidestromia. DESCRIPTION: Terrestrial prostrate annual forb/herb (prostate, decumbent and/or ascending stems 3 to 20 inches in height and 8 inches to 5 feet in diameter); the stems may be pink, purple, red or red-purple; the leaves may be gray, gray-green, reddish (rarely), white-green, whitish or yellowish-green; the flowers may be white, yellow or yellowish-green; flowering generally takes place between late June and late November (additional record: one for mid-May). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; rocky canyons; canyon bottoms; talus; sandy ridges; crater floors; sandy foothills; rocky and sandy hills; rocky hillsides; bouldery, rocky, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-loamy slopes; alluvial fans; rocky bajadas; lava flows; sand hills; sand dunes; sand hummocks; sand flats; sandy plains; gravelly-sandy, sandy, sandy-clayey and clayey flats; basins; sandy valley floors; valley bottoms; coastal dunes; coastal flats; coastal beaches; along roadbeds; along gravelly-loamy, sandy, sandy-loamy and clayey roadsides; along and in sandy arroyos; draws; gullies; ravines; sandy riverbeds; along and in rocky, gravelly and sandy washes; along drainages; along drainage ways; depressions; swales; banks of rivers and washes; (sandy) edges of washes; (rocky-sandy) shores of lakes; mudflats; sandy beaches; sandy-loamy terraces; sandy-silty lowlands; along sandy floodplains; mesquite bosques; sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam and sandy loam ground; gravelly clay, sandy clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Woolly Tidestromia is an alternate host plant of the Beet Leafhopper (*Circulifer tenellus*). Subspecies and varieties for this species may or may not be recognized by various sources. *Tidestromia lanuginosa* is native to south-central and southern North America and coastal islands in the Caribbean Sea (Dominican Republic). *5, 6, **16**, 28 (color photograph 491), 43 (110109 - no records located for varieties or subspecies), 44 (012812), 46 (Page 268), **56**, **57**, 58, 63 (012812 - color presentation), 77, **85** (110209 - color presentation including habitat, also recorded as *Tidestromia lanuginosa* ssp. *eliassoniana* Sanchez-del Pino & Olivera; *Tidestromia lanuginosa* ssp. *eliassonii* Sánchez-del Pino & Flores-Olvera; *Tidestromia lanuginosa* ssp. *lanuginosa* (Nutt.) Stand.; *Tidestromia lanuginosa* var. *eliassoniana* Sánchez-del Pino & Flores-Olvera, and *Tidestromia lanuginosa* var. *lanuginosa* (Nutt.) Stand.), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recorded as *Cladothrix languinosa* Nutt.), 106 (110109 - *Circulifer tenellus* C.F. Blake), 115 (color presentation), 124 (012812), **WTK** (October 23, 2009)*

Tidestromia lanuginosa ssp. *eliassoniana* (see Notes under *Tidestromia lanuginosa*)

Tidestromia lanuginosa ssp. *eliassonii* (see Notes under *Tidestromia lanuginosa*)

***Tidestromia lanuginosa* (T. Nuttall) P.C. Standley subsp. *eliassonii* I. Sánchez-del Pino & H. Flores Olvera: Woolly Tidestromia**

COMMON NAMES: Eliasson Tidestromia; Eliasson's Tidestromia; Espanta Vaqueras (a name also applied to the species, Spanish); Espanta Vaqueros (a name also applied to the species and other species, Spanish), Herba Lanuda (a name also applied to the species); Hierba Ceniza (a name also applied to the species); Honeymat (a name also applied to the species); Honeysweet (a name also applied to the species and the genus *Tidestromia*); Woolly Honeysweet (a name also applied to the species); Woolly Tidestromia (a name also applied to the species). DESCRIPTION: Terrestrial annual forb/herb (prostrate 4 inches to 1 foot in height); the stems are purple or reddish, the leaves are gray or white-green; the flowers are yellowish; flowering generally takes place between late June and late November. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; sandy ridges; rolling foothills; rocky hill; rocky hillsides; rocky, gravelly and gravelly-loamy slopes; rocky bajadas; sand hills; sand dunes; sand hummocks; plains; sandy flats; basins; sandy valley floors; coastal flats; gravelly-loamy and sandy roadsides; gullies; sandy riverbeds; along and in rocky and sandy washes; banks of rivers; sandy-

silty lowlands; along floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground; gravelly loam ground; gravelly clay ground, and gravelly-sandy silty and sandy silty ground, occurring from sea level to 5,500 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This variety was not found in either BONAP Database or the NRCS Plants Database. Subspecies and varieties for this species may or may not be recognized by various sources. Woolly Tidestromia is an alternate host plant of the Beet Leafhopper (*Circulifer tenellus*). *Tidestromia lanuginosa* subsp. *eliassonii* is native to southwest-central and southern North America. *28 (species, color photograph 491 of species), 43 (110109, no record), 44 (012812 - Common Names for subsp. *eliassonii* listed under *Tidestromia lanuginosa*), 46 (species, Page 268), 63 (012812 - *T.l.* var. *eliassonii* I. Sánchez-del Pino & H. Flores Olvera is not recorded as being either a subspecies or variety), **85** (012812), 106 (110109 - *Circulifer tenellus* C.F. Blake), 115 (color presentation of species), 124 (012812 - no record of subspecies; genus and species records), 140 (Page 282)*

Tidestromia lanuginosa ssp. *lanuginosa* (see Notes under *Tidestromia lanuginosa*)

Tidestromia lanuginosa var. *eliassoniana* (see Notes under *Tidestromia lanuginosa*)

Tidestromia lanuginosa var. *lanuginosa* (see Notes under *Tidestromia lanuginosa*)

Anacardiaceae: The Sumac Family

Rhus lancea (see *Searsia lancea*)

***Searsia lancea* (C. Linnaeus f.) F.A. Barkley: African Sumac**

SYNONYMY: *Rhus lancea* C. Linnaeus f. COMMON NAMES: African Sumac; Bastard Willow; Hlokoshiyne (isiZulu); Karee (Afrikaans); Karree (Afrikaans and English); Mokalaabata (North Sotho); Sauce Africano; South African Sumac; Umhlakotshane (amaXhosa); Western Karee; Willow Rhus. DESCRIPTION: Terrestrial perennial evergreen tree (5 to 33 feet in height with a crown up to 30 feet in width); the older bark is dark gray with orange beneath; the twigs are reddish; the leaves are dark green above with a pale green underside; the inconspicuous flowers are greenish, greenish-yellow, whitish, whitish-green or yellow; based on few flowering records examined, flowering generally takes place between early December to late July (flowering records: one for early January, two for late January, one for early February, one for late February, one for mid-March, one for mid-May, one for late July, one for early December and two for mid-December). HABITAT: Within the range of this species it has been reported from along and in mountains; canyons; canyon bottoms; ridges; ridgetops; hills; sandy slopes; bajadas; valley floors; along rivers; along and in washes; within drainages; edges of creeks; along fencelines; along ditches; riparian areas and disturbed areas growing in moist and dry sandy ground and sandy loam ground, occurring from sea level to 3,000 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This species was not located in the BONAP Database. *Rhus lancea* is native to southern Africa. ***16** (recorded as *Rhus lancea* L.f.), 18 (recorded as *Rhus lancea*), 22 (color photograph), 26 (recorded as *Rhus lancea*, color photograph), 43 (050111), 44 (012912- Common Names listed under *Searsia lancea*), **56** (recorded as *Rhus lancea* L.), **57** (recorded as *Rhus lancea* Linnaeus), 63 (012912), **77** (recorded as *Rhus lancea* L.), **85** (012912 - color presentation), 106 (122208), 109, 124 (012912 - no record of species; genus record), **WTK** (October 28, 2009)*

Apiaceae (Umbelliferae): The Carrot Family

***Bowlesia incana* H. Ruiz Lopez & J.A. Pavon: Hoary Bowlesia**

COMMON NAMES: American Bowlesia; Bowlesia (a name also applied to the genus *Bowlesia*); Hairy Bowlesia; Hairy Bowlesia (English)[140]; Hoary Bowlesia; Miner's Lettuce (a name usually applied to another species, English: Arizona)[140]. DESCRIPTION: Terrestrial annual forb/herb (creeping prostrate, decumbent and/or erect stems to 2 inches in height and 2 to 38 inches in length); the foliage is pale green or green; the inconspicuous flowers are green-whitish, greenish-white, pink, purple, white, white-green or yellowish-green; flowering generally takes place between late January and late May (additional records: one for mid-June and one for early July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; bases of cliffs; rocky canyons; rocky canyon bottoms; crevices in rocks; buttes; rocky ledges; rocky ridgetops; meadows; foothills; bouldery hills; clayey hilltops; bouldery hillsides; bouldery, rocky, gravelly, gravelly-sandy, sandy-loamy and clayey slopes; gravelly bajadas; rocky outcrops; amongst boulders and rocks; lava fields; shady banks; plains; rocky and gravelly flats; basins; valley floors; along roadsides; sandy arroyos; draws; along gullies; ravines; seeps; along streams; streambeds; along creeks; around creekbeds; along rivers; riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; within rocky-clayey drainages; along and in drainage ways; swampy areas; swales; along (rocky and gravelly-sandy) banks of arroyos, creeks, rivers and washes; borders of washes; sandy benches; loamy bottomlands; floodplains; lowlands; bottoms of stock tanks; along canals; ditches; ditch banks; rocky and sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam, sandy loam, humusy loam and loam ground; rocky clay, sandy clay and clay ground, and gravelly-sandy silty ground often in the shade of boulders, rocks, trees, shrubs and other vegetation, occurring from sea level to 6,100 feet in elevation

in the woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: The Collard Peccary (*Peccari tajacu*) and a Tiger Moth, *Grammia geneura*, feed on the seeds. *Bowlesia incana* is native to southwest-central and southern North America, and South America. *5, 6, 15, **16**, 43 (110209), 44 (012912 - color photograph), 46 (Page 609), **57**, 58, 63 (012912 - color presentation), 68, 77, **85** (012912 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Bowlesia lobata* R. & P.), 106 (110209), 115 (color presentation), 124 (012912 - no record of species or genus), 140 (Pages 40-41, 43 & 282), **WTK** (February 5, 2012)*

Bowlesia lobata (see footnote 89 under *Bowlesia incana*)

Caucalis microcarpa (see *Yabea microcarpa*)

***Daucus pusillus* A. Michaux: American Wild Carrot**

COMMON NAMES: American Carrot; American [Wild] Carrot (English)[140]; Bikéghad Łitsogí (Athapascan: Western Apache)[140]; C□anahoria Silvestre ("Wild Carrot", Spanish)[140]; Chąąsht'ezhiitsoh ("Carrot" a name also applied to *Daucus carota*, Athapascan: Navajo)[140]; Hierba de la Víbora <yerba de la víbora> ("Rattlesnake Herb" a name also applied o other species, Spanish: New Mexico, Mexico)[140]; Little Wild Carrot; ʔǪą́runą́aą̂tį, Tónąci (Uto-Aztecan: Ute)[140]; Rattlesnake Bite Cure; Rattlesnake Carrot; Rattlesnake Cure; Rattlesnake Weed (a name also applied to other species); Rattlesnake Weed (English: California, New Mexico)[140]; Rattlesnake Wild Carrot; Rattlesnake-bite-cure; Rattlesnake-weed (a name also applied to other species); Rattlesnakeweed; Sanooria (Uto-Aztecan: Yaqui)[140]; Seed Ticks (English)[140]; Seedticks; Small Queen Anne's Lace; Small Queen Anne's-lace; Southwest Carrot; Southwest Wild Carrot; Southwestern Carrot; Southwestern Wild Carrot; Wild Carrot (a name also applied to other species and the genus *Daucus*); Yerba del Vibora (Spanish); Zanahoria Cimarrona (Spanish); Zanahoria Silvestre ("Wild Carrot", Spanish)[140]. DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 40 inches in height); the flowers may be cream, greenish-white, purplish, white or light yellow; flowering generally takes place between early March and late June (additional records: one for early September and one for mid-September); the seed heads are reddish. HABITAT: Within the range of this species it has been reported from bouldery and rocky mountains; rocky, rocky-sandy and sandy-clayey mesas; plateaus; rocky and stony canyons; rocky and sandy-loamy canyon bottoms; rocky talus slopes; bases of cliffs; bluffs; rocky knobs; clayey-loamy and silty-loamy ridges; bouldery ridgetops; rocky foothills; bouldery, rocky, rocky-clayey and clayey hills; bouldery hilltops; rocky, rocky-clayey and loamy hillsides; bouldery, bouldery-gravelly, rocky, rocky-gravelly-loamy, rocky-clayey, gravelly, gravelly-loamy, sandy, loamy, clayey and clayey-loamy slopes; rocky-sandy-loamy alluvial fan; bajadas; bouldery and rocky outcrops; amongst rocks; along shaded bases of rocks; cobbly and sandy plains; cobbly-sandy-loamy, cobbly-sandy-loamy-clayey, gravelly and sandy flats; basins; clayey valley bottoms; coastal marshes; gravelly edges of railroad beds; along rocky, gravelly and sandy roadsides; along bouldery arroyos; silty draws; gullies; ravines; around springs; moist sandy soil along streams; sandy streambeds; along rivers; riverbeds; along and in rocky, rocky-clayey, gravelly, gravelly-sandy and sandy washes; drainages; along and in drainage ways; clayey freshwater marshes; clayey depressions; gravelly-sandy and sandy banks of arroyos, streams and rivers; clayey edges of creeks and salt marshes; margins of washes; mudflats; along sandy benches; sandy terraces; sandy bottomlands; floodplains; canals; gravelly-sandy and sandy riparian areas, and disturbed areas growing in moist, damp and dry bouldery, bouldery-gravelly, rocky, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, cobbly-sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, clay loam, silty loam and loam ground; rocky clay, cobbly-sandy-loamy clay and clay ground, and silty ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication and as a talisman in gambling (a good luck charm). This plant may be confused with the False Carrot (*Yabea microcarpa*). *Daucus pusillus* is native to west-central, southeast-central and southern North America and central and southern South America. *5, 6, **16**, 28 (color photograph 274), 43 (110309), 44 (012912 - color photograph), 46 (Page 612), **56**, **57**, 58, 63 (012912 - color presentation), 77, **85** (012912 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill), 115 (color presentation), 124 (012912), 127, 140 (Pages 41-43 & 282)*

***Hydrocotyle ranunculoides* C. Linnaeus f.: Floating Marshpennywort**

COMMON NAMES: Buttercup Pennywort; Buttercup Water Pennywort; Buttercup Water-pennywort; Cut Leaf Pennywort; Floating Marsh Pennywort; Floating Marsh-penny-wort; Floating Marshpennywort; Floating Pennyroyal; Floating Pennywort; Floating Water-pennywort; Flytspikblad (Swedish); Hydrocotyle (a name also applied to the genus *Hydrocotyle*); Ombligo de Puerco (Hispanic); Water Pennywort (a name also applied to the genus *Hydrocotyle*); Water-pennywort (a name also applied to the genus *Hydrocotyle*). DESCRIPTION: Aquatic perennial forb/herb (creeping or floating ½ to 14 inches in height or length); the foliage is green; the flowers are greenish, purplish, light yellow or yellowish-white; based on few records located, flowering generally takes place between early May and late September (flowering records: one for early May, one for early June, two for mid-June, one for mid-July, one for late July, one for early September and one for late September). HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; valley floors; along arroyos; around and in springs; along streams; streambeds; creeks; in rivers; wet sandy riverbeds; watercourses; pools; ciénegas; marshes; freshwater sloughs; muddy swales; edges of streams and lagoons; along margins of ponds and lakes; floodplains; margins of stock tanks; within ditches and riparian areas growing in fresh water and occasionally creeping on mud and wet sandy ground, occurring from sea level to 7,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE:

Hydrocotyle ranunculoides is native to west-central, southeastern-central and southern North America; Central America and coastal islands in the Caribbean Sea; South America; southwestern Asia, and central Africa. *5, 6, 30, 43 (110409), 44 (013112 - color photograph), 46 (Page 609), 58, 63 (013112 - color presentation), **85** (013112 - color presentation of dried material), **89** (reported as being a perennial herb located on the Santa Cruz River and Irrigation Ditches), 124 (013112)*

Lilaeopsis recurva (see *Lilaeopsis schaffneriana* var. *recurva*)

Lilaeopsis schaffneriana subsp. *recurva* (see *Lilaeopsis schaffneriana* var. *recurva*)

***Lilaeopsis schaffneriana* (D.F. von Schlechtendal) J.M. Coulter & J.N. Rose var. *recurva* (A.W. Hill) J.M. Affolter: Schaffner's Grasswort**

SYNONYMY: *Lilaeopsis recurva* A.W. Hill, *Lilaeopsis schaffneriana* (D.F. von Schlechtendal) J.M. Coulter & J.N. Rose subsp. *recurva* (A.W. Hill) J.M. Affolter. COMMON NAMES: Ciénega False Rush; Ciénega False-rush; Ciénega Water Umbel; Huachuca Water Umbel; Huachuca Water-umbel; Huachuca Waterumbel; Schaffner Grasswort; Schaffner's Grasswort. DESCRIPTION: Terrestrial aquatic to semi-aquatic perennial forb/herb (leaves 1½ to 9 inches in height); the leaves are yellow-green; the tiny flowers are cream, greenish or white; based on few flowering records examined, flowering generally takes place between late May and late June (flowering records: one for late January, two for late May, two for early June, two for mid-June, one for late June, one for mid-July and one for late August; flowering beginning as early as March and ending as late as October has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountain slopes; hillsides; rocky arroyos; along draws; perennial seeps; in springs; along streams; streambeds; along creeks; along rivers; around and in ponds; around and in lakes; ciénegas; marshlands; (muddy) banks; edges of pools, and riparian areas growing in shallow water; muddy, and wet rocky and sandy ground and silty ground, occurring from 2,000 to 7,100 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This species has been recorded as having once occurred in the valley of the Santa Cruz River near Tucson. *Lilaeopsis schaffneriana* var. *recurva* is native to southwest-central and southern North America. *5, 6, 8, 9 (color photograph), 43 (110509), 44 (013112 - no record of species; genus record), **46** (*Lilaeopsis recurva* A.W. Hill (Santa Cruz River valley near Tucson, Pima County - Pringle in 1881, the type collection), Page 617), 63 (013112), 85 (013112 - detailed information is masked - color presentation), 124 (013112 - no record of species or genus)*

***Spermolepis echinata* (T. Nuttall ex A.P. de Candolle) A.A. Heller: Bristly Scaleseed**

COMMON NAMES: Beggar's Lice [Beggars'-lice] (a name also applied to other species, English)[140]; Beggars'-lice (a name also applied to other species); Bristly Spermolepis; Bristly Scale Seed; Bristly Scale-seed (English: New Mexico, Texas)[140]; Bristly Scaleseed; Bristly Spermolepis; Bristly-fruit Scaleseed; Bristly-fruit Spermolepis; Bristly-fruited Spermolepis; Hooked Spermolepis; Scale Seed (a name also applied to the genus *Spermolepis*); Scale-seed (a name also applied to the genus *Spermolepis*); Scaleseed (a name also applied to the genus *Spermolepis*); Spiny Scaleseed; Wild Carrot. DESCRIPTION: Terrestrial annual forb/herb (low growing and spreading stems 2 to 16 inches in height); the minute flowers may be cream, greenish-white, white or yellow-white; flowering generally takes place between mid-February and early June (additional record: one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; mesas; rocky and sandy canyons; along canyon bottoms; rocky ridgetops; foothills; rocky hills; hillsides; rocky, rocky-gravelly-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-loamy slopes; rocky-sandy alluvial fans; gravelly bajadas; amongst rocks; gravelly and sandy flats; valley floors; valley bottoms; gravelly railroad right-of-ways; rocky, stony, gravelly and sandy roadsides; rocky arroyos; sandy and silty-loamy draws; bottoms of draws; seeps; springs; moist clayey soils along streams; along creeks; along rivers; riverbeds; along and in gravelly and sandy washes; gravelly-sandy drainage ways; banks of arroyos; channel bars; benches; sandy floodplains; reservoirs; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist, damp and dry rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground and rocky-gravelly loam, gravelly loam, sandy loam and silty loam ground, occurring from 100 to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: A moth, *Grammia geneura*, reportedly feeds on this plant. *Spermolepis echinata* is native to south-central and southern North America. *5, 6, 15, **16**, 43 (050211 - no record of species; possibly, incorrectly, recorded as *Spermolepis echinatus* (Nutt.) A. Heller), 44 (050211), 46 (Page 610), 58, 63 (013112), 77, **85** (013112 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill), 124 (050211), 140 (Pages 43-44 & 282)*

***Yabea microcarpa* (W.J. Hooker & G.A Arnott) B.M. Koso-Poljansky: False Carrot**

SYNONYMY: *Caucalis microcarpa* W.J. Hooker & G.A. Arnott. COMMON NAMES: California Hedge Parsley; California Yabea; False Carrot (a name also applied to other species, English: Arizona, New Mexico)[140]; Falsecarrot (a name also applied to other species); False Hedge Parsley; False Hedge-parsley; Hedge Parsley (a name also applied to other species); [California] Hedge-parsley (English)[140]; Wild Parsley; Yabea (a name also applied to the genus *Yabea*). DESCRIPTION: Terrestrial annual forb/herb (1 to 16 inches in height); the flowers are white; flowering generally takes place between late February and late May. HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; bases of cliffs; rocky, gravelly, gravelly-sandy and sandy canyons; rocky canyon bottoms; talus slopes; buttes; rocky ridges; foothills; rocky hills; rocky and clayey hillsides; bouldery, rocky, rocky-gravelly, gravelly, gravelly-loamy, sandy-loamy, loamy and clayey-loamy slopes; rocky outcrops; amongst rocks; banks; gravelly and sandy flats; basins; along grassy roadsides; gulches; along seeps; along streams; along creeks; rocky creekbeds; along rivers; along rocky and rocky-gravelly washes; along and in

drainage ways; along banks of washes; sandy benches; bottomlands; riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, gravelly loam, sandy loam, clayey loam and loam ground, and stony clay and clay ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be confused with the American Wild Carrot (*Daucus pusillus*). *Yabea microcarpa* is native to west-central and southern North America. *5, 6, 15, **16**, 43 (110509 - *Yabea microcarpa* Koso-Pol.), 44 (020112 - color photograph), 46 (*Caucalis microcarpa* Hook. & Arn., Page 612), 58, 63 (020112), 77, **85** (020112 - color presentation), 124 (020112 - no record of species or genus), 140 (Pages 44-45 & 282)*

Apocynacaeae: The Dogbane Family

Haplophyton cimicidum (see *Haplophyton crooksii*)

Haplophyton cimicidum var. *crooksii* (see *Haplophyton crooksii*)

***Haplophyton crooksii* (L.D. Benson) L.D. Benson: Cockroachplant**

SYNONYMY: *Haplophyton cimicidum* auct. non A.L. de Candolle, *Haplophyton cimicidum* A.L. de Candolle var. *crooksii* L.D. Benson. COMMON NAMES: Actimpatli; Atempatli; Arizona Cockroach Plant; Cockroachplant; Crooks Cockroachplant; Hierba-de-la-cucuracha (Hispanic). DESCRIPTION: Terrestrial perennial subshrub or shrub (stems 7 to 40 inches in height); the foliage is dark green; the flowers are cream-white, green-yellow or yellow; flowering generally take place between mid-July and mid-November (additional records: one for early March, two for mid-March, two for early April, one for mid-April, two for late April, one for late May and one for early December); the slender, smooth and elongate fruits are gray-green or green pods. HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; rocky canyons; canyon walls; canyon bottoms; rocky talus slopes; below rocky ledges; rocky ridges; foothills; rocky hills; rocky hillsides; bouldery, bouldery-rocky and rocky slopes; bouldery and rocky outcrops; amongst boulders and rocks; shade of boulders; valley bottoms; gulches; within rocky and gravelly drainages; within rocky drainage ways; (rocky) banks of creeks, drainages and drainage ways; floodplains, and riparian areas growing in dry bouldery, bouldery-rocky, rocky, gravelly and sandy ground and gravelly loam ground, occurring from 1,900 to 5,200 feet in elevation in the forest, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers open in the evening and close in the early morning, this plant is slow growing and may be drought deciduous, it may best be used planted with succulents in rock gardens. *Haplophyton crooksii* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 43 (110509), 44 (020112 - no record of species or genus), 46 (Page 651), 58, 63 (020112 - color presentation of seed), 77 (color photograph #4), **85** (020112 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill, recorded as *Haplophyton cimicidium* (Pav.) A.DC.), 115 (color presentation), 124 (020112 - no record of species or genus), 140 (Page 282), MBJ*

Aristolochiaceae: The Birthwort Family

***Aristolochia* C. Linnaeus: Dutchman's Pipe**

COMMON NAME: Aristoloche; Birth Wort; Birth-wort; Birthwort (a name which is also applied to Aristolochiaceae); Dutchman Pipevine; Dutchman's Pipe; Dutchman's-pipe; Dutchmanspipe; Heartwort; Pipe Vine; Pipe-vine; Pipevine (a name which is also applied to Aristolochiaceae); Snakeroot. *43 (053110), 44 (020112), 46 (Page 227), 63 (053110), 85 (053110 - color presentation), **89** (reprted as being a perennial herb located on the Mesa-like Mountain Slopes), 124 (020112 - no record of species; genus record)*

***Aristolochia watsonii* E.O. Wooton & P.C. Standley: Watson's Dutchman's Pipe**

COMMON NAMES: Arizona Snakeroot; Birthwort (a name also applied to the genus *Aristolochia* and the Aristolochiaceae); Dutchman's Pipe (a name also applied to the genus *Aristolochia*); Dutchman's Pipevine (a name also applied to the genus *Aristolochia*); Guasena Jubiaria (Uto-Aztecan: Mayo)[140]; Hatáast an Ihiit ("What Gets Between Your Teeth", Hokan: Seri)[140]; Hierba <yerba> de[l] Indio ("Indian Herb", Spanish: Arizona, Baja California, Sonora)[140]; Huaco <guaco> (a name also applied to other species, Spanish)[140]; Indian Root; Indian-root (English: Arizona)[140]; Indianroot; Pipevine (a name also applied to the genus *Aristolochia* and the Aristolochiaceae); Pipevine Flower; Raiz del Indio; [Arizona] Snake-root (English)[140]; Snakeroot (a name also applied to the genus *Aristolochia*); Southwestern Pipevine; Watson's Dutchman's Pipe (English)[140]; Watson Indian Root; Yerbalind (Uto-Aztecan: Mountain Pima)[140]. DESCRIPTION: Terrestrial perennial cold-deciduous forb/herb or vine (prostrate and/or procumbent stems 4 inches to 20 inches in length, stems reaching 5 feet in length have also been reported); the upper surface of the leaves may be blackish, dark brown-purple, dark green, maroon-brown, purple or purple-green with a pale dull green underside; the flowers may be blackish, brown with a yellow spotted throat, brownish, green and brown, green with maroon rim and dots in throat, green with purple spots, brownish-purple, purple, purple-brown, purple-green, purple-green-brown, reddish-brown or yellow-green-dark maroon with brown-purple spots; flowering generally takes place between early March and early October (additional records: one for mid-February, one for late November, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides;

mesas; cliffs; cliff faces; bases of cliffs; rocky canyons; canyon walls; canyon bottoms; crevices in boulders and rocks; pockets of sandy soil on ridges; rocky foothills; rocky hills; rocky, rocky-gravelly and gravelly hillsides; bases of hillsides; rocky, gravelly-loamy, sandy, sandy-loamy and loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; plains; gravelly, sandy, sandy-loamy and sandy-silty flats; loamy basins; shady hollows; valley floors; valley bottoms; along sandy roadsides; along and in gravelly, gravelly-sandy and sandy arroyos; bottoms of arroyos; gulches; sandy bottoms of ravines; along streams; streambeds; along creeks; creekbeds; along rivers; gravelly-sandy riverbeds; along and in rocky, gravelly and sandy washes; along drainages; along bouldery drainage ways; ciénegas; swamps; along (bedrock, gravelly and sandy) banks of creeks and washes; borders of washes; along edges of washes; benches; terraces; bottomlands; floodplains; mesquite bosques; bases of levees; around stock tanks; canals; gravelly riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, silty loam and loam ground; clay ground, and sandy silty ground often reported as growing in shaded to heavily shaded areas and less often in full sun,, occurring from 100 to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider using the Pipevine Flower as a ground cover in heavily shaded areas, note that the flowers might have a fetid or musty odor. The Pipevine Flower is a larval food plant of the Pipevine Swallowtail Butterfly (*Battus philenor*) and the flowers are pollinated by members of the Ceratopogónidae (The Biting Midge, Punkie and No-see-um Family). *Aristolochia watsonii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110609), 44 (050211 - no record of species; genus record), 46 (alternate spelling *Aristolochia watsoni*, Page 227), **56**, **57**, 58, 63 (020112), 77 (color photograph #59), **85** (020212 - color presentation), 106 (071708 - information relating to the Pipevine Swallowtail Butterfly), 115 (color presentation), 124 (050211 - no record of species; genus record), 140 (Pages 50-52 & 282)*

Asclepiadaceae: The Milkweed Family

Asclepias galioides auct. non K.S. Kunth (see *Asclepias subverticillata*)

***Asclepias linaria* A.J. Cavanilles: Pineneedle Milkweed**

COMMON NAMES: Algodoncillo (“Little Cotton” a name also applied to other species, Spanish: Durango)[140]; Alí Okága (Uto-Aztecan: Tarahumara)[140]; Atu'sh-jiuátsi (en Mich); Ban Wi:bam (Uto-Aztecan: Tohono O’odham)[140]; Chiche de Burra (Hispanic); Chichivilla Cimarrona (Hispanic); Ch’il ‘abee’e (Athapascan: Navajo)[140]; Chucuipe (en Mich); Cinco Negritos (Hispanic); Cola de Gato (Hispanic); Dé’ił chéhé Izee (Athapascan: Western Apache)[140]; Guajito (Hispanic); Hierba de Cuervo (Hispanic); Hierba de Vibora (Hispanic); Hierba de la Punzada (“Puncture Herb”, Spanish: Durango)[140]; Hierba de la Vibora (“Rattlesnake Herb” a name also applied to other species, Spanish: Sonora - Guarijío)[140]; Hierba del Cuervo (“Raven Herb”, Spanish: Sonora)[140]; Immortal (“Immortal” a name also applied to other species, Spanish: Mexico)[140]; Kivat <kiyal> (Uto-Aztecan: Cahuilla)[140]; Lechestrenza (“Milk Braids”, Spanish: Mexico); Lechuguilla (“Little Lettuce” a name also applied to other species, Spanish: Mexico)[140]; Lumu Turhipiti Xukurhi (en Mich); Na’ashǫ’iidą́ą́’ (Athapascan: Navajo)[140]; Needle Leaf Milkweed; Needle-leaf Milkweed; Oreja de Liebre (Hispanic); Patito (Hispanic); Pine Leaf Milkweed; Pine Needle Butterfly Weed; Pine Needle Milkweed; Pine-leaf Milkweed; Pine-leaved Milkweed; Pine-needle Butterfly-weed; Pine-needle Milkweed (English)[140]; Pineleaf Milkweed; Pineneedle Milkweed; Pinillo (“Little Pine”, Spanish: Edo. México, San Luis Potosí)[140]; Plumerillo (“Little Feathery One”, Spanish: Aguascalientes)[140]; Plumilla (Hispanic); Romerillo (“Little Rosemary”, Spanish: Edo. México)[140]; Solimán (Spanish: Edo. México)[140]; Ta’áma’ávi (Uto-Aztecan: Ute)[140]; Talayote de Coyote (Hispanic); Teperromero (Spanish: Mexico)[140]; Terbisco <torovisco> (Spanish: Durango, Hidalgo)[140]; Tezonpatli (Uto-Aztecan: Náhuatl)[140]; Thread Leaf Milkweed; Thread-leaf Milkweed; Threadleaf Milkweed; Tlalayote <tlalayotle> (Spanish: Mexico)[140]; Tlalacxoyatl (Uto-Aztecan: Náhuatl)[140]; Tlalnóchitl (Uto-Aztecan: Náhuatl)[140]; Tlalochtli (Uto-Aztecan: Náhuatl)[140]; Tłiish Izee’ (Athapascan: Western Apache)[140]; Tłoibee (“Milk Plant”, Athapascan: Chiricahua and Mescalero Apache)[140]; Torbisco (Hispanic); Venenillo (“Little Poisonous One” Spanish: Edo. México, San Luis Potosí)[140]; Wïï[s] (Uto-Aztecan: Southern Paiute)[140]. DESCRIPTION: Terrestrial perennial fob/herb or subshrub (ascending and/or erect stems 1 to 5 feet in height; plants were observed and described as being 2½ feet in height and 3½ feet in width); the needle-like leaves are green; the flowers may be cream, greenish or white; flowering generally takes place between mid-March and late October (additional records: two for mid-December; flowering beginning as early as February has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky canyon rims; rocky cliffs; bases of cliffs; rock walls; rocky, gravelly and sandy canyons; canyonsides; canyon bottoms; crevices in bedrock; talus slopes; rocky ledges; foothills; hills; rocky and rocky-clayey hillsides; rocky, rocky-clayey, stony-clayey-loamy, gravelly, gravelly-loamy and sandy-loamy slopes; bedrock and rocky outcrops; amongst rocks; plains; along roadsides; draws; ravines; springs; along streams; within washes; rocky drainages; along watercourses; banks of ravines; rock and sand bars; rocky margins of reservoirs; around stock tanks; around reservoirs, and riparian areas growing in moist and dry rocky, rocky-gravelly, gravelly and sandy ground; stony-clayey loam, gravelly loam, sandy loam and sandy-clayey loam ground, and rocky clay ground, occurring from 700 to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant has a milky sap. The Queen Butterfly (*Danaus gilippus*) sometimes visits the flowers. *Asclepias linaria* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 224), 30, 43 (071710), 44 (020212), 46 (Page 661, species within this genus may contain a glucoside that is poisonous to livestock, especially

to sheep; however, the plants are seldom eaten), 63 (020212), **85** (020212 - color presentation), 115 (color presentation), 124 (020212 - no record of species; genus record), 140 (Pages 46-48 & 282)*

***Asclepias nyctaginifolia* A. Gray: Mojave Milkweed**

COMMON NAMES: Four O'clock Milk-weed; Four O'clock Milkweed; Four O'clock-leafed Milkweed; Hierba Lechosa; Mohave Milkweed; Mojave Milkweed. DESCRIPTION: Terrestrial perennial forb/herb (decumbent and/or erect stems 4 inches to 2 feet in height); the leaves are dark purplish-green, green or green and tinged with dark purple; the flowers may be pale green, green, purplish-green, white or yellow-cream with yellowish to orangish hoods; flowering generally takes place between mid-April and mid-September (flowering ending as late as October has been reported); the fruit is pale green. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; ridges; foothills; rocky-sandy and sandy hills; rocky hillsides; rocky, rocky-sandy and gravelly slopes; bajadas; plains; gravelly flats; valley floors; clayey roadsides; along and in arroyos; sandy creekbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; within in sandy drainages; drainage ways; swales; margins of washes; sand bars; floodplains, and disturbed areas growing in dry rocky, rocky-sandy, gravelly and sandy ground; rocky-sandy loam and sandy loam ground, and clay ground, occurring from 1,500 to 6,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Asclepias nyctaginifolia* is native to south-central and southern North America. *5, 6, 15, **16**, 43 (110609), 44 (020212), 46 (species within this genus may contain a glucoside that is poisonous to livestock, especially to sheep; however, the plants are seldom eaten, Page 662), 58, 63 (020212), **77** (color photograph #60), **85** (020212 - color presentation), 115 (color presentation), 124 (020212 - no record of species, genus record), 127*

***Asclepias subverticillata* (A. Gray) A.M. Vail: Horsetail Milkweed**

SYNONYMY: *Asclepias galioides* auct. non K.S. Kunth. COMMON NAMES: Hierba Lechosa (Spanish); Horse-tail Milkweed; Horsetail Milkweed; Milkweed (a name also applied to other species, the genus *Asclepias* and to the Asclepiadaceae); Poison Milkweed; Squat Milkweed; Talayote (Spanish); Western Whorled Milkweed; Whorled Milkweed. DESCRIPTION: Terrestrial perennial forb/herb (ascending and/or erect stems 8 inches to 4 feet in height); the leaves are green; the flowers may be cream, cream-yellow, grayish-purple, pale green, greenish, greenish-white, white, whitish-cream or yellow-cream; flowering generally takes place between late April and early October; the seedpods (2 to 4 inches in length) are slender. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; silty-loamy mesas; plateaus; cliffs; rocky bases of cliffs; gravelly, sandy and clayey canyons; canyon walls; canyon bottoms; gravelly bases of escarpments; pockets of soil in rock; rocky ledges; rocky ridges; clearings in forests; meadows; foothills; hills; hilltops; gassy hillsides; rocky, gravelly, gravely-sandy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, loamy, clayey and clayey-loamy slopes; alluvial fans; bajadas; amongst boulders and rocks; sandy lava flows; sandy flats of dune fields; clayey banks; terraces; sandy steppes; rocky and sandy-loamy prairies; rocky, sandy and clayey plains; rocky, gravelly-loamy, sandy and silty-loamy flats; basins; valley floors; sandy-loamy valley bottoms; along railroad right-of-ways; sandy-clayey-loamy roadcuts; along rocky, stony, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey, gravely-loamy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey-loamy, loamy, clayey and clayey-loamy roadsides; within rocky and sandy arroyos; sandy bottoms of arroyos; within sandy-loamy-clayey and sandy-clayey-loamy draws; gulches; springs; along streams; streambeds; along creeks; in sand along rivers; riverbeds; in sandy, sandy-clayey, sandy-silty and loamy washes; within drainage ways, around ponds; lakebeds; sandy-loamy playas; bogs; ciénegas; marshes; depressions; sandy-loamy swales; along (sandy) banks of streams and rivers; (sandy) edges of ponds and marshlands; margins of rivers; along (sandy) shores of rivers, ponds and lakes; sand bars; benches; terraces; sandy bottomlands; floodplains; lowlands; along fencelines; clayey levees; around and in stock tanks; along and in ditches; ditch banks; riparian areas; sandy waste places, and disturbed areas growing in shallow water; muddy, and wet, moist and dry bouldery, rocky, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; gravelly clay, gravelly-sandy clay, sandy clay, sandy-loamy clay and clay ground, and silty ground, occurring from 2,400 to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as food, for fiber, as a drug or medication and in the making of making ceremonial items. The caterpillars of the Monarch Butterfly (*Danaus plexippus*) and Queen Butterfly (*Danaus gilippus*) feed on the foliage of milkweeds. Butterflies, moths and wasps have been observed visiting the flowers. *Asclepias subverticillata* is native to southwest-central and southern North America. *5, 6, 28 (color photograph), 43 (110609), 44 (020212 - no record of species; genus record), 46 ("*Asclepias subverticillata* (*Asclepias galioides* of authors) and perhaps other species contain a glucoside that is poisonous to livestock, especially to sheep, but the plants are seldom eaten.," Page 661), 58, 63 (020212 - color presentation), 68 ("All parts of the western whorled milkweed above the ground are poisonous at all times, even when dried. It is poisonous to all classes of livestock, but particularly to sheep. None of the milkweeds are palatable to livestock, and animals will rarely touch them if other forage is available."), 80 (This species is listed as a Major Poisonous Range Plant. "Whorled milkweed contains toxic glycosides and resins which are partially retained in the plant after drying. This makes milkweed poisonous at all stages of growth, even after maturity, and when put up in hay. ... When there is a scarcity of feed, areas of known milkweed infestation should not be grazed by livestock, particularly in late spring and early summer. Animals new to an area infested with whorled milkweed should be observed closely. Supplemental feeding in early spring, prior to the time grasses green up, may reduce losses." See text for

additional information.), **85** (020312 - color presentation), 86 (color photograph), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Asclepias galioides* H.B.K.), 101 (color photograph), 115 (color presentation), 124 (020212), 127*

Cynanchum arizonicum (A. Gray) L.H. Shinners: Arizona Swallow-wort

SYNONYMY: *Metastelma arizonicum* A. Gray. COMMON NAMES: Arizona Milkweed Vine; Arizona Smallwort; Arizona Swallow-wort; Arizona Swallowwort; Milkweed Vine. DESCRIPTION: Terrestrial perennial forb/herb or vine (a twining vine with stems to 40 inches in length); the leaves are green; the small flowers are cream-white, white, whitish, pale yellow or yellowish; flowering generally takes place between mid-January and mid-December (with heaviest flowering reported as occurring between May and October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; rocky crags; bases of cliffs; rocky canyons; rocky canyon bottoms; ridges; ridgetops; foothills; bouldery and rocky hills; rocky hilltops; rocky hillsides; rocky slopes; rocky outcrops; amongst boulders; valley floors; low sand dunes near beaches; arroyos; along sandy bottoms of arroyos; gulches, ravines, around seeping streams; creeks; along rocky washes; rocky drainages; rocky drainage ways, and riparian areas growing in dry bouldery, rocky and sandy ground, occurring from sea level to 5,300 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTE: *Cynanchum arizonicum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110709), 44 (020312 - no record of species; genus record), 46 (recorded as *Metastelma arizonicum* Gray, Page 663), 58, 63 (020312), **77** (color photograph #61), **85** (020312 - color presentation of dried material), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Metastelma arizonicum* Gray), 124 (020312 - no record of species; genus record), 140 (Page 282)*

Funastrum cynanchoides (J. Decaisne) F.R. Schlechter: Fringed Twinevine

COMMON NAMES: Arroyo Twine Vine (for subsp. *cynanchoides*); Arroyo Twinevine (for subsp. *cynanchoides*); Climbing Milk Weed (for subsp. *cynanchoides*); Climbing Milkweed (a name also applied to other species); Climbing Milkweed (English)[140]; Climbing Townula (for subsp. *heterophyllum*); Fringed Climbing Milkweed; Fringed Climbing-milkweed); Fringed Milkvine; Fringed Twine-vine; Fringed Twine-weed [vine] (for subsp. *cynanchoides*, English: Arizona, New Mexico)[140]; Fringed Twinevine; Güichire (for subsp. *cynanchoides*, Spanish)[140]; Güirote Lechoso ("Milky 'Vine'" for subsp. *cynanchoides*, Spanish: Sinaloa, Sonora)[140]; Hartweg Climbing Milkweed (for subsp. *heterophyllum*); Hartweg Climbing-milkweed (for subsp. *heterophyllum*); Hartweg Fringed Milkvine (for subsp. *heterophyllum*); Hartweg Milk-vine (for subsp. *heterophyllum*); Hartweg Milkvine (for subsp. *heterophyllum*); Hartweg Twine-vine (for subsp. *heterophyllum*); Hartweg Twinevine (for subsp. *heterophyllum*); Hartweg Twining Milkweed (for subsp. *heterophyllum*); Hartweg Vine-milkweed (for subsp. *heterophyllum*); Hartweg's Climbing-milkweed (for subsp. *heterophyllum*); Hartweg's Fringed Milkvine (for subsp. *heterophyllum*); Hartweg's Milk-vine (for subsp. *heterophyllum*); Hartweg's Milkvine (for subsp. *heterophyllum*); Hartweg's Twine-vine (for subsp. *heterophyllum*); Hexe (for subsp. *cynanchoides*, Hokan: Seri)[140]; Hierba Lechosa ("Milky Herb" for subspp. *cynanchoides* and *heterophyllum*, and a name that is also applied to other species, Spanish: Sonora)[140]; Huichuri <huichoori> (for subsp. *cynanchoides*, Uto-Aztecan: Mayo)[140]; Mata Nene ("Baby Killer" for subsp. *cynanchoides*, Spanish: Sonora)[140]; Platanito ("Little Banana" [literally "flat one"] for subsp. *cynanchoides*, Spanish: Sonora)[140]; Purple Climbing-milkweed (for subsp. *heterophyllum*); Sandia de la Pasion ("Watermelon of the Crucifixion" for subsp. *cynanchoides*, Spanish: Sonora)[140]; Southern Twine-vine; Southern Twinevine; Vi:bam <vi'ibgam> (for subsp. *cynanchoides*, Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Vibam (for subsp. *cynanchoides*, Uto-Aztecan: Mountain Pima)[140]; Viibam ("Milk It Has" for subsp. *cynanchoides*, Uto-Aztecan: Akimel O'odham)[140]; Wibam <wi'ibgam> (for subsp. *cynanchoides*, Uto-Aztecan: Tohono O'odham). DESCRIPTION: Terrestrial perennial forb/herb or vine (clambering, climbing, sprawling, trailing and/or twining stems 20 inches to 20 feet in length); the leaves are dark green; the flowers (umbels of 5 to 30 flowers) may be brownish-white, cream, cream-purple, cream-white, cream-white & purple, dull cream-white & maroon, pale green & white, green, green & maroon & white; greenish-white, greenish-white & purple, lilac-mauve, magenta-cream, maroon, maroon-cream, pink, pinkish-white, purple, purple & cream, purple-white, purplish, purplish-tan & white, purplish-white, dull purplish & white, dull purplish-red & whitish, violet-pink, white, white & brown, white & maroon, white & purple, white & purple-maroon, white & dull purple, whitish or off white-brownish-purple; flowering generally takes place between mid-March and late November (additional records: one for early February, mid-February and two for mid-December). HABITAT: Within the range of this species it has been reported from mountains; bouldery-cobbly mesas; clambering over shrubs at the along bases of cliffs; rocky and sandy canyons; rocky canyon walls; along rocky and gravelly-sandy canyon bottoms; talus; crevices; clayey ridgetops; rocky foothills; rocky and sandy hills; rocky hillsides; bouldery, rocky, gravelly and sandy slopes; bajadas; bouldery and rocky outcrops; amongst boulders; lava flows; sand dunes; banks; gravelly plains; bouldery-cobbly, cindery and sandy flats; bouldery basins; sandy valley floors; valley bottoms; coastal sand dunes; along railroad right-of-ways, along sandy roadsides; along and in rocky and sandy arroyos; sandy-clayey bottoms of arroyos; within draws; seeps; springs; along streams; bouldery and sandy streambeds; along gravelly-sandy creeks; creekbeds; along rivers; rocky-cobbly-sandy riverbeds; along and in bouldery, rocky, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and sandy-silty washes; gravelly drainages; within drainage ways; waterholes (tinajas); swampy areas; depressions; along (rocky, gravelly-sandy and sandy) banks of arroyos, streams, rivers, washes and drainages; (gravelly-silty) edges of draws; along (gravelly) margins of arroyos and washes; (sandy) shores of rivers; gravel and sand bars; sandy beaches; benches; sandy terraces; bottomlands; sandy floodplains; lowlands; mesquite bosques; fencelines; canal banks; along ditches; clayey-loamy ditch banks; fencelines; riparian areas, and disturbed areas growing in dry bouldery, bouldery-cobbly, rocky, rocky-cobbly-sandy, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-clayey loam, gravelly loam, clay loam and loam ground; sandy clay, silty clay and clay ground, and gravelly silty, gravelly-sandy silty, sandy silty and silty ground, occurring

from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers may be fragrant. Bees, moths and other insects have been observed visiting the flowers. *Funastrum cynanchoides* is native to south-central and southern North America. *5, 6, 28 (color photograph 226), 43 (110709 - *Funastrum cynanchoides* F.R. Schlechter), 44 (020412 - no record of subspecies; species and genus records, with Common Names listed under var. *hartwegii* only), 46 (recorded as *Funastrum cynanchoides* (Decne) Schlechter, Page 664 and *Funastrum heterophyllum* (Engelm.) Standl., Page 664), 63 (020412), 68, **85** (020412 - color presentation), 86 (recorded as *Sarcostemma cynanchoides*, color photograph), 115 (color presentation), 124 (020412 - no record of species; genus and ssp. *cynanchoides* records), 140 (recorded as *Funastrum cynanchoides* (Decaisne) Schlechter [*Sarcostemma cynanchoides* Decaisne], Pages 48-49 & 283)*

Funastrum cynanchoides (J. Decaisne) F.R. Schlechter subsp. *cynanchoides*: Fringed Twinevine

SYNONYMY: *Sarcostemma cynanchoides* J. Decaisne. COMMON NAMES: Arroyo Twine Vine; Arroyo Twinevine; Climbing Milk Weed; Climbing Milkweed (a name also applied to other species); Climbing Milkweed (English)[140]; Fringed Climbing Milkweed (a name also applied to the species); Fringed Twine-vine (a name also applied to the species); Fringed Twine-weed [vine] (Arizona, New Mexico)[140]; Fringed Twinevine (a name also applied to the species); Güichire (Spanish)[140]; Güirote Lechoso ("Milky 'Vine'", Spanish: Sinaloa, Sonora)[140]; Hexe (Hokan: Seri)[140]; Hierba Lechosa ("Milky Herb" a name also applied to other species, Spanish: Sonora)[140]; Huichuri <huichoori> (Uto-Aztecan: Mayo)[140]; Mata Nene ("Baby Killer", Spanish: Sonora)[140]; Platanito ("Little Banana" [literally "flat one"], Spanish: Sonora)[140]; Sandia de la Pasion ("Watermelon of the Crucifixion", Spanish: Sonora)[140]; Vi:bam <vi'ibgam> (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Vibam (Uto-Aztecan: Mountain Pima)[140]; Viibam ("Milk It Has", Uto-Aztecan: Akimel O'odham)[140]; Wibam <wi'ibgam> (Uto-Aztecan: Tohono O'odham)[140]. DESCRIPTION: Terrestrial perennial forb/herb or vine (clambering, climbing, sprawling, trailing and/or twining stems 40 inches to 20 feet in length); the leaves are dark green; the flowers may be brownish-white, cream, cream-white, pale green & white, green, green & maroon & white; greenish-white, maroon, pink, purplish, purplish-white, white, white & green, white & lilac, white & pink, whitish or off white-brownish-purple; flowering generally takes place between mid-March and early November (additional records: one for early February and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and sandy canyons; rocky canyon walls; canyon bottoms; talus; crevices; rocky foothills; hills; hillsides; rocky and sandy slopes; bajadas; bouldery and rocky outcrops; amongst boulders; gravelly plains; sandy flats; along sandy roadsides; along arroyos; seeps; springs; along streams; bouldery and sandy streambeds; gravelly-sandy creeks; rocky-cobbly-sandy riverbeds; along and in bouldery, gravelly-sandy and sandy washes; drainages; within drainage ways; swamps; depressions; along banks of rivers and washes; (gravelly-silty) edges of draws; (sandy) shores of rivers; sandy beaches; benches; sandy terraces; sandy floodplains; mesquite bosques; along ditches; clayey-loamy ditch banks; fencelines; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-cobbly-sandy, gravelly-sandy and sandy ground; gravelly loam, clayey loam and loam ground; silty clay ground, and gravelly silty and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers may be fragrant. Bees, moths and other insects have been observed visiting the flowers. *Funastrum cynanchoides* subsp. *cynanchoides* is native to south-central and southern North America. *5, 6, **16** (recorded as *Sarcostemma cynanchoides* Decne. var. *cynanchoides*), 28 (species, color photograph 226), 43 (110709), 44 (020412 - no record of subspecies; species and genus records, with Common Names listed under var. *hartwegii* only), 46 (Page 664), **56**, **57**, 58 (recorded as *Sarcostemma cynanchoides* Decne. ssp. *cynanchoides*), 63 (020412 - color presentation), 68, **77** (recorded as *Sarcostemma cynanchoides* Decne. ssp. *cynanchoides*, color photograph labeled *Sarcostemma cynanchoides* #6), **85** (020412 - color presentation), 86 (color photograph), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Philibertella cynanchoides* (Gray) Vail), 115 (color presentation of species), 124 (050211), 140 (recorded as *Funastrum cynanchoides* (Decaisne) Schlechter [*Sarcostemma cynanchoides* Decaisne], Pages 48-49 & 283), **WTK** (May 13, 2011)*

Funastrum cynanchoides (J. Decaisne) F.R. Schlechter subsp. *heterophyllum* (G. Engelmann ex J. Torrey) J.T. Kartesz: Hartweg's Twinevine

SYNONYMY: *Funastrum heterophyllum* (G. Engelmann) P.C. Standley, *Sarcostemma cynanchoides* J. Decaisne subsp. *hartwegii* (A.M. Vail) R.W. Holm, *Sarcostemma cynanchoides* J. Decaisne var. *hartwegii* (A.M. Vail) L.H. Shinners. COMMON NAMES: Climbing Milkweed (a name also applied to other species); Climbing Townula; Guirote Lechoso (Spanish); Hartweg Climbing Milkweed; Hartweg Climbing-milkweed; Hartweg Fringed Milkvine; Hartweg Milk-vine; Hartweg Milkvine; Hartweg Twine-vine; Hartweg Twinevine; Hartweg Twining Milkweed; Hartweg Vine-milkweed; Hartweg's Climbing-milkweed; Hartweg's Fringed Milkvine; Hartweg's Milk-vine; Hartweg's Milkvine; Hartweg's Twine-vine; Hartweg's Twinevine; Hartweg's Twining Milkweed; Hartweg's Vine-milkweed; Hexe (Seri); Purple Climbing-milkweed (a name also applied to the species). DESCRIPTION: Terrestrial perennial forb/herb or vine (clambering, climbing, sprawling, trailing and/or twining stems 20 inches to 20 feet in length); the leaves (3 to 4 times long as broad) are dark green; the flowers may be dull cream-white & maroon, cream-purple, cream-white & purple, greenish-white, greenish-white & purple, lilac-mauve, magenta-cream, maroon-cream, pinkish-white, purple, purple & cream, purplish, dull purplish & white, dull purplish-red & whitish, purplish-tan & white, violet-pink, white, white & brown, white & maroon, white & dull purple, white &purple or white & purple-maroon; flowering generally takes place between mid-March and early November (additional records: one for early February, one for mid-February, one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; bouldery-cobbly mesas; canyons; along rocky and gravelly-sandy canyon bottoms; ridges; clayey

ridgetops; foothills; rocky and sandy hills; rocky hillsides; bouldery, rocky and gravelly slopes; bajadas; rocky outcrops; amongst rocks; lava flows; sand dunes; banks; bouldery-cobbly, cindery and sandy flats; bouldery basins; sandy valley floors; valley bottoms; coastal sand dunes; along sandy roadsides; along and in rocky and sandy arroyos; springs; along streams; along creeks; creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and sandy-silty washes; drainages; drainage ways; waterholes (tinajas); playas; swampy areas; (rocky, gravelly-sandy and sandy) banks of arroyos, streams, rivers, washes and drainages; along (gravelly) margins of arroyos and washes; gravel and sand bars; sandy benches; terraces; bottomlands; sandy floodplains; mesquite bosques; fencelines; canal banks; along ditches; sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-cobbly, rocky, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-clayey loam and gravelly loam ground; clay ground, and gravelly-sandy silty and sandy silty ground, occurring from sea level to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Funastrum cynanchoides* subsp. *heterophyllum* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Sarcostemma cynanchoides* Decne. var. *hartwegii* (Vail) Shinners), **16** (recorded as *Sarcostemma cynanchoides* Decne. var. *hartwegii* (Vail) Shinners), 43 (110709 - *Funastrum cynanchoides* Schltr. subsp. *heterophyllum* (Engelm. ex J. Torr.) Kartesz), 44 (020412), 46 (recorded as *Funastrum heterophyllum* (Engelm.) Standl., Page 664), 58 (recorded as *Sarcostemma cynanchoides* Decne. ssp. *hartwegii* (Vail) R. Holm), 63 (020412 - color presentation), 68, 77 (recorded as *Sarcostemma cynanchoides* Decne. ssp. *hartwegii* (Vail) Holm), **85** (020412 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Philibertella hartegii* Vail var. *heterophylla* (Engelm.) Vail)), 115 (color presentation of species), 124 (020412 - no record of subspecies or species; genus record), 140 (Page 49), **WTK** (May 8, 2011)*

Funastrum heterophyllum (see *Funastrum cynanchoides* subsp. *heterophyllum*)

Gonolobus parvifolius (see *Matelea parvifolia*)

***Matelea parvifolia* (J. Torrey) R.E. Woodson: Spearleaf**

SYNONYMY: *Gonolobus parvifolius* J. Torrey. COMMON NAMES: Angle-pod (a name also applied to the genus *Matelea*); Anglepod (a name also applied to the genus *Matelea*); Little Leaf Milk Vine; Little-leaf Matelea; Littleleaf Matelea; Milkweed Vine; Small-leaf Angle Pod; Small-leaf Angle-pod; Small-leaf Anglepod; Small-leaved Milkvine; Spearleaf; Spear-leaf Matelea; Spearleaf Matelea. DESCRIPTION: Terrestrial perennial shrub or vine (a clambering, climbing and twining vine 16 inches to 5 feet in length); the stems are gray-green or green; the leaves are green; the flowers may be black, dark brownish-purple, green, greenish-purple, dark purple or purple-brown; based on few records located, flowering generally takes place between early March and mid-May and again between mid-October and early December (flowering records: three for late January, three for early March, three for mid-March, four for late March, three for early April, two for mid-April, one for early May, one for mid-May, one for mid-October, one for late October, five for early November, one for mid-November, one for late November and one for early December); the fruits are long, warty, green seed pods. HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; mesas; rocky canyons; canyon bottoms; under ledges; rocky ridge tops; ridgelines; foothills; rocky and stony-gravelly hills; rocky and rocky-gravelly hillsides; bedrock, bouldery, rocky and sandy slopes; bajadas; amongst boulders and rocks; bouldery, cobbly, gravelly and gravelly-sandy flats; along roadsides; along arroyos; springs; rivers; along and in rocky washes; along drainages; edges of washes; floodplains, and rocky riparian areas growing in dry bouldery, rocky, rocky-gravelly, stony-gravelly, cobbly, gravelly and sandy ground, occurring from 1,200 to 5,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Matelea parvifolia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110809), 44 (020512), 46 (recorded as *Gonolobus parvifolius* Torr., Page 665), 63 (020512), 77, **85** (020512 - color presentation), 124 (020512 - no record of species; genus record)*

Metastelma arizonicum (see *Cynanchum arizonicum*)

Philibertella cynanchoides (see footnote 89 under *Funastrum cynanchoides* subsp. *cynanchoide*)

Philibertella hartegii var. *heterophylla* (see footnote 89 under *Funastrum cynanchoides* subsp. *heterophyllum*)

Sarcostemma cynanchoides (see *Funastrum cynanchoides* subsp. *cynanchoides*)

Sarcostemma cynanchoides subsp. *cynanchoides* (see footnotes 16 and 85 under *Funastrum cynanchoides* subsp. *cynanchoides*)

Sarcostemma cynanchoides subsp. *hartwegii* (see *Funastrum cynanchoides* subsp. *heterophyllum*)

Sarcostemma cynanchoides var. *cynanchoides* (see footnote 16 under *Funastrum cynanchoides* subsp. *cynanchoides*)

Sarcostemma cynanchoides var. *hartwegii* (see *Funastrum cynanchoides* subsp. *heterophyllum*)

***Acourtia nana* (A. Gray) J.L. Reveal & R.M. King: Dwarf Desertpeony**

SYNONYMY: *Perezia nana* A. Gray. COMMON NAMES: Ban Auppa-ga (Gila River Pima); Desert Holly; Desert-holly (a name also applied to other species); Dwarf Desertpeony. DESCRIPTION: Terrestrial perennial forb/herb (divaricately branching stems 2 to 12 inches in height; plants were observed and described as being 4 to 5 inches in height and 3 to 6 inches in width); the holly-like leaves are pale grayish-green or olive-green; the flower heads may be cream, pale lavender-pink, lavender, lavender-pink, maroon and white, pale pink-lavender, pink, pink-purple, purple, white or white-pink; flowering generally takes place between late March and early July (additional records: one for late January, one for late February, two for late July, one for early August, one for mid-August, one for late August, two for early September, three for late September, one for mid-October, one for mid-November and two for mid-December). HABITAT: Within the range of this species it has been reported from rocky mountains; sandy mesas; gravelly-loamy canyons; talus slopes; bedrock ridges; ridgetops; rocky foothills; rocky and gravelly hills; rocky and gravelly hillsides; bouldery, rocky, stony, gravelly, gravelly-sandy and sandy slopes; bajadas; amongst boulders and rocks; gravelly breaks; gravelly plains; rocky, gravelly, gravelly-sandy, sandy, sandy-loamy and clayey flats; basins; basin bottoms; rocky valley floors; valley bottoms; gravelly-loamy roadsides; arroyos; bottoms of arroyos; rocky gullies; gravelly-loamy creekbeds; riverbeds; within gravelly, gravelly-sandy and sandy-clayey washes; drainage ways; playas; sandy-loamy, sandy-clayey-loamy and clayey-loamy swales; (clayey-loamy) banks of washes; benches; gravelly and sandy terraces; floodplains; mesquite mosques; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy, pebbly and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; sandy clay and clay ground, and silty ground often in the shade of trees and shrubs, occurring from 1,200 to 7,100 feet (one record for 8,500 feet) in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Consider using Desert Holly as a ground cover under larger shrubs and trees. The flowers give off a fragrance similar to that of violets or lilacs. *Acourtia nana* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 285), 43 (110809), 44 (020512 - no record of species; genus record), 46 (recorded as *Perezia nana* Gray, Page 957), 58, 63 (020512 - color presentation), 77, **85** (020512 - color presentation), **89** (reported as being a half-shrub located on the Mesa-like Mountain Slopes, recorded as *Perezia nana* Gray), 115 (color presentation), 124 (020512 - no record of species or genus)*

***Acourtia wrightii* (A. Gray) J.L. Reveal & R.M. King: Brownfoot**

SYNONYMY: *Perezia wrightii* A. Gray. COMMON NAMES: Brownfoot; Desert Holly (a name also applied to other species); Perezia; Pink Perezia; Pink Perezzia; Wright's Desertpeony. DESCRIPTION: Terrestrial perennial forb/herb (1 to 5 feet in height; one plant was observed and described as being 1 foot in height with a crown 1 foot in width); the holly-like leaves are dark green; the flower heads may be lavender, dark lavender, pink, pink-brown, pink-lavender, pink-purple, light purple, purple, white, white & pink, whitish-maroon or white & purple; flowering generally takes place between early February and early July and sometimes in autumn between early September and early November (additional records: one for mid-August, one for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; plateaus; rock cliffs; bases of cliffs; rocky canyons; rocky canyon bottoms; talus slopes; along crevices in boulders and rocks; buttes; along ledges; ridges; ridgetops; crater walls; foothills; rocky, stony-gravelly and sandy hills; rocky and rocky-gravelly-loamy hillsides; bouldery-rocky, rocky, rocky-gravelly, shaley, shaley-gravelly, gravelly, gravelly-clayey and sandy slopes; sandy alluvial fans; gravelly and sandy bajadas; along bedrock and rocky outcrops; amongst boulders and rocks; around bases of boulders; in shaded alcoves; rocky plains; rocky and silty flats; railroad right-of-ways; rocky and gravelly-sandy-clayey-loamy roadsides; along rocky arroyos; rocky draws; gullies; ravines; seeps; rocky springs; along creeks; along rocky, gravelly and sandy washes; along drainage ways; (rocky) banks of ravines, streams and washes; borders of washes; edges of washes; mudflats; beaches; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony-gravelly, gravelly and sandy ground; rocky-gravelly loam, rocky silty loam, gravelly-sandy-clayey loam, sandy loam, silty-clayey loam and silty loam ground; gravelly clay ground, and silty ground, occurring from 700 to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Acourtia wrightii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 677), 43 (110809), 44 (050411 - no record of species; genus record), 46 (recorded as *Perezia wrightii* Gray, Page 957), 58, 63 (020512 - color presentation), 77, **85** (020612 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Perezia wrightii* Gray), 115 (color presentation), 124 (050411 - no record of species or genus), 127, 140 (Page 283), **WTK** (August 12, 2005)*

Actinolepis lanosa (see footnote 89 under *Antheropeas lanosum*)

***Adenophyllum porophylloides* (A. Gray) J.L. Strother: San Felipe Dogweed**

SYNONYMY: *Dyssodia porophylloides* A. Gray. COMMON NAMES: San Felipe Adenophyllum; San Felipe Dogweed; San Felipe Dyssodia; San Felipe Fetid Marigold; Yerba del Venado. DESCRIPTION: Terrestrial perennial subshrub

(erect stems 8 to 32 inches in height; one plant was described as being approximately 18 inches in height and 2 feet in width); the leaves are dark green; the disk florets may be golden-yellow, maroon, orange or yellow-orange; the ray florets may be pink, pink-maroon, red-orange, yellow (becoming red-orange), yellowish-brown or yellow-orange; flowering generally takes place between early February and early December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; mesas; rocky cliffs; bouldery and rocky canyons; canyon walls; rocky canyon bottoms; buttes; ridgetops; foothills; rocky-gravelly and stony-gravelly hills; rocky hillsides; bouldery, rocky, rocky-gravelly, shaley, gravelly and sandy slopes; alluvial fans; rocky-gravelly bajadas; bouldery and rocky outcrops; amongst boulders and rocks; boulder fields; plains; gravelly and sandy flats; valley floors; along roadsides; along the bottoms of rocky arroyos; gulches; ravines; streambeds; along creeks; along and in rocky, gravelly, gravelly-sandy and sandy washes; borders of washes; (rocky) edges of washes; benches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony-gravelly, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam and cobbly-gravelly loam ground, and sandy clay ground, occurring from sea level to 4,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The leaves give off a strong odor when bruised, reportedly similar to that of Deerweed (*Porophyllum gracile*). *Adenophyllum porophylloides* is native to southwest-central and southern North America. *5, 6, 13, 15 (recorded as *Dyssodia porophylloides* Gray), **16** (recorded as *Dyssodia porophylloides* Gray), 28 (recorded as *Dyssodia porophylloides*, color photograph 480), 43 (111009), 44 (020712), 46 (recorded as *Dyssodia porophylloides* Gray, Page 932), 63 (020712 - color presentation), 77 (recorded as *Dyssodia porophylloides* Gray), **85** (020812 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill, recorded as *Dyssodia porophylloides* Gray), 115 (color presentation), 124 (020712 - no record of species or genus), 140 (Page 283)*

Ambrosia aptera (see *Ambrosia trifida* var. *texana*)

***Ambrosia ambrosioides* (A.J. Cavanilles) W.W. Payne: Ambrosia Leaf Bur Ragweed**

SYNONYMY: *Franseria ambrosioides* A.J. Cavanilles. COMMON NAMES: Ambrosia Bursage; Ambrosia Leaf Bur Ragweed; Ambrosia Leaf Burr Ragweed; Ambrosia-leaf Burr Ragweed; Ambrosia-leaf Burr-ragweed; Ambrosia-leaf Bursage; Ambrosia-leaved Burbush; Big Bursage; Big Bur-sage; Burr Sage; Bur-sage (a name also applied to other species and the genus *Ambrosia*); Bursage (a name also applied to other species and the genus *Ambrosia*); Canyon Ambrosia; Canyon Ragweed; Canyon Ragweed Ambrosia; Chicura (Spanish); Giant Bursage; Leaf Burr Ragweed; Nu Nu Ju Its (Tohono O'odham); Tinkl (Seri). DESCRIPTION: Terrestrial perennial cold- and drought-deciduous subshrub or shrub (erect stems 1 to 7 feet in height, one plant was described as being 3 feet in height and 6 feet in width); the branches are reddish-brown with white hairs; the leaves are dull gray-green or green; the flower heads are yellowish or yellowish-green; flowering generally takes place between mid-February and early May (additional records: two for mid-January, one for late May, one for early June, one for mid-June, one for early July and one for mid-September), the fruits are burrs. HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; mesas; bases of cliffs; rocky canyons; canyon walls; rocky, gravelly and gravelly-sandy canyon bottoms; ridges; crevices in rocks; pockets of sandy soil in rocks; foothills; rocky hills; hilltops; rocky hillsides; rocky and sandy slopes; bajadas; rocky outcrops; amongst boulders; terraces; barrens; plains; flats; basins; silty valley floors; along coasts; coastal plains; along rocky-sandy roadsides; rocky, gravelly and sandy arroyos; rocky and gravelly bottoms of arroyos; along seeping streams; along streams; rocky and sandy streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy, gravelly-silty and sandy washes; along and in sandy drainages; along and in cobbly and sandy drainage ways; around waterholes; (rocky and sandy) banks of creeks and lakes; borders of washes; (sandy) edges of washes; (sandy) margins of arroyos; benches; bottomlands; floodplains; riparian areas, and disturbed areas growing in muddy (rarely reported) and dry bouldery, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam and sandy-clayey loam ground, and gravelly silty and silty ground, occurring from sea level to 5,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; however, its pollen may bring about an allergic reaction in some people. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Ambrosia ambrosioides* is native to southwest-central and southern North America. *5, 6, 13 (Pages 303-304), 15, 28 (color photographs 806 A&B), 43 (111009 - *Ambrosia ambrosioides* (Delpino) W.W. Payne), 44 (050411), 46 (recorded as *Franseria ambrosioides* Cav., Page 895), 63 (020812), 77 (color photograph #67), **85** (020912 - color presentation including habitat), 91 (Pages 75-77), 115 (color presentation), 124 (050411 - no record of species; genus record), 127, 140 (Page 283)*

***Ambrosia confertiflora* A.P. de Candolle: Weakleaf Bur Ragweed**

SYNONYMY: *Franseria confertiflora* (A.P. de Candolle) P.A. Rydberg. COMMON NAMES: Altamisa de Playa; Altamisa [del Campo] (Spanish: Mexico)[140]; Bur Ragweed (a name also applied to other species and the genus *Ambrosia*); Bur-sage (a name also applied to other species and the genus *Ambrosia*); Bur-weed (a name also applied to other species); Bursage [Field, Weak-leaf Burr] Ragweed (English: New Mexico)[140]; Ch'ił Diwozh <c'il dahwosi [dohwosi]> (Athapascan: Navajo)[140]; Chi'ichivo (Yaqui); Chíchibo (Uto-Aztecan: Mayo)[140]; Estafiate (a name also applied to other species, Spanish: Mountain Pima)[140]; Estafijate (Mexico: Sonora); Field Ragweed; Istafiate (Mexico: northern Sinaloa); Mexican Ragweed; Mo'o Taḍ <mo'otaḍk, mo'otadk, mo'ostalk, mo'otari> ("To Stick Its Head Out", Uto-Aztecan: Tohono O'odham)[140]; Mo'o Taḍk Je:j ("Mother of Broom Rape", Uto-Aztecan: Akimel O'odham)[140]; Mo'ostadk (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Mo'otatk Juich (Gila River Pima); Musha (Uto-Aztecan: Mountain Pima)[140]; Ñuñuwĩ Je:j ("Mother of Vultures", Uto-Aztecan: Tohono O'odham)[140]; Pawya <pawíya> (Uto-Aztecan: Hopi)[140]; Paxáaza (Hokan: Seri)[140]; Ragweed (a name also applied to other species

and the genus *Ambrosia*); Slender Ragweed; Slim-leaf [weak-leaf] Bursage (English)[140]; Slim-leaf Ragweed; Slimleaf Bursage; Slimleaf Ragweed; Tatṣagi <taḍshagi, tatshagi> (Uto-Aztecan - Tohono O'odham)[140]; Tu'rosip (Uto-Aztecan: Shoshoni)[140]; Waejoka (Kiowa Tanoan: Tewa)[140]; Weakleaf Burbush; Weak-leaf Bur-ragweed; Weak-leaf Burr Ragweed; Weak-leaf Burr-ragweed; Weak-leaf Bur-sage; Weak-leaf Bursage; Weak-leaved Bur-sage; Weak-leaved Bursage; Weak-leaved Burweed; Weakleaf Bur Ragweed; Weakleaf Burr Ragweed; Weakleaf Bursage; Yerba del Sapo ("Toad Herb", Spanish: New Mexico)[140]. DESCRIPTION: Terrestrial perennial forb/herb (procumbent (rarely observed) and/or erect stems 4 inches to 6 feet in height and up to 7 feet in width); the leaves may be gray, gray-green or whitish; the florets may be greenish, greenish-yellow, tan-yellow, white, yellow, yellow-brown or yellow-green; flowering generally takes place between late April and mid-December (additional records: one for early January, one for mid-March, one for late March and one for early April). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; bases of cliffs; rocky canyons; along rocky and sandy canyon bottoms; crevices in rock faces; knolls; ridges; rocky ridgetops; sandy meadows; foothills; rocky and rocky-gravelly-loamy hills; hilltops; rocky hillsides; rocky, rocky-loamy, rocky-clayey, gravelly, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy and sandy-clayey slopes; bajadas; piedmonts; shaley-sandy outcrops; terraces; prairies; sandy-silty plains; gravelly, gravelly-sandy, sandy and clayey flats; rocky-silty, gravelly-sandy and sandy valley floors; valley bottoms; coastal plains; coastal beaches; along railroad right-of-ways; along clayey roadsides; along sandy arroyos; bottoms of arroyos; ravines; seeps; springs; along streams; streambeds; along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; along rocky drainages; within rocky drainage ways; around ponds; around lakes; (drying) lakebeds; playas; ciénegas; depressions; silty swales; along banks of creeks, rivers and washes; borders of washes; (gravelly-sandy) edges of washes and playas; margins of pools; beaches; rocky benches; terraces; bottomlands; floodplains; rocky mesquite bosques; fencerows; around stock tanks (represos); around reservoirs; canal banks; ditches; riparian areas; waste places, and disturbed areas growing in muddy (rarely reported) and moist and dry boulders, rocky, shaley-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, sandy loam and sandy-clayey loam ground; rocky clay, gravelly clay and clay ground, and rocky silty, gravelly silty, gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The flowers are reported to be fragrant. *Ambrosia confertiflora* is native to south-central and southern North America. *5, 6, 15, **16**, 43 (061309), 44 (033011), 46 (recorded as *Franseria confertiflora* (DC.) Rydb., Page 895), **56**, **57**, 58, 63 (020912), 68, 77, **85** (020912 - color presentation), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Franseria tenuifolia* Gray), 115 (color presentation), 124 (033011), 140 (Pages 53-54, 56 & 283)*

Ambrosia cordifolia (A. Gray) W.W. Payne: Tucson Bur Ragweed

SYNONYMY: *Franseria cordifolia* A. Gray. COMMON NAMES: Chicurilla (a name also applied to other species, Spanish); Heartleaf Bursage; Sonoran Bursage; Tucson Bur Ragweed; Tucson Burr Ragweed. DESCRIPTION: Terrestrial perennial deciduous (cold and drought) subshrub or shrub (erect stems 1 to 4 feet in height); the leaves are gray-green; the flower heads are yellow; flowering generally takes place between early December and mid-May (additional record: flowering in November has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; bases of cliffs; rocky canyons; rocky canyon bottoms; rocky and gravelly hills; gravelly hillsides; rocky and rocky-gravelly slopes; bajadas; terraces; cobbly plains; flats; coastal plains; along roadsides; sandy arroyos; bottoms of arroyos; springs; along and in sandy washes; drainages; banks of arroyos; borders of washes; along edges of creeks and washes; benches; floodplains, and riparian areas growing in dry rocky, rocky-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground and gravelly-sandy silty ground sometimes growing in the shade of trees and shrubs, occurring from sea level to 4,100 feet in elevation in the forest, scrub, desertscrub and wetland ecological formations. NOTE: *Ambrosia cordifolia* is native to southwest-central and southern North America. *5, 6, 13, 43 (111009), 44 (021012 - no record of species; genus record), 46 (recorded as *Fransera cordifolia* Gray, Page 896), **56**, **57**, 63 (021012), 77, **85** (021012 - color presentation of dried material), 91, 115 (color presentation), 124 (021012 - no record of species; genus record), 140 (Page 283)*

Ambrosia deltoidea (J. Torrey) W.W. Payne: Triangle Bur Ragweed

SYNONYMY: *Franseria deltoidea* J. Torrey. COMMON NAMES: Ambosia (Spanish); Burrobush (a name also applied to other species); Bur-sage (a name also applied to other species and the genus *Ambrosia*); Bursage (a name also applied to other species and the genus *Ambrosia*); Chamizo Forrajero (Spanish); Chicurilla (a name also applied to other species, Spanish); Estafiate (a name also applied to other species, Spanish); Rabbit Bush; Kokomak Segoi (Pima); Shegoi (Pima); Todshag (Papago); Triangle Bur Ragweed; Triangle Burr Ragweed; Triangle Bursage; Triangle-leaf Bursage; Triangle-leaved Bursage; Triangle-leaf Burr Ragweed. DESCRIPTION: Terrestrial perennial evergreen (or drought-deciduous) subshrub or shrub (erect stems 1 to 4 feet in height; one plant was observed and described as being 2 feet in height and width); the leaves are gray, gray-green or green (turning gray with age); the flower heads may be greenish, greenish-yellow, purple, white or yellow; flowering generally takes place between early January and early May (additional records: three for late May; flowering ending as late as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; cliffs; bases of cliffs; rocky canyons; canyon bottoms; buttes; ridges; crater floors; rocky foothills; rocky hills; rocky hillsides; bases of hills; rocky, rocky, gravelly and gravelly-clayey slopes; bases of slopes; sandy bajadas; lava flows; dunes; sandy plains; rocky, stony-chalky, gravelly and sandy flats; basins; rocky valley floors; along rocky-sandy roadsides; shallow arroyos; ravines; runnels; riverbeds; along and in stony-gravelly, gravelly, gravelly-sandy and sandy washes; within drainages; (rocky and sandy) banks of creeks and washes; edges of dry lakes (playas); margins of washes; gravelly terraces; bottomlands; floodplains; riparian areas, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-gravelly, rocky-sandy, stony-gravelly,

gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground; rocky clay, gravelly clay and sandy clay ground, and stony chalky ground, occurring from sea level to 4,000 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may be useful in the restoration of disturbed habitat. It may live to be about 50 years of age. The Triangleleaf Bursage serves as a nurse plant for Saguaro (*Carnegiea gigantea*), Ocotillo (*Fouquieria splendens*), Foothill Paloverde (*Parkinsonia microphylla*) and other woody plants. The Triangleleaf Bursage is one of the first plants to colonize disturbed areas. *Ambrosia deltoidea* is native to southwest-central and southern North America. *5, 6, 13 (Pages 305-306), 15, **16**, 28 (color photograph 807), 43 (070910), 44 (033011), 46 (recorded as *Franseria deltoidea* Torr., Page 896), 63 (021012 - color presentation), 77 (color photograph #68), **85** (021112 - color presentation including habitat), **89** (reported as being a half-shrub located on Tumamoc Hill, recorded as *Franseria deltoidea* Torr.), 91 (Pages 82-85, 115 (color presentation), 124 (033011 - no record of species; genus record), **WTK** (August 12, 2005)*

Ambrosia dumosa (A. Gray) W.W. Payne: Burrobush

SYNONYMY: *Franseria dumosa* A. Gray. COMMON NAMES: Ambrosia (a name also applied to other species); Bur Sage (a name also applied to other species); Bur-sage (a name also applied to other species and the genus *Ambrosia*); Burro Bush (a name also applied to other species); Burro Weed (a name also applied to other species); Burro-weed (a name also applied to other species); Burrobush (a name also applied to other species); Burroweed (a name also applied to other species); Chamizo (Spanish); Chicurilla (a name also applied to other species, Spanish); Desert Bur Sage; Desert Burrobush; Desert Ragweed; Estafiate (a name also applied to other species, Spanish); Hierba del Burro (a name also applied to other species); Huizapol (Spanish); White Bur Sage; White Bur-sage; White Bursage; White Burrobush (a name also applied to other species); Xcactz (Seri). DESCRIPTION: Terrestrial perennial cold- and drought-deciduous subshrub or shrub (erect stems 4 to 40 inches in height; one low mound-shaped plant was reported to be 40 inches in width); the branches may be gray, tan or white; the leaves may be blue-green-gray, grayish, gray-green or white-tomentose; the flower heads may be cream, cream-yellow, greenish, green-yellow or yellow with yellowish anthers; flowering generally takes place between mid-December and late June (additional records: eight for late September, six for early October, five for mid-October, two for early November, two for mid-November and four for late November); the fruits (spiny burs) may be golden to brown or purple. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; cliffs; rocky canyons; gravelly and sandy canyon bottoms; gorges; talus slopes; buttes; knolls; along ridges; bouldery ridgetops; rocky-sandy foothills; rocky and silty hills; rocky and gravelly hillsides; bouldery, rocky, rocky-sandy, gravelly, gravelly-loamy, gravelly-silty, sandy and sandy-silty slopes; rocky alluvial fans; gravelly, sandy and sandy-silty bajadas; bouldery and rocky outcrops; amongst boulders; lava fields; sand hills; sand dunes; sand sheets; blow-sand deposits; bench tops; terraces; gravelly and sandy plains; rocky, gravelly, gravelly-sandy, sandy and sandy-loamy flats; sandy uplands; gravelly-sandy and sandy valley floors; valley bottoms; coastal plains; shifting beach dunes; coastal beaches; along gravelly and sandy roadsides; within sandy arroyos; along and in rocky, gravelly, gravelly-sandy and sandy washes; gravelly and sandy drainages; along drainage ways; silty playas; banks of streambeds and washes; borders of washes; (sandy) edges of washes and lakes; margins of arroyos; benches; sandy bottomlands; floodplains; canal banks; sandy and sandy-silty riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground, and gravelly-silty, sandy silty and silty ground, occurring from sea level to 4,600 feet in elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat, and may live to be more than 100 years of age with an estimated average longevity of 35.7 years. This plant is a host for the parasitic Sand Root (*Pholisma sonorae*), it is browsed by Black-tailed Jack Rabbit (*Lepus californicus*) and numerous rodents, including kangaroo Rats, the feed on the seed. In the re-vegetation of disturbed sites more success may be achieved through the use of transplanted plants than from over-seeding. White Bursage serves as a nurse plant for Creosote Bush (*Larrea tridentata*), Foothill Paloverde (*Parkinsonia microphylla*) and other woody plants. White Bursage is an early colonizer of disturbed sites and open spaces. *Ambrosia dumosa* is native to southwest-central and southern North America. *5, 6, 13 (Pages 307-308), 15, **16**, 28 (color photograph 808), 43 (111109), 44 (033011), 46 (recorded as *Franseria dumosa* Gray, Page 895), 63 (021112 - color presentation including habitat), 77, **85** (021212 - color presentation), 91 (Pages 85-87), 124 (033011 - no record of species; genus record)*

Ambrosia monogyra (see *Hymenoclea monogyra*)

Ambrosia trifida C. Linnaeus var. *texana* G.H. Scheele: Texan Great Ragweed

SYNONYMY: *Ambrosia aptera* A.P. de Candolle. COMMON NAMES: Blood Ragweed (a name also applied to other species); Blood Weed (a name also applied to other species, Texas); Bloodweed (a name also applied to other species, Texas); Giant Ragweed (a name also applied to the species); Great Ragweed (a name also applied to the species); Horseweed (a name also applied to other species); Texan Great Ragweed; Texan Tall Ragweed; Wingless-petiole Ragweed (Oklahoma); Wingless-petioled Ragweed (Oklahoma). DESCRIPTION: Terrestrial annual forb/herb or subshrub (erect stems 1 to over 13 feet in height); the flower heads are yellow; flowering generally takes place between mid-August and mid-October (additional records: flowering beginning as early as July and ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; canyons; flats; valley floors; along roadsides; along arroyos; along streams; along creeks; drainages; cienegas; along loamy banks of streams; bottomlands; floodplains; ditches; riparian areas; waste places, and disturbed areas growing in wet, moist and damp loam ground, occurring from sea level to 8,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: The species, *Ambrosia trifida*, was reported to

have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The pollen from this plant may bring about an allergic reaction in some people and is considered to be a major cause of hay fever. *Ambrosia trifida* var. *texana* is native to central and southern North America. *5, 6, 28 (color photograph of species), 43 (111109), 44 (021212 - no record of variety; genus and species records), 46 (recorded as *Ambrosia aptera* DC., Page 894), 58, 63 (021212), **85** (021212 - color photograph including habitat), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain, recorded as *Ambrosia aptera* DC.), 101 (color photograph of species), 124 (021212), 127 (species)*

Anthemis cotula C. Linnaeus: Stinking Chamomile

COMMON NAMES: Bakerblom (Danish); Bakerbraa (Danish); Balderbrae (verbal corruption); Balderbraw; Balders; Bald-eyebrow; Bald-eye-brow; Ballensbro; Büdöskey Ar (Hungarian); Camomila Spuria; Camomila-de-cachorro (Portuguese: Brazil); Camomile Puante (French); Camomilla Fetida (Italian); Camomilla Mezzana (Italian); Camomille Puante (French); Chamomila Foetidum; Chamomille des Chiens (French); Chigger Weed (a name also applied to other species); Chigger-weed (a name also applied to other species); Chiggerweed (a name also applied to other species); Chiggy-weed; Common Dog Fennel; Common Dog-fennel; Common Dogfennel; Common May-weed; Common Mayweed; Cotula; Cotula Bastarda (Portuguese); Cotula Fetida (Italian); Dilweed (a name also applied to other species); Dillweed (a name also applied to other species); Dilly (a name also applied to other species); Dillidilweed; Dillydillweed; Dog-banner; Dog-binder; Dog Camomile (a name also applied to other species); Dog Camovyne (a name also applied to other species); Dog's Camomile (a name also applied to other species); Dog-chamomile (a name also applied to other species); Dog's-camomile; Dog's Chamomile (a name also applied to other species); Dog Daisy (a name also applied to other species); Dog-daisy (a name also applied to other species); Dog Fennel (a name also applied to other species and the genus *Anthemis*); Dog Finkle; Dog-fennel (a name also applied to other species and the genus *Anthemis*); Dog-finkle; Dogfennel (a name also applied to other species and the genus *Anthemis*); Dog's Fennel (a name also applied to the genus *Anthemis*); Eb Kapor (Hungarian); Fennel; Fetid Camomile; Fetid Chamomile; Fetid Marigold; Fetid Mayweed; Fetid-mayweed; Field Weed; Field Wort; Field-weed (a name also applied to other species); Fieldwort (a name also applied to other species); Flowan; Foetid Camomile; Foetid Chamomile; Foetid Marigold; Gaasedild (Danish); Gänsekopf (German); Gassedill (Norwegian); Gasseguld (Norwegian); Heilege Dille (German); Hog Fennel (a name also applied to other species); Hog-fennel (a name also applied to other species); Hog's Fennel (a name also applied to other species); Hog's-fennel (a name also applied to other species); Horse Daisy; Horse-daisy; Hundekameelblomst (Danish); Hundeurt (Danish); Hundkamiller (Swedish); Hundsbloom (German); Hundsdill (German); Hundskamille (German); Hundsromey (German); Hviteteja; Iron-wort (a name also applied to other species); Ironwort (a name also applied to other species); Jay-weed; Jayweed; Kamomillkulla (Swedish); Kanna Perse Hein (Estonian); Kannapersed (Estonian); Koedild (Danish); Krötendill (German); Kuhdill (German); Llygad Yr Ych (Welsh); Macéla-fétida (Portuguese: Brazil); Macella Fetida (Portuguese); Madder (misapplied); Maden-weed; Maise; Maithen; Maithes (a name also applied to other species); Manzanilla; Manzanilla Cimarrona; Manzanilla Fetida (Spanish); Manzanilla Hedionda (Spanish); Marg; Maroutte; Mather; Mathes (a name also applied to other species); May Flower; May Weed (a name also applied to other species and the genus *Anthemis*); May Wort; May-weed (a name also applied to other species and the genus *Anthemis*); Mayweed (a name also applied to other species and the genus *Anthemis*); Mayweed Camomile; Mayweed Chamomile; Morgan; Murg; Oil de Vache (French); Paddebloem (Dutch); Path-weed; Pig-sty Daisy (Ipswich, Massachusetts); Pig-sty-daisy (Ipswich, Massachusetts); Pigsty-daisy (Ipswich, Massachusetts); Pissweed; Poison Daisy; Poison-daisy; Psi Rumien (Polish); Psy Men (Bohemian); Rumieniec Smierdzacy (Polish); Sigu-kammelis ("Horse Chamomile", Lettonia); Siurguld (Norwegian); Solutucha [Trava] (Russian); Stinkweed; Stinkende Hundskamille (German); Stinkende Kamille (Dutch, German); Stinking Camomile; Stinking Chamomile; Stinking Daisy; Stinking Mayweed; Stinkkamillen (German); Stinkweed (a name also applied to other species); Streichblume (German); Sunnischi (Lettonia [Republic of Latvia]); Surkullor (eastern United States - Swedish Upland); Surtuppor; White Stinkweed; Wild Camomoile (a name also applied to other species); Wild Cammomile; Wild Chamomile (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 inches to 3 feet in height); the stems are green, sometimes tinged with red; the disk florets are yellow, the ray florets are white; flowering generally takes place between early April and early September (additional records: one for late September, one for early October, two for early November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; bouldery-gravelly-sandy, canyon bottoms; clearings; rocky meadows; foothills; rolling hills; rocky-loamy and clayey hillsides; rocky, rocky-loamy, sandy, sandy-clayey, loamy, clayey and silty-loamy slopes; gravelly and sandy flats; basins; valley floors; valley bottoms; coastal dunes; along gravelly, gravelly-loamy and sandy roadsides; streambeds; riverbeds; stony arroyos; in sandy washes; near and in vernal pools; clayey marshes; saltmarshes; banks of streams; edges of ponds; gravelly benches; terraces; sandy-loamy bottomlands; floodplains; along fences; dams; within clayey ditches; riparian areas; waste places, and disturbed areas growing in wet, moist and dry bouldery-gravelly-sandy, rocky, rocky-cobbly, stony, gravelly and sandy ground; rocky loam, gravelly loam, sandy loam, silty loam and loam ground; sandy clay and clay ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a as a drug or medication. *Anthemis cotula* is native to central, eastern, northern and southern Europe and coastal islands in the North Atlantic Ocean and Mediterranean Sea; western and southern Asia, and northern Africa. *5, 6, 43 (111109), 44 (050611), 46 (Page 936), 63 (021312 - color presentation) 80 (This plant is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "In the western hemisphere, poultry are the only livestock to be poisoned by this annual forb."), **85** (021312 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 101 (color photograph), 124 (050511), 127*

***Antheropeas lanosum* (A. Gray) P.A. Rydberg: White Easterbonnets**

SYNONYMY: *Eriophyllum lanosum* (A. Gray) A. Gray. COMMON NAMES: Gray's Woollyleaf; Gray's Woolyleaf; White Easter Bonnets; White Easter-bonnets; White Easterbonnets; White Woolly Eriophyllum; White Woolly Daisy; White Woolly Sunflower; White Wooly Daisy; White Woolly-sunflower; White-flowered Woolly Daisy; Whoolly Daisy; Whooly Daisy; Woolly Daisy (a name also applied to the genus *Eriophyllum*); Woolly-daisy (a name also applied to the genus *Eriophyllum*); Woolly Eriophyllum (a name also applied to other species); Woolly Fleabane. DESCRIPTION: Terrestrial annual forb/herb (decumbent, ascending and/or erect stems ¾ to 8 inches in height); the stems are reddish; the leaves are gray-green; the disk florets may be orange-yellow or yellow; the ray florets are white; flowering generally takes place between early February and mid-May (additional records: two for mid-June and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; gravelly and pebbly-sandy-silty mesas; along gravelly canyons; talus slopes; bases of cliffs; bluffs; rocky and gravelly ridges; gravelly foothills; rocky, stony-gravelly and gravelly hills; hilltops; rocky hillsides; rocky, rocky-loamy, cobbly, gravelly, gravelly-sandy and gravelly-loamy slopes; bases of slopes; alluvial fans; bajadas; bouldery and rocky outcrops; amongst rocks; sand hills; gravelly and sandy plains; rocky, gravelly and sandy flats; basins; valley floors; silty valley bottoms; along gravelly, sandy and clayey roadsides; along and in gravelly and sandy arroyos; creekbeds; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along (muddy, gravelly-sandy and sandy) banks of arroyos and washes; shores of lakes; gravelly-sand bars; benches; terraces; sandy bottomlands, and disturbed areas growing in dry gravelly desert pavement; bouldery-rocky-gravelly, rocky, rocky-gravelly, rocky-sandy, stony, stony-gravelly, stony-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, gravelly loam, sandy loam and silty loam ground; clay ground, and pebbly-sandy silty, powdery silty and silty ground, occurring from 500 to 6,800 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE: *Antheropeas lanosum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Eriophyllum lanosum*, color photograph 251), 43 (111109 - *Antheropeas lanosum* Rydb.), 44 (021412 - records located under *Eriophyllum lanosum*), 46 (recorded as *Eriophyllum lanosum* Gray, Page 921), 58, 63 (021412 - color presentation including habitat), 77 (recorded as *Eriophyllum lanosum*, color photograph #19), **85** (021412 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Actinolepis lanosa* Gray), 115 (color presentation), 124 (021412 - no record of species or genus), 140 (Page 284 - recorded as *Eriophyllum lanosum* A. Gray)*

Aplopappus australis (see footnote 89 under *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Aplopappus gracilis (see footnote 46 under *Machaeranthera gracilis*)

Aplopappus laricifolia (see footnote 89 under *Ericameria laricifolia*)

Aplopappus laricifolius (see footnote 46 under *Ericameria laricifolia*)

Aplopappus spinulosus (see footnote 46 under *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Aplopappus spinulosus var. *turbinellus* (see footnote 46 under *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Aplopappus tenuisectus (see footnote 46 under *Isocoma tenuisecta*)

Aster arenosus (see *Chaetopappa ericoides*)

Aster commutatus var. *crassulus* (see *Symphyotrichum falcatum* var. *commutatum*)

Aster exilis (see *Symphyotrichum divaricatum*)

Aster falcatus var. *crassulus* (see *Symphyotrichum falcatum* var. *commutatum*)

Aster hebecladus (see footnotes 89 and 137 under *Symphyotrichum ericoides* var. *ericoides* and *Symphyotrichum falcatum* var. *commutatum*)

Aster hirtifolius (see *Chaetopappa ericoides*)

Aster incanus (see footnote 89 under *Machaeranthera canescens* subsp. *canescens* var. *incana*)

Aster parviflorus (see footnote 89 under *Machaeranthera parviflora*)

Aster parvulus (see Machaeranthera parviflora)

Aster spinosus (see *Chloracantha spinosa*)

Aster subulatus var. *ligulatus* (see *Symphyotrichum divaricatum*)

Aster tagetinus (see *Machaeranthera tagetina*)

Aster tanacetifolius (see *Machaeranthera tanacetifolia*)

Aster tephrodes (see *Machaeranthera canescens* subsp. *canescens* var. *incana*)

***Baccharis brachyphylla* A. Gray: Shortleaf Baccharis**

COMMON NAMES: Hairy Baccharis; Short Leaf Baccharis; Short Leaf False Willow; Short Leaved Baccharis; Short-leaf Baccharis; Short-leaf False Willow; Short-leaf False-willow; Short-leaf Seep Willow; Short-leaf Seep-willow; Short-leaved Baccharis Shortleaf Baccharis; Shortleaf False Willow; Shortleaf False-willow; Shortleaf Seepwillow. DESCRIPTION: Terrestrial perennial subshrub or shrub (erect stems 8 inches to 5 feet in height; plants were observed and described as being 2 feet in height and width, one plant was observed and described as being 24 inches in height and 40 inches in width, one plant was observed and described as being 40 inches in height and width); the branches are green or yellow-green; the leaves are yellow-green; the flower heads may be dull cream, greenish-white or white; flowering generally takes place between mid-August and early November (additional records one for early April and one for late November; flowering beginning in July has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; bouldery and rocky canyon bottoms; gorges; rocky buttes; foothills; rocky hills; rocky hillsides; bouldery-rocky, rocky, rocky-sandy, gravelly, sandy and clayey-loamy slopes; bajadas; amongst boulders; lava flows; stabilized debris flows; plains; gravelly and sandy flats; rocky roadsides; arroyos; along sandy bottoms of arroyos; rocky draws; gullies; springs; streambeds; along creeks; along and in rocky, shaley, gravelly, gravelly-sandy and sandy washes; in shallow drainages; in drainage ways; (gravelly) banks of arroyos, creeks, rivers, washes and drainages; borders of washes; rocky and sandy beaches; alluvial terraces; floodplains; dams, and gravelly-sandy, sandy and loamy riparian areas growing in moist and dry bouldery, bouldery-rocky, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, clayey loam and loam ground, and gravelly clay ground, occurring from 900 to 5,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Small bees, bombyliids, digger wasps, Great Purple Hairstreak, Snout Butterfly and tarantula hawk wasps have been observed visiting the flowers. *Baccharis brachyphylla* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 43 (111209), 44 (021412), 46 (Page 883), 58, 63 (021412), 77, **85** (021412 - color presentation), **89** (reported as being a half-shrub located on the Mesa-like Mountain Slopes, recorded as *Baccharis wrightii*), 124 (021412 - no record of species; genus record), 140 (Page 283)*

Baccharis glutinosa (see *Baccharis salicifolia*)

***Baccharis salicifolia* (H. Ruiz Lopez & J.A. Pavon) C.H. Persoon: Mule-fat**

SYNONYMY: *Baccharis glutinosa* C.H. Persoon. COMMON NAMES: Azumiate (Hispanic); Ba'asham <baashoma> (Uto-Aztecan: Mountain Pima)[140]; Bacho'ma <bachomo> (Uto-Aztecan: Mayo)[140]; Bachomo (Hispanic); Baldag Shi (Hispanic); Bašam (Uto-Aztecan: Onavas Pima)[140]; Batamote (Spanish: Mexico, Sonora); Batamote [Guatamotie] (Spanish: Baja California, California, Sinaloa, Sonora)[140]; Black Willow (a name also applied to other species, Santa Barbara County, California); Broom Baccharis; Caaöj (Hokan: Seri)[140]; Čaguši <čagu'ši> (Uto-Aztecan: Tarahumara)[140]; Chamiso (Hispanic); Chamiso del Rio (Hispanic); Chilca; Cucamoarisha (Cora); Cuerepillo (Hispanic); Dsea Miis Ro (Hispanic); Dsea Miis Tee (Hispanic); False Water Willow; False Water-motie; False Water-wally; False Willow (a name also applied to other species); Gila Water-motie; Gila Water-wally; Gila Water Willow; Gila Willow; Groundsel Tree (a name also applied to the genus *Baccharis*); Groundsel Tree (English)[140]; Guachomó <uachama> (Uto-Aztecan: mountain Guarijío)[140]; Guagualuasi (Uto-Aztecan: mountain Guarijío)[140]); Guamate; Guatamote (Hispanic); Guatemote (Spanish); Guatarote (Hispanic); Hamaséiva (Yuman: Havasupai)[140]; Hamḍavil (Yuman: Walapai)[140]; Hanta Veél (Yuman: Mohave and Yuma)[140]; Hierba del Carbonero ("Charcoal Maker's Herb", Spanish: Valley of Mexico)[140]; Hierba del Pasmo (Spanish); Huamate; Jara ("Arrow", Spanish: Guanajuato, Texas)[140]; Jara Amarilla (Hispanic); Jara Mexicana (Hispanic); Jaral (Spanish: Guanajuato, Tamaulipas)[140]; Jarilla [Jarillo del Río] (Little [River] Arrow", Spanish: Chihuahua, Durango, Sinaloa, Sonora)[140]; K'ídzítso Bi'tsiin Łigai <k'ił̨coi bicin łagai> (Athapascan: Navajo)[140]; KáaW (Seri); Mb'axu (Oto-Manguean: Mazahua)[140]; Mule Fat; Mule-fat; Mule's Fat (English: Arizona, New Mexico)[140]; Mule's-fat; Mulefat; Mulefat Baccharis; Mulesfat; Ñehol ("Servant", Uto-Aztecan: Tohono O'odham); Ñehol ("Servant", Uto-Aztecan: Tohono O'odham)[140]; Oágam ("Brains or Marrow", Uto-Aztecan: Akimel O'odham)[140]; Paq'ily <paki> (Uto-Aztecan: Cahuilla)[140]; Pogosɨvɨ (Uto-Aztecan: Kawaiisu)[140]; Romerello; Rosin Brush; Seep Willow (a name also applied to other species); Seep Willow Baccharis; Seep-willow (a name also applied to other species); Seep-willow (English)[140]; Seep-willow Baccharis; Seepwillow (a name also applied to other species); Seepwillow Baccharis; Shu' (Chumash: Barbareño and Ineseño Chumash)[140]; Sticky Baccharis; Sticky False-willow; Sticky Seep-willow; Ṣu:ṣk Kuasĭ <šu:šk, susk, kuagsig> (Uto-Aztecan: Hiá Ceḍ O'odham, Sonora)[140]; Ṣuṣk Ku'agi <šu:šk kuagsig> (Uto-Aztecan: Tohono O'odham)[140]; <tłeł> (Athapascan: Western Apache)[140]; Tóeejí Béé'ditó <tóʔiɜˇi keƛ'o> (Athapascan: Navajo)[140]; Togzten (Hispanic); Tu Ta' Vi (Hispanic); Uachamo (Uto-Aztecan: Mayo, Sonora)[140]; Vara Dulce ("Sweet Bush", Spanish: Chihuahua)[140]; Waʔlurúbisi <waʔerúgesi> (Uto-Aztecan: Guarijío)[140]; Water Motie; Water-motie; Water-motor (California); Water Wally; Water Willow (a name also applied to other species); [False, Gila] Water Willow [Water-motie, Water-Wally] (English)[140]; Water-wally; Watermotie; Waterwally; Waterwillow; Willow Groundsel-tree; Willow Leafed Baccharis; Willow-leaf Baccharis; Willow-leaf False-willow; Willow-

leafed Baccharis; Willow-leaved Baccharis; Wita' (Chumash: Ventureño Chumash)[140]; Xa'tam Mual (Yuman: Paipai)[140]; Xantavaíl$_y$ (Yuman: Maricopa)[140]; Yerba del Pasmo ("Herb for Pasmo" a name also applied to other species, Spanish: Chihuahua)[140]. DESCRIPTION: Terrestrial perennial deciduous shrub (clustered ascending and/or erect stems 1 to 15 feet in height; plants were observed and described as being 10 feet in height forming clones 6 to 13 feet in width); the bark is gray; the stems may be green to tan; the leaves may be gray or green; the disc florets (no ray florets) may be cream, cream-maroon, cream-maroon-purple, cream-white, grayish-white, off white, white, white-magenta, whitish-yellow or yellow; flowering generally takes place between mid-January and mid-November (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky and sandy mesas; bouldery-rocky, rocky and rocky-sandy canyons; sandy canyon bottoms; along rocky, sandy and sandy-silty canyon bottoms; chasms; talus; bases of cliffs; foothills; hills; rocky hillsides; rocky, gravelly, sandy, sandy-loamy, sandy-clayey-loamy clayey-loamy, loamy and clayey slopes; bajadas; amongst rocks; alcoves; sand dunes; plains; rocky-sandy, sandy and clayey flats; valley floors (bolsons); coastal dunes; along railroad right-of-ways; along gravelly-sandy, sandy and sandy-loamy roadsides; along and in rocky and sandy arroyos; clayey bottoms of arroyos; draws; gullies; ravines (barrancas); seeps; gravelly and sandy springs; seeping springs; silty soils along streams; in bouldery-rocky, rocky and sandy streambeds; along and in bouldery creeks; along and in sandy creekbeds; along rivers; along and in rocky, gravelly, sandy and silty riverbeds; along and in bouldery-sandy, rocky, cobbly, gravelly, gravelly-sandy, sandy and silty washes; along and in bouldery-rocky and rocky-clayey drainages; along and in sandy drainage ways; along watercourses; bases of waterfalls; rock tanks; around and in ponds; lakebeds; playas; ciénegas; freshwater and saltwater marshes; swampy areas; depressions; along (sandy) banks of arroyos, springs, streams, streambeds, creeks, rivers, washes and pools; borders of washes; along (sandy, sandy-silty and clayey) edges of springs, streams, creeks, rivers, washes, ponds, lakes, playas and saltmarshes; along (clayey-loamy) margins of streams, washes and lakes; (rocky-sandy and sandy) shores of rivers and lakes; mudflats; gravel and sand bars; sandbanks; shell-mantled beach ridges; rocky and sandy beaches; sandy benches; bouldery-gravelly-sandy terraces; gravelly and sandy bottomlands; sandy floodplains; lowlands; along dikes; along dam outlets; margins of stock tanks (charcos); reservoirs; along canals; along ditches; muddy, rocky-gravelly-sandy, rocky-sandy and sandy riparian areas, and disturbed areas growing in shallow water and wet, moist, damp and dry ground in bouldery, bouldery-rocky, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly, cobbly-loamy, gravelly, gravelly-sandy and sandy ground; sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as tools, as a drug or medication and as a commodity used in personal hygiene (the leaves were used in a hair wash solution to prevent baldness). Seep Willow is useful in controlling watercourse erosion and slowing stream flow. Bees and butterflies have been observed visiting the flowers. *Baccharis salicifolia* is native to southwest-central and southern North America; Central America, and South America. *5, 6, 13 (recorded as *Baccharis glutinosa* Pers., Page 335), 15 (recorded as *Baccharis glutinosa* Pers.), **16**, 28 (recorded as *Baccharis glutinosa*, color photograph 264), 30, 43 (111209), 44 (051111), 46 (recorded as *Baccharis glutinosa* Pers., Page 884), 48 (recorded as *Baccharis glutinosa*), 58 (recorded as *Baccharis glutinosa* Pers.), 63 (021512 - color presentation), 68, **77**, **85** (021612 - color presentation), **89** (reported as being a shrub located on the Santa Cruz Flood-plain, recorded as *Baccharis viscosa* (R. & P.) Kuntze), 115 (color presentation), 124 (051111), 127, 134, 140 (Pages 57-59, 60 & 283)*

Baccharis sarothroides A. Gray: Desertbroom

COMMON NAMES: A:n <'a:ñ> (Uto-Aztecan: Tohono O'odham)[140]; Amargo; Batamote <guatamote, huatemote> (Spanish: Mexico)[140]; Broom Baccharis; Broom Seep Willow; Broom Seep-willow; Caasot Caocl (Seri); Casol Caacöl (Hokan: Seri)[140]; Desert Broom; Desert Broom False Willow; Desert Broom False-willow; Desert-broom (English: Arizona, New Mexico)[140]; Desert-broom False Willow; Desert-broom False-willow; Desertbroom; Desertbroom Baccharis; Escoba; Escoba Amarga ("Bitter Broom", Spanish: Baja California)[140]; Grease-wood (a name also applied to other species); Grease-wood (English)[140]; Greasewood (a name also applied to other species); Groundsel (a name also applied to other species and the genus *Baccharis*); Hierba del Pasmo ("Herb for Pasmo", Spanish: Baja California)[140]; ʔI:x^{w}ír (Yuman: Cocopa)[140]; Mexican Broom; Romerillo ("Little Rosemary", Spanish: Sonora)[140]; Rosin Brush; Rosin Bush (a name also applied to other species); Rosin-brush (a name also applied to other species); Rosinbrush (a name also applied to other species); Shooshk Vakch ("Wet Shoes", Pima); Shuushk Vakchk ("Wet Sandals/Shoes", Uto-Aztecan: Akimel O'odham)[140]; Soosk Vaks ("Wet Shoes", questionably Maricopa); Ṣuṣk Kuagĭ <su:sk, ṣuṣk kuagig> (Uto-Aztecan: Hiá Ceḍ O'odham, Sonora)[140]; Ṣuṣk Wakc <ṣuuṣk wakchk, šu:šk uwakita> (Uto-Aztecan: Tohono O'odham)[140]; Wet Shoes. DESCRIPTION: Terrestrial perennial deciduous shrub (erect stems 3 to 13 feet in height; one plant was observed and described as being 40 inches in height and 40 inches in width, one plant was observed and described as being 7 feet in height and 8 feet in width); the foliage is green or yellow-green; the flower heads (dioecious) may be cream, golden, rust, white or yellow; flowering generally takes place between mid-September and late February (additional records: one for mid-March, two for late March, two for mid-April, one for late April, one for mid-July, one for early August and one for late August). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky canyons; canyon bottoms; chasms; ridges; foothills; silty-clayey hills; rocky hillsides; bouldery-gravelly, rocky, gravelly-loamy and loamy slopes; bajadas; debris fans; terraces; sandy plains; rocky and gravelly flats; rocky valley floors; coastal plains; along rocky, rocky-gravelly-sandy-clayey-loamy, rocky-gravelly-sandy-silty-clayey-loamy, gravelly-loamy and sandy roadsides; along sandy arroyos; along sandy and clayey bottoms of arroyos; draws; gulches; gullies; springs; along

streams; streambeds; along gravelly-sandy creeks; gravelly and sandy creekbeds; along rivers; along bouldery-cobbly-sandy, rocky-sandy, gravelly and sandy riverbeds; along and in cobbly, gravelly and sandy washes; along drainages; along drainage ways; waterholes; playas; ciénegas; oases; along (gravelly and sandy) banks of arroyos, rivers and washes; borders of washes; edges of washes; sandy beaches; sandy benches; terraces; bottomlands; floodplains; lowlands; mesquite bosques; along canals; along ditches; muddy and sandy riparian areas, and disturbed areas growing in muddy and damp and dry bouldery-cobbly-sandy, bouldery-gravelly, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, rocky-gravelly-sandy-silty-clayey loam, gravelly loam and loam ground; silty clay and clay ground, and sandy silty ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider planting only male plants to eliminate seed production. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial beverage and/or fiber crop; it was also noted as having been used in the making of weapons and as a drug or medication. The pollen produced by male plants of this species may cause an allergic reaction in some individuals. *Baccharis sarothroides* is native to southwest-central and southern North America. *5, 6, 13 (Pages 338, 339-340), 15, **16**, 18, 26 (color photograph), 28 (color photograph 265), 43 (111209), 44 (033111), 46 (Page 883), 48, **56**, **57**, 58, 63 (021712), 77, **85** (021712 - color presentation including habitat), **89** (reported as being a shrub located on the Mesa-like Mountain Slopes, recorded as *Baccharis emoryi* Gray), 115 (color presentation), 124 (033111 - no record of species; genus record), 127, 140 (Pages 59-60, 79, 87 & 283), ADS (Tuesday, January 10, 2012, "Broom nothing to sneeze at," page A1), **WTK** (October 28, 2009)*

Baccharis emoryi (see footnote 89 under *Baccharis sarothroides*)

Baccharis viscosa (see footnote 89 under *Baccharis salicifolia*)

Baccharis wrightii (see footnote 89 under *Baccharis brachyphylla*)

Baeria chrysostoma (see *Lasthenia californica* subsp. *californica*)

Baeria chrysostoma var. *gracilis* (see *Lasthenia californica* subsp. *californica*)

Baeria gracilis (see footnote 89 under *Lasthenia californica* subsp. *californica*)

***Bahia absinthifolia* G. Bentham: Hairyseed Bahia**

COMMON NAMES: Bahia (a name also applied to the genus *Bahia*); Hairyseed Bahia. DESCRIPTION: Terrestrial perennial forb/herb (erect stems 4 inches to 2 feet in height; plants were observed and described as being 12 to 18 inches in height and width); the herbage may be gray, gray-green, light green, silvery-gray-green or white woolly; the disk florets may be orange, orange-yellow or yellow; the ray florets are yellow; flowering generally takes place between mid-March and mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; sandy-loamy plateaus; cliff faces; rocky canyons; talus; shaley ridges; rocky ridgetops; foothills; clayey hills; rocky hillsides; bouldery escarpments; bedrock, rocky, rocky-gravelly, rocky-loamy, gravelly, clayey and silty-clayey slopes; alluvial fans; gravelly and sandy bajadas; gravelly pediment fans; rocky outcrops; amongst creosote bushes; sand dunes; sandy banks; plains; gravelly and sandy flats; basins; rocky and sandy valley floors; along rocky and sandy roadsides; within arroyos; clayey bottoms of arroyos; draws; gullies; within gravelly and sandy washes; swales; banks of ravines; terraces; floodplains; lowlands; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, shaley, gravelly and sandy ground; rocky loam and sandy loam ground; silty clay and clay ground, and sandy silty ground, occurring from 1,800 to 8,800 feet, in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Bahia absinthifolia* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph 395), 43 (111309), 44 (051111 - no listing under Common Names), 46 (Page 925), 63 (021712 - color presentation), 77 (color photograph #16), **85** (021712 - color presentation including habitat), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (051111 - no record of species; genus record), 140 (Page 283 - recorded as *Bahia absinthifolia* var. *dealbata* (A. Gray) A. Gray)*

***Baileya multiradiata* W.H. Harvey & A. Gray ex A. Gray: Desert Marigold**

SYNONYMY: *Baileya multiradiata* W.H. Harvey & A. Gray ex A. Gray var. *thurberi* (P.A. Rydberg) M.T. Kittell. COMMON NAMES: Baileya del Desierto; Cloth-of-gold; Desert Baileya; Desert Marigold (a name also applied to the genus *Baileya*); Desert-marigold (a name also applied to the genus *Baileya*); Hierba Amarilla (Spanish); Many-flowered Desert Marigold; Many-flowered Desert-marigold; Many-ray Desert-marigold; Many-rayed Desert-marigold; Paper Daisy (a name also applied to other species); Paper Flower Desert-marigold; Paper-flower Desert-marigold; Paperdaisy; Showy Desert Marigold; Showy Desert-marigold; Wild Desert-marigold; Wild Marigold (a name also applied to other species). DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (ascending and/or erect stems 6 to 40 inches in height); the foliage may be gray-green, gray-white-green, grayish and woolly or silvery-green; the flower heads (1½ to 2 inches in width) may be lemon-yellow, orange, light yellow or yellow; flowering generally takes place between mid-January and late December but may continue year round under favorable conditions. HABITAT: Within the range of this species it has been reported from

mountains; rocky and sandy mesas; rocky plateaus; rocky and sandy canyons; sandy pockets of soil in rocks; rocky bluffs; buttes; bedrock and sandy ridges; foothills; rocky, gravelly and gravelly-sandy hills; rocky, rocky-gravelly, sandy-clayey and clayey hillsides; rocky hilltops; rocky, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and sandy-clayey slopes; rocky-sandy alluvial fans; bajadas; amongst rocks; sand hills; sand dunes; sandy embankments; bench tops; terraces; prairies; gravelly and sandy plains; gravelly, sandy and sandy-loamy flats; rocky bowls; valley floors; along gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; within stony-gravelly-sandy arroyos; bottoms of arroyos; stony and gravelly draws; along streams; sandy streambeds; sandy creekbeds; along rivers; rocky riverbeds; within rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; depressions; swales; (sandy) banks of rivers and washes; borders of washes; (gravelly) edges of washes; benches; gravelly terraces; sandy and loamy bottomlands; floodplains; ditch banks; riparian areas, and disturbed areas growing in damp and dry rocky, rocky-gravelly, rocky-sandy, stony, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam and loam ground, and gravelly clay, sandy clay and clay ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop; it was also noted as being a commodity used in personal hygiene. The larva of the the Desert Marigold Moth (*Schinia minima*) uses the flower head in its development. Consider seeding Desert Marigold with native Lupines (*Lupinus* spp.) and Globemallows (*Sphaeralcea* spp.) for a late winter and early spring desert wildflower display. *Baileya multiradiata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18, 28 (color photograph 397), 43 (111309), 44 (051111), 46 ("It is said that horses crop the heads, but fatal poisoning of sheep and goats eating this plant on overgrazed ranges has been reported.", Page 915), 48, 58, 63 (021712 - color presentation including habitat), 68 ("Desert Baileya, either fresh or dried, is poisonous to sheep and goats, but not to horses or cattle. The plant is not palatable to sheep, but the showy flower heads are relished, however, the flowering and fruiting heads are nearly twice as poisonous as the green leaves. Goats evidently do not graze the plant under range conditions, but have been poisoned in experimental feeding. Sheep losses from Desert Baileya have occurred in Arizona when green forage is scarce."), 77 (color photograph #17), 80 (This plant is listed as a Secondary Poisonous Range Plant. "The toxic principle is an unknown water-soluble compound. Plants are toxic to sheep on the range in both the green and dry state. ... Goats have been poisoned by experimental feeding but apparently do not eat the plant on the range. Both cattle and horses graze the plant on the range but no losses have been observed. Losses generally occur only when other feed is short or animals are trailed through dense stands." See text for additional information.), **85** (021812 - "*Baileya multiradiata* is reportedly toxic to livestock, especially to sheep and goats, where losses as high as 25% have been reported on overgrazed rangeland in Texas (D. W. Hill et al. 1979, 1980). Cattle and horses seem to be unaffected, or at least poisoning of these animals has gone unreported. The chemical agent responsible is believed to be hymenoxon, a sesquiterpene lactone originally found in the genus *Hymenoxys*, where it is also toxic.", color presentation), 86 (color photograph), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (051111 - no record of genus or species), 127, **WTK** (May 15, 2011)*

Baileya multiradiata var *multiradiata* (see *Baileya multiradiata*)

Baileya multiradiata var. *thurberi* (see *Baileya multiradiata*)

***Bebbia juncea* (G. Bentham) E.L. Greene: Sweetbush**

COMMON NAMES: Bebbia (var. *aspera*, a name also applied to the genus *Bebbia*); Chuckwalla Delight; Chuckwalla's Delight; Chuckwalla's Delight (var. *aspera*); Junco; Rush Bebbia; Rush Sweet Bush (var. *aspera*); Rush Sweet-bush (var. *aspera*); Rush Sweetbush (var. *aspera*); Sweetbush (a name also applied to the genus *Bebbia*); Sweetbrush Bebbia. DESCRIPTION: Terrestrial perennial subshrub or shrub (16 inches to 5 feet in height; one plant was observed and described as being 16 inches in height and 16 inches in width, one plant was observed and described as being 20 inches in height and 26 inches in width, one plant was observed and described as being 40 inches in height and 40 inches in width); the older stems are brown; the younger stems and leaves may be gray-green or green; the flowers (½ inch in width - disk flowers only, no ray flowers) may be cream, gold, golden-yellow, orange, orange-yellow, yellow or yellow-orange; flowering may take place throughout the year. HABITAT: Within the range of this species it has been reported from mountains; mountain summits; rocky mountainsides; rocky-sandy and sandy mesas; plateaus; cliffs; rocky cliff faces; bases of cliffs; rocky and rocky-sandy canyons; rocky canyon walls; rocky and rocky-sandy canyon bottoms; rocky and gravelly-sandy bluffs; buttes; sandy-loamy ridges; foothills; bouldery and rocky hills; rocky and gravelly hillsides; bedrock, bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, rocky-loamy, rocky-clayey-loamy, shaley, gravelly and sandy slopes; bases of slopes; bouldery-stony-gravelly-sandy alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; lava flows; sand dunes; sandy plains; rocky-cobbly-sandy, gravelly and sandy flats; sandy valley floors; coastal terraces; coastal plains; beach dunes; coastal beaches; rocky roadcuts; along gravelly and sandy roadsides; within rocky-gravelly and sandy arroyos; along rocky and sandy bottoms of arroyos; rocky and sandy draws; within rocky gulches; bottoms of gulches; within rocky gullies; seeps; silty springs; along streams; streambeds; along creeks; in rocky and sandy creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within rocky and gravelly drainages; within sandy drainage ways; (bouldery, rocky, stony, gravelly and gravelly-sandy) banks of rivers and washes; borders of washes; (bouldery-sandy) edges of streams, rivers, washes, ponds, lakes and riparian areas; margins of arroyos and washes; (bouldery and sandy) shores of rivers and lakes; sand bars; rocky, rocky-sandy, gravelly and sandy beaches; sandy benches; sandy terraces; sandy-loamy floodplains; rocky-sandy

levees; canals; canal banks; rocky riparian areas; recently burned areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-stony-gravelly-sandy, bouldery-gravelly, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, shaley, cobbly, cobbly-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, sandy loam, clayey loam and silty loam ground, and silty ground, occurring from sea level to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The flowers are reportedly sweet-scented. *Bebbia juncea* is native to southwest-central and southern North America. *5, 6, 13, **16**, 42 (050713), 43 (061409), 44 (050713 - color photograph), 46 (Page 912), 63 (050713 - color presentation), **85** (050713 - color presentation), **89** (reported as being a half-shrub located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (051111 - no record of genus or species), 140 (Page 85), **WTK** (May 15, 2011)*

***Bidens leptocephala* E.E. Sherff: Fewflower Beggarticks**

COMMON NAME: Acahual [Acuahualillo] (Spanish: Mexico)[140]; Aceitilla ("Little Oily One", Spanish: Edo. México, San Luis Potosí)[140]; Bur Marigold (a name also applied to the genus *Bidens*); Bur Marigold (English)[140]; Bur-marigold (a name also applied to the genus *Bidens*); Ch'il Hosh (Athapascan: Navajo)[140]; Few-flower Beggar Ticks; Few-flower Beggar-ticks [Fewflower Beggarticks] (a name also applied to other species, English)[140]; Few-flower Beggarticks; Fewflower Beggarticks; Mozote (a name also applied to other species, Spanish: Mexico)[140]; Saitilla (Spanish); Tickseed (a name also applied to the genus *Bidens*). DESCRIPTION: Terrestrial annual forb/herb (4 inches to 3 feet in height); the leaves are medium green; the disk florets may be white (rarely), whitish, yellow or yellowish; small ray florets may be white (rarely), whitish, yellow or yellowish; flowering generally takes place between mid-August and early November. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; along sandy canyon bottoms; pockets of soil in boulders; meadows; hills; along gravelly hillsides; rocky, gravelly and silty-loamy slopes; bajadas; bedrock outcrops; amongst gravels and sands; gravelly flats; valley floors; along rocky-clayey roadsides; gravelly arroyos; rocky draws; along streams; along streambeds; along creeks; along creekbeds; along rivers; along and in gravelly, gravelly-sandy, sandy and clayey washes; along drainages; swales; (silty) banks of creeks and rivers; (rocky) edges of streams; sand bars; gravelly benches; terraces; floodplains; mesquite bosques; riparian areas, and waste places growing in moist and dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; sandy loam and silty loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from 1,600 to 8,000 feet in elevation in the forest, woodland; scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Bidens leptocephala* is native to southwest-central and southern North America. *5, 6, 15, 43 (061409), 44 (021812 - no record of species; genus record), 46 (Page 911), 58, 63 (021812 - color presentation), **85** (021812 - color presentation), 124 (021812 - no record of species; genus record), 140 (Pages 60-61 & 283)*

Bigelowia hartweggii (see note under *Isocoma tenuisecta*)

***Brickellia californica* (J. Torrey & A. Gray) A. Gray (var. *californica* is the variety reported as occurring in Arizona): California Brickellbush**

COMMON NAMES: 'Azee' Dich'íízh <ʔazeʔ dičíž> (Athapascan: Navajo)[140]; Bił Háách'i <bilha.zefʾn> ("Its Scent is Carried on the Breeze", Athapascan: Navajo)[140]; Brickellbush (a name also applied to the genus *Brickellia*); [California] Bricklebush [Brickellbush] (English)[140]; California Boneset; California Brickle-bush; California Brickelbush; California Brickell Bush; California Brickell-bush; California Brickellbush; California Brickellia; California Bricklebush; California Tasselflower; Canyon Bricklebush; False Boneset (a name also applied to the genus *Brickellia*); False Boneset (English)[140]; Hamula ("Hooked", Spanish: Mexico)[140]; Hierba <yerba> de la Vaca ("Cow Herb", Spanish: New Mexico, Mexico, Baja California)[140]; Kwaq Impal (Yuman: Paipai)[140]; Pachaba (Spanish: Arizona)[140]; Patcavu (Uto-Aztecan: Hopi)[140]; Prodigiosa ("Marvelous" a name also applied to other species, Spanish: Mexico)[140]; Tséghą́ą́'ʻadisxas <cek'i.nʔalcizi> (Athapascan: Navajo)[140]. DESCRIPTION: Terrestrial perennial subshrub or shrub (stems (branched from near base) 1 to 7 feet in height; plants were observed and described as being 28 inches in height and width, plants were observed and described as being 28 inches in height and 5 feet width, plants were observed and described as being 40 inches in height and width, plants were observed and described as being 40 inches in height and 80 inches in width); the branches may be gray or white; the leaves may be gray-green, dark green or green tinged with dark purple; the florets may be cream, cream-pink, cream-white, greenish, greenish-yellow, red-purple, white, yellow, pale yellow-green, yellow-green or pale yellowish; flowering generally takes place between early July and early December. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; mesas; mesa rims; bases of mesas; plateaus; rocky rims; along rocky cliffs; hanging gardens; bases of cliffs; along bouldery-sandy, rocky and gravelly canyons; rocky-sandy canyonsides; rocky bases of canyon walls; along bouldery, rocky, rocky-gravelly and rocky-sandy-silty canyon bottoms; rock clefts; rocky gorges; bouldery and rocky talus slopes; (sandy) crevices in bedrock, boulders and rocks; along bluffs; buttes; rocky ledges; rocky and rocky-clayey ridges; sandy ridgetops; bouldery ridgelines; openings in forests and chaparral; rocky-sandy rims of craters; foothills; rocky hills; rocky and rocky-sandy hillsides; escarpments; rocky, rocky-clayey, rocky-clayey-loamy, shaley, stony-loamy, cindery, gravelly, gravelly-clayey, sandy, sandy-clayey, sandy-silty-loamy, loamy, clayey and clayey-loamy slopes; sandy alluvial fans; bajadas; bouldery and rocky outcrops; bases of rock outcrops; amongst boulders, rocks and cobbles; bases of rocks; lava flows; lava fields; lava beds; sand dunes; rocky banks; debris flows; rocky, cindery and sandy flats; valley floors; along rocky and rocky-shaley roadsides; along and in gravelly arroyos; rocky bottoms of arroyos; draws; rocky ravines; seeps; bouldery, gravelly, gravelly-sandy and sandy springs; along streams; along and in bouldery-rocky, rocky-cobbly and gravelly streambeds; along creeks; along and in rocky-sandy and sandy creekbeds; along rivers; in gravelly riverbeds; along and in rocky, rocky-sandy, cobbly, gravelly and sandy washes; bouldery

drainages; along rocky drainage ways; bogs; ciénegas; (rocky) banks of arroyos, ravines, rivers and washes; borders of washes; along (gravelly-sandy) edges of rivers and washes; (sandy) margins of creeks; gravelly-sandy and sandy beaches; benches; terraces; floodplains; muddy, rocky, sandy and sandy-clayey riparian areas, and disturbed areas growing in muddy and damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-shaley, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, stony loam, gravelly loam, sandy-silty loam, clayey loam and loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and rocky-sandy silty ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food/beverage crop (the leaves were used as a substitute for tea); it was also noted as having been used as a drug or medication. *Brickellia californica* is native to southwest-central and southern North America. *5, 6, 13 (Pages 346-347), 15, **16**, 43 (111409), 44 (021912 - color presentation), 46 (Page 849), 48 (genus), 58, 63 (021912 - color presentation), 77, **85** (012111 - color presentation), 124 (021912), 127, 140 (Pages 62-63 & 283)*

***Brickellia coulteri* A. Gray: Coulter's Brickellbush**

SYNONYMY: *Brickellia coulteri* A. Gray var. *coulteri*. COMMON NAMES: Brickellbush (a name also applied to the genus *Brickellia*); Coulter Brickellbush; Coulter's Brickellbush. DESCRIPTION: Terrestrial perennial subshrub or shrub (stems (branched from base) 1 to 5 feet in height); the florets may be cream, cream-maroon-purple, cream-purple, cream-white, cream-yellow, green, greenish-yellow, purplish, purplish-brown, white, yellow, pale yellow-green (often tinged with purple) or yellow-green; flowering generally takes place between late January and late December. HABITAT: Within the range of this species it has been reported from bouldery mountains; rocky and gravelly-sandy mountainsides; mesas; cliffs; cliff faces; bases of rocky cliffs; rocky and rocky-sandy canyons; along rocky canyon bottoms; rocky talus slopes; crevices in rocks; rocky ledges; rocky ridges; clearings in woodlands; foothills; rocky hills; gravelly-clayey-loamy hilltops; rocky hillsides; bedrock, rocky and gravelly slopes; bajadas; rocky outcrops; amongst boulders and rocks; plains; flats; basins; valley floors; roadcuts; along roadsides; rocky, gravelly and sandy arroyos; rocky and sandy bottoms of arroyos; rocky draws; rocky walls of ravines; springs; along streams; along bouldery and bouldery-rocky streambeds; along rivers; riverbeds; along and in rocky, rocky-gravelly, gravelly, gravelly-sandy, gravelly-loamy and sandy washes; rocky and pebbly drainages; bouldery and rocky drainage ways; around waterholes; along (sandy and silty-loamy) banks of streams, washes and drainages; borders of washes; (rocky) edges of rivers, riverbeds and washes; along (rocky and sandy) margins of arroyos; bottomlands; floodplains; mesquite woodlands; rocky and gravelly-sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, silty loam and loam ground, and rocky clay ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers are reported to be fragrant. *Brickellia coulteri* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color photograph 458), 43 (111409), 44 (021912 - no record of species; genus record), 46 (Page 849), 48 (genus), **56**, **57**, 58, 63 (021912), 77, **85** (021912 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill), 115 (color presentation), 124 (021912 - no record of species; genus record), 140 (Pages 63 & 283 - recorded as *Brickellia coulteri* A. Gray var. *coulteri*)*

Brickellia coulteri var. *coulteri* (see *Brickellia coulteri*)

***Calycoseris wrightii* A. Gray: White Tackstem**

COMMON NAMES: Pale Tack Plant; Pale Tackplant; Tackstem (a name also applied to the genus *Calycoseris*); White Cup-fruit; White Cupfruit; White Tack Stem; White Tack-stem; White Tackstem; Wright Cup-fruit; Wright Tack-stem; Wright Tackstem; Wright's Cup-fruit; Wright's Tack-stem; Wright's Tackstem. DESCRIPTION: Terrestrial annual forb/herb (erect stems 10 to 12 inches in height); the stems are green and covered with straw-colored glands; the leaves are gray-green; the disc florets may be creamy-yellow or whitish-yellow; the ray florets are white (with magenta stripes on underside) turning pinkish or purplish with age; flowering generally takes place between late January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky canyons; buttes; ridges; bouldery and rocky ridgetops; cinder cones; foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly-loamy, rocky-sandy, stony, gravelly, gravelly-sandy and sandy slopes; rocky and gravelly alluvial fans; gravelly, gravelly-loamy and sandy bajadas; rocky outcrops; gravelly plains; gravelly, gravelly-clayey, sandy-clayey, sandy-clayey-loamy and loamy flats; sandy basins; valley floors; along rocky, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, gravelly-loamy and sandy roadsides; within arroyos; along and in rocky, gravelly and sandy washes; along drainages; gravelly drainage ways; edges of ciénegas; sandy benches; terraces; canal banks; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam and loam ground; gravelly clay and sandy clay ground, and gravelly-sandy silty ground, occurring from 400 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Calycoseris wrightii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 260), 43 (111409), 44 (021912 - color photograph), 46 (Page 964), 58, 63 (021912 - color presentation), 77, **85** (021912 - color presentation), 86 (note under *Rafinesquia neomexicana*), **89** (reported as being a winter annual herb located on Tumamoc Hill), 115 (color presentation), 124 (021912 - no record of species or genus)*

***Castalis tragus* (W. Aiton) N.T. Norlindh: Cape Marigold**

SYNONYMY: *Dimorphotheca aurantiaca* A.P. de Candolle, non Horton; *Dimorphotheca tragus* (W. Aiton) R.B. Nordenstam. COMMON NAMES: African Daisy; Cape Marigold (a name also applied to the genus *Dimorphotheca*). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 4 to 12 inches in height); the flower heads may be orange or yellow; based on few flowering records located, flowering generally takes place between early February and mid-April (flowering records [two for early February, three for late February, one for early March, three for mid-March, ten for late March, two for early April, one for mid-April] and one for early September). HABITAT: Within the range of this species it has been reported from mountains; canyons; foothills; slopes; plains; gravelly flats; roadsides; along washes, and disturbed areas growing in dry gravelly and sandy ground, occurring from 300 to 6,800 feet in elevation in the desertscrub ecological formation. NOTES: EXOTIC Invasive Plant. *Castalis tragus* is native to southern Africa. *5, 6, **16** (recorded as *Dimorphotheca aurantiaca* DC.), 18, 43 (021912 - *Castalis tragus* (Ait.) Norl.; *Dimorphotheca tragus* (Aiton) R.B. Nordenstam), 44 (021912 - no record of species or genus), 46 (no record), 63 (021912 - color presentation of seed), 77 (recorded as *Dimorphotheca sinuata* DC. [*D. aurantiaca* Hort., non DC.]), **85** (021912 - color presentation of dried material), 124 (021912 - no record of species or genus)*

***Centaurea melitensis* C. Linnaeus: Maltese Star-thistle**

COMMON NAMES: Cardo (Spanish); Centáurea-estrela-de-malta (Portuguese: Brazil); Cockspur Thistle; Coix de Malte (French); Malta Centaurea; Malta Star Thistle; Malta Star-thistle; Malta Starthistle; Malta Thistle; Maltese Centaury; Maltese Cockspur; Maltese Star Thistle; Maltese Star-thistle; Maltese Starthistle; Maltese Thistle; Malteser Flockenblume (German); Napa Star Thistle; Napa Star-thistle; Napa Starthistle; Napa Thistle; Saucy Jack; Spotted Knapweed (a name also applied to other species); Star-thistle (a name also applied to the genus *Centaurea*); Tocalote; Tocolote. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 4 to 40 inches in height); the foliage is blue-green or dull green; the flower heads are yellow; flowering generally takes place between early March and late July (additional records: one for mid-August, one for late August, one for early September and one for early October). HABITAT: Within the range of this species it has been reported from mountains; mesas; clayey cliffs; canyons; sandy and clayey canyon bottoms; rocky edges of bluffs; sandy-loamy ridges; clayey ridgetops; openings in forests and woodlands; meadows; hills; rocky and rocky-sandy hillsides; rocky, rocky-loamy-clayey, rocky-clayey, sandy-silty, loamy and clayey slopes; bajadas; sand hills; gravelly banks; plains; flats; valley floors; coastal marshes; railroad right-of-ways; along gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-clayey loam, sandy-loamy and clayey roadsides; along arroyos; draws; gulches; springs; along creeks; along rivers; riverbeds; along and in gravelly and sandy washes; salt marshes; depressions; banks of streams and lakes; along edges of washes and lagoons; sand bars; silty benches; sandy terraces; floodplains; dikes; along sandy edges of stock tanks (charcos and represos); ditches; along ditch banks; recently burned areas; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam, silty loam and loam ground; rocky-loamy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Centaurea melitensis* is native to northern Africa and southern Europe and coastal islands in the North Atlantic Ocean and Mediterranean Sea. *5, 6, 15, **16**, 22 (color photograph), 41 (color photograph), 43 (111409), 44 (051311 - color photograph), 46 (Page 955), **56**, **57**, 63 (051311), 68, 77, **85** (022012 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 101 (note under *Centaurea solstitialis*), 101 (note under *Centaurea solstitialis*), 115 (color presentation), 124 (051311 - no record of species; genus record), 127, **WTK** (October 28, 2009)*

***Centromadia pungens* (W.J. Hooker & G.A. Arnott) E.L. Greene subsp. *pungens*: Common Tarweed**

SYNONYMY: *Hemizonia pungens* (W.J. Hooker & G.A. Arnott) J. Torrey & A. Gray. COMMON NAMES: Common Spikeweed (a name also applied to the species and other species); Common Tarweed (a name also applied to other species); Smooth Tarplant (a name also applied to the species); Spikeweed (a name also applied to other species); Typical Prickly Tarplant; Typical Pungent False Tarplant; Typical Pungent Hemizonia; Typical Pungent Tarplant; Typical Spiny Tarplant; Typical Spiney Tarweed; Typical Spiny Tarweed. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 4 feet in height; one plant was observed and described as being 3 inches in height and 20 inches in width); the disk florets are yellow; the ray florets are yellow; the anthers are yellow; flowering generally takes place between late April and late September (additional records: four for late March and three for late November). HABITAT: Within the range of this species it has been reported from rocky-sandy meadows; clayey slopes; gravelly and clayey flats; basins; valley floors; roadsides; along arroyos; gullies; streambeds; along creeks; silty riverbeds; within drainage ways; vernal pools; poolbeds; lakebeds; salt marshes; depressions; swales; muddy bottomlands; sandy floodplains; within ditches; waste places, and disturbed areas growing in muddy and moist and dry rocky-sandy, gravelly and sandy ground; silty clay ground, and silty ground, occurring from sea level to 4,700 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Centromadia pungens* subsp. *pungens* is native to Southwest-central North America. *5, 6, 43 (111409, *Centromadia pungens* Greene), 44 (022012), 46 (recorded as *Hemizonia pungens* (Hook. & Arn.) Torr. & Gray, Page 913), 63 (022012), **85** (022012 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb, recorded as *Hemizonia fitchii* Gray), 101 (color photograph), 124 (022012 - no record of species or genus)*

***Chaenactis carphoclinia* A. Gray (var. *carphoclinia* is the variety reported as occurring in Arizona): Pebble Pincushion**

SYNONYMY: (for *C.c.* var. *carphoclinia*: *Chaenactis carphoclinia* A. Gray var. *attenuata* (A. Gray) M.E. Jones). COMMON NAMES: Broadleaved Chaenactis; False Yarrow (a name also applied to the genus *Chaenactis*); Gray's Chaenactis; Pebble Chaenactis; Pebble False-yarrow; Pebble Pincushion; Pebble-pincushion; Pebble-pincushion Plant; Pebble-pincushion-plant; Pincushion Flower (a name also applied to the genus *Chaenactis*), Straw-bed Pincushion. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 24 inches in height); the flower heads may be cream, cream-white or white; flowering generally takes place between late January and mid-June (additional records: one for early January and two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy mountainsides; mesas; sandy plateaus; rocky canyons; canyon bottoms; talus slopes; knolls; ridges; cindery cinder cones; foothills; rocky and gravelly hills; gravelly hilltops; rocky, rocky-sandy, shaley and gravelly hillsides; rocky, rocky-sandy, shaley and gravelly slopes; rocky alluvial fans; gravelly bajadas; amongst rocks and gravels; lava flows; sandy lava beds; gravelly and gravelly-silty banks; plains; rocky, rocky-sandy, gravelly and sandy flats; along gravelly and sandy roadsides; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; within drainages; silty depressions; clayey lakebeds; silty playas; (rocky and gravelly) banks of creeks, rivers and washes; edges of washes; (sandy) margins of washes; mudflats; gravelly terraces; floodplains; canal banks; riparian areas, and disturbed areas growing in moist and dry gravelly desert pavement; rocky, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam ground; clay ground, and gravelly-silty, sandy-silty and silty ground, occurring from sea level to 5,000 feet in elevation in the desertscrub and wetland ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. *Chaenactis carphoclinia* is native to southwest-central and southern North America. *5, 6, 43 (111609), 44 (022012), 46 (Page 922), 63 (022012), 77, **85** (022012 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 124 (022012 - no record of species or genus)*

Chaenactis carphoclinia var. *attenuata* (see *Chaenactis carphoclinia* var. *carphoclinia*)

***Chaenactis stevioides* W.J. Hooker & G.A. Arnott: Esteve's Pincushion**

SYNONYMY: *Chaenactis stevioides* W.J. Hooker & G.A. Arnott var. *thornberi* W.P. Stockwell. COMMON NAMES: Broad Flower Pincushion; Broad-flower Pincushion; Broad Flowered Chaenactis; Broad-flowered Chaenactis; Broad-flowered Pincushion; Broad-leaved Chaenactis; Desert Pincushion (a name also applied to other species); Dusty Maiden (a name also applied to other species and the genus *Chaenactis*); Dustymaiden (a name also applied to other species and the genus *Chaenactis*); Esteve Dusty Maiden; Esteve Dusty-maiden; Esteve Dustymaiden; Esteve False Yarrow; Esteve Pincushion; Esteve-pincushion; Esteve's Dusty Maiden; Esteve's Dusty-maiden; Esteve's Dustymaiden; Esteve's Pincushion; False Yarrow (a name also applied to other species and the genus *Chaenactis*); Pincushion Flower (a name also applied to other species and the genus *Chaenactis*); Steve's (inaccurate) Dusty Maiden; Steve's (inaccurate: see Esteve's) Dusty-maiden; Steve's (inaccurate: see Esteve's) Dustymaiden; Steve's (inaccurate: see Esteve's) Pincushion; Stevia Chaenactus; Stevia Desert Chaenactus; Stevia Desert Pincushion; Stevia Dusty Maiden; Stevia Dusty-maiden; Stevia Dustymaiden; Stevia Pincushion; Stevia Pincushion Flower; Stevia Pincushion-flower; Stevia-pincushion. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 18 inches in height); the leaves are grayish-green; the flower heads may be cream, cream-white, pink, yellow, dull white, white, white-cream, whitish-yellow or pale yellow (rarely); flowering generally takes place between early February and mid-July (additional records: one for early January, one for mid-January and one for late November). HABITAT: Within the range of this species it has been reported from mountains; shaley mountaintops; mountainsides; mesas; plateaus; canyon rims; chalky cliffs; bouldery canyons; sandy canyon bottoms; clayey bluffs; buttes; rocky and clayey knolls; ledges; ridges; bedrock and shaley-clayey ridgetops; foothills; bouldery, rocky, rocky-clayey, gravelly, sandy and sandy-clayey hills; rocky hillsides; bedrock, bouldery, bouldery-gravelly, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-sandy-loamy, rocky-clayey, shaley, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy, sandy, sandy-loamy and sandy-clayey slopes; bouldery and sandy alluvial fans; gravelly, gravelly-sandy and silty bajadas; amongst boulders; lava fields; sand dunes; sand hummocks; wind-blown sand-ramps; blow-sand deposits; sand fields; pebbly-silty outwash areas; gravelly banks; sandy plains; gravelly, gravelly-sandy, sandy, clayey and silty flats; rocky-sandy-silty basins; sandy and silty valley floors; along gravelly-sandy, gravelly-clayey, gravelly-sandy-clayey-loamy, sandy, clayey and silty roadsides; rocky, rocky-gravelly, gravelly and sandy arroyos; springs; along streams; gravelly streambeds; in sand along creeks; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and silty-clayey washes; drainages; drainage ways; sandy lakebeds; playas; marshes; silty swales; (gravelly-sandy and sandy) banks of washes; (sandy and sandy-silty) edges of ponds and lakes; mudflats; gravelly-sand bars; beaches; shaley benches; along terraces; sandy bottomlands; sandy floodplains; along canals; ditches; sandy-clayey banks of reservoirs; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, shaley, stony-sandy, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, gravelly-sandy loam, gravelly-sandy-clayey loam and sandy loam ground; rocky clay, shaley clay, gravelly clay, sandy clay, silty clay and clay ground; rocky-sandy silty, gravelly-sandy silty, pebbly-silty, sandy silty and silty ground, and chalky ground, occurring from below sea level (-100 feet) to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and the juice was used as a glue to mend ceremonial items. *Chaenactis stevioides* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 269), 43 (111709), 44 (051411), 46 (Page 923), 58, 63 (111709 - color presentation), 77, **85** (051611 - color

presentation), 86 (color photograph), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (051411 - no record of genus or species), 127, 140 (Page 284)*

Chaenactis stevioides var. *stevioides* (see *Chaenactis stevioides*)

Chaenactis stevioides var. *thornberi* (see *Chaenactis stevioides*)

***Chaetopappa ericoides* (J. Torrey) G.L. Nesom: Rose Heath**

SYNONYMY: *Aster arenosus* (A.A. Heller) S.F. Blake, *Aster hirtifolius* S.F. Blake, *Leucelene ericoides* (J. Torrey) E.L. Greene. COMMON NAMES: Baby Aster; Baby White Aster; Baby Whiteaster; Heath Least Daisy; Heath Least-daisy; Heath-leaved Chaetopappa; Heath Leastdaisy; Rose Heath; Rose Heath Aster (a name also applied to the genus *Chaetopappa*); Rose-heath; Roseheath; Sand Aster; Sya:yahkya Udeya ("Gnat Flower" and also known as "Snowbird Medicine", Zuni); Smallflower Aster (a name also applied to other species); White Aster (a name also applied to other species and the genus *Chaetopappa*). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 1 to 8 inches in height; plants were observed and reported as being 4 inches in height and width, patches 10 feet in diameter were observed and reported); the foliage is gray-green; the disc florets may be orange or yellow; the ray florets may be blue, pink, pink-purple, pink-white, pinkish-lavender, purple, white or whitish; flowering generally takes place between early March and late October (additional record: flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from rocky mountains; shaley mountaintops; rocky, rocky-clayey, stony, gravelly, sandy, sandy-clayey, sandy-silty, clayey and clayey-loamy mesas; rocky-sandy plateaus; along rocky rims of canyons; bouldery summits of cliffs; rocky-gravelly and shaley cliffs; bases of cliffs; along rocky, cobbly-sandy and sandy canyons; along canyon walls; cobbly-sandy and sandy canyon bottoms; scree slopes; rocky and sandy talus slopes; pockets of sandy soil in bedrock and rocks; rocky, gravelly and pebbly bluffs; rocky-clayey tops of buttes; rocky hogbacks; shaley knolls; ledges; along rocky, gravelly and sandy ridges; rocky ridgetops; clearings and openings in forests and woodlands; meadows; cindery cinder cones; sandy and clayey-loamy foothills; rocky, rocky-sandy-loamy, stony, gravelly and clayey hills; sandy hilltops; rocky, shaley and gravelly-loamy hillsides; gravelly-loamy bases of hills; bouldery escarpments; bouldery-sandy, rocky, rocky-shaley-gravelly-clayey, rocky-gravelly, rocky-sandy, rocky-sandy-clayey, rocky-loamy, rocky-clayey, shaley, shaley-sandy, shaley-clayey, stony, stony-cobbly, stony-cobbly-sandy-clayey, stony-sandy, stony-loamy, cobbly, cindery, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, gravelly-silty-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, clayey, clayey-loamy and silty slopes; alluvial fans; bajadas; rocky and clayey outcrops; amongst boulders, rocky boulder fields; rocks and gravels; sandy lava flows; lava beds; sand dunes; blow-sand deposits; banks; gravelly and sandy-loamy benches; sandy terraces; rocky mounds; shaley barrens; sandy steppes; rocky, rocky-clayey-loamy, gravelly, gravelly-sandy and sandy prairies; sandy, sandy-loamy, clayey and clayey-loamy plains; stony, cobbly-sandy, cindery-gravelly, cindery-sandy, gravelly, gravelly-clayey, sandy and clayey-loamy flats; uplands; sandy basins; basin bottoms; sandy and silty valley floors; valley bottoms; roadcuts; along rocky, rocky-sandy, rocky-silty, stony, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy, clayey and clayey-loamy roadsides; within arroyos; along and in rocky-sandy, rocky-clayey-loamy and gravelly draws; gulches; shaley-clayey gullies; seeps; along streams; along sandy streambeds; along and in creeks; sandy creekbeds; riverbeds; along and in rocky-sandy and sandy washes; within rocky-sandy and gravelly-sandy drainages; along rocky drainage ways; (gravelly) banks of washes; edges of draws and rivers; gravel bars; sandy and sandy-loamy benches; breaks; gravelly terraces; sandy bottomlands; cobbly-sandy and cobbly-sandy-silty floodplains; lowlands; fencerows; within ditches; ditch banks; sandy riparian areas; waste places; recently burned areas of woodland, and disturbed areas growing in moist and dry cryptogamic soil; rimrock pavement; gravelly desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, stony-cobbly, stony-sandy, cobbly, cobbly-sandy, cindery, cindery-gravelly, cindery-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, stony loam, gravelly loam, gravelly-sandy loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, rocky-shaley-gravelly clay, rocky-gravelly-sandy-silty clay, rocky-gravelly clay, rocky-sandy clay, shaley clay, stony-cobbly-sandy clay, cobbly-sandy clay, gravelly clay, sandy clay and clay ground, and rocky silty, cobbly-sandy silty, sandy silty and silty ground, occurring from 1,700 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Chaetopappa ericoides* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Leucelene ericoides* (Torr.) Greene), 28 (recorded as *Leucelene ericoides*, color photograph 253), 43 (061509), 44 (022012), 46 (recorded as *Aster arenosus* (Heller) Blake, Page 872 and *Aster hirtifolius* Blake, Page 872), 48 (genus), 58 (recorded as *Leucelene ericoides* (Torr.) Greene), 63 (022012 - color presentation including habitat), **77** (recorded as *Leucelene ericoides* (Torr.) Greene), 80 (Species of Aster are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These annual and perennial forbs may act as secondary or facultative selenium absorbers, converters, and indicators and may become toxic to livestock."), **85** (022312 - color presentation including habitat), 124 (022012), 127*

***Chloracantha spinosa* (G. Bentham) G.L. Nesom: Spiny Chloracantha**

SYNONYMY: *Aster spinosus* G. Bentham. COMMON NAMES: Aster (a name also applied to other species and the Asteraceae); Buena Mujer (Spanish); Devil-weed Aster; Devilweed Aster; Mexican Devil-weed; Mexican Devilweed; Nowoh (Yaqui); Scoba (New Mexico); Skeleton Weed; Skeleton-weed; Spiny Aster; Spiny Chloracantha; Spiny Devil-weed; Spiny Devilweed; Spiny Goldenbush; Spiny-aster. DESCRIPTION: Terrestrial perennial forb/herb, subshrub or shrub (20 inches to 9

feet in height; the upper leaves are scale-like; one plant was described as being 3 to 4 feet in height and width); the branches are pale green or green; the disk florets may be orange-yellow, pale yellow or yellow; the ray florets may be cream, white or white tinged with violet; flowering generally takes place between late April and late January. HABITAT: Within the range of this species it has been reported from mountains; canyons; along canyon bottoms; rocky and rocky-clayey hillsides; alcoves; sandy debris fans; sand dunes; plains; sandy flats; valley floors; coastal plains; tidal mudflats; along railroad right-of-ways; sandy roadsides; stony arroyos; seeps; sandy springs; in sandy soils along streams; along creeks; along rivers; bouldery riverbeds; along sandy washes; drainages; along sandy drainage ways; poolbeds; in lakes; in backwaters; salt marshes; depressions; sloughs; along (sandy) banks of rivers and washes; (in shallow water at the) edges of streams and marshes; along (sandy) shores of lakes; mudflats; rocky-sandy and sandy beaches; benches; sandy terraces; sandy bottomlands; along sandy floodplains; lowlands; stock tanks (represos); along canals; along clayey banks of canals; along and in clayey-silty ditches; along clayey banks of ditches; sandy riparian areas, and disturbed areas growing in shallow water and wet, moist and dry bouldery, rocky, rocky-sandy, gravelly and sandy ground; rocky clay and clay ground, and clayey silty ground, occurring from sea level to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be useful in controlling erosion. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop (used for gum and as a starvation food). *Chloracantha spinosa* is native to south-central and southern North America and Central America. *5, 6, 43 (111809), 44 (051711), 46 (*Aster spinosus* Benth., Page 873), 63 (022312 - color presentation), 68, 80 (Species of Aster are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “These annual and perennial forbs may act as secondary or facultative selenium absorbers, converters, and indicators and may become toxic to livestock.”), **85** (022312 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Aster spinosus* Benth.), 91 (recorded as *Aster spinosus* Benth., Page 98), 124 (051711), 127*

Cirsium neomexicanum A. Gray: New Mexico Thistle

COMMON NAMES: ‘Azee’ Ditł’ooí <ʔaze’titl’oih> (Athapascan: Navajo)[140]; ‘Azee’ Hókánii <ʔazéʔ hukani> (“Round Medicine”, Athapascan: Navajo)[140]; ‘Azee’ Yishdloh (Athapascan: Navajo); Cardillo (“Little Thistle”, Spanish: New Mexico)[140]; Cardo (Spanish)[140]; Cardo Santo (Spanish: Mexico, Sonora); Čiiyavɨ (a name applied to other species in the genus *Cirsium*, Uto-Aztecan: Kawaiisu)[140]; Cuna (Uto-Aztecan: Cupeño)[140]; Cunala (Uto-Aztecan: Luiseño)[140]; Desert Thistle; Gewel <gewihol> (Uto-Aztecan: Hiá Ceḍ O’odham)[140]; Gewul (Uto-Aztecan: Tohono O’odham)[140]; Hosh Ikaz, Kǫ’ Dahosh <goda hosh> (Athapascan: Western Apache)[140]; Intermountain Thistle; Lavender Thistle; Mexican Thistle; New Mexico desert-thistle; New Mexico Thistle; Pa’bogo [Pa’bogwo] (Uto-Aztecan)[140]; Thistle (a name also applied to other species and the genus *Cirsium*); [New Mexico, Yellow] Thistle (English)[140]; Tłobindadatłidje (Athapascan: Chiricahua and Mescalero Apache)[140]; Tsĭñ’ga (Uto-Aztecan: Shoshoni)[140]; Tsininga <tcíninga, ciniŋa> (Uto-Aztecan: Hopi)[140]; Yellow Thistle. DESCRIPTION: Terrestrial biennial or perennial forb/herb (erect stems 16 inches to 9½ feet in height); the leaves may be gray, gray-green, dark green or silvery; the flower heads (produced in the second and subsequent years) may be creamy-white, pale lavender, lavender, lavender-pink, pale pink, pink, pinkish-lavender, pink-purple, pink-violet, light purple, purple, rose, rose-purple, violet-purple, white, whitish-cream or white tinged with pink; flowering generally takes place between mid-February and late August (additional record: one for early January; flowering in September has also been reported). HABITAT: Within the range of this species it has been reported from mountains; bouldery mountaintops; rocky mountainsides; sandy mesas; rocky rims; cliff faces; hanging gardens; rocky and sandy-loamy canyons; canyonsides; bouldery-rocky-cobbly and rocky canyon bottoms; talus slopes; crevices in rocks; shallow pockets of soil in rocks; rocky ledges; rocky and shaley-clayey ridges; rocky-gravelly-sandy ridgetops; balsam glades; meadows; foothills; rocky and gravelly-clayey hills; rocky-gravelly-clayey hilltops; rocky, gravelly and silty hillsides; bouldery, rocky, rocky-gravelly, rocky-gravelly-clayey, rocky-silty, rocky-silty-clayey, shaley, stony, gravelly and clayey slopes; bajadas; rocky and gravelly-rocky outcrops; amongst boulders and rocks; sandy bases of rocks; sandy lava flows; sandflats; banks; sandy terraces; plains; along esplanades; rocky, sandy and clayey flats; uplands; valley floors; along rocky, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-silty and clayey roadsides; gravelly-sandy-clayey arroyos; gulches; seeps; around springs; along streams; gravelly streambeds; along creeks; along rivers; riverbeds; within rocky, gravelly, gravelly-sandy and sandy washes; within cobbly drainages; within rocky and sandy drainage ways; silty depressions; along (rocky, stony-gravelly and sandy) banks of streams and rivers; borders of washes; benches; sandy and loamy bottomlands; floodplains; margins of stock ponds; along canals; riparian areas, and disturbed areas growing in moist and dry cryptogamic soil; rimrock pavement; bouldery, bouldery-rocky-cobbly, rocky, rocky-gravelly, rocky-gravelly-sandy, shaley, stony, stony-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, sandy loam and loam ground; rocky-gravelly clay, rocky-silty clay, shaley clay, gravelly clay, gravelly-sandy clay, sandy clay and clay ground, and rocky-silty, sandy-silty and silty ground, occurring from 300 to 9,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. This plant provides food for many types of insects including being a host plant for the Painted Lady Butterfly, *Vanessa cardui*. Hummingbirds have been observed visiting the flowers. Thistles (*Cirsium* spp.) provide pollen and nectar for bees, and goldfinches and other birds feed on the seeds. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop (the peeled stems were used for food); it was also noted as having been used as a drug or medication. This plant was reported to have been utilized by native peoples of North America; the stems were peeled and used for food. *Cirsium neomexicanum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color

photograph), 43 (111809), 44 (051711 - color photograph), 46 (Page 952), 58, 63 (051711 - color presentation), 77, **85** (022412 - color presentation), 115 (color presentation), 124 (051711 - no record of species; genus record), 127, 134, 140 (Pages 63-64 & 284)*

***Conyza bonariensis* (C. Linnaeus) A.J. Cronquist: Asthmaweed**

SYNONYMY: *Erigeron linifolius* C.L. von Willldenow. COMMON NAMES: Argentiinankoiransilmä; Argentine Fleabane; Asthma Weed; Asthmaweed; Boliviabinka (Swedish); Flax-leaf Fleabane; Flaxleaved Fleabane; Fleabane (a name also applied to the genus *Conyza*); Hairy Fleabane; Hoshishkat Al-gabal (Arabic), Horseweed (a name also applied to the genus *Conyza*); Südamerikanisches Berufkraut (German); Wavy-leaf Fleabane. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 4 inches to 5½ feet in height); the leaves are gray-green; the disk florets are greenish-yellow or white; the ray florets may be cream, pink or white; flowering generally takes place between early March and late October (additional records: one for mid-January, one for mid-November and one for late December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; along canyons; canyon bottoms; sandy bluffs; foothills; clayey slopes; plains; sandy and clayey flats; valley floors; along roadsides; around and in springs; rocky-sandy streambeds; muddy and sandy riverbeds; along rocky washes, drainages; clayey soils around ponds; (sandy) banks of streams and rivers; edges of rivers and lagoons, ponds and salt marshes; sandy floodplains; ditches; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry rocky and sandy ground and clay ground, occurring form sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Conyza bonariensis* is probably native to the neotropics of the southern North America; Central America, and northern South America. *5, 6, 15, **16**, 43 (111909), 44 (022412 - no common names listed under species or genus, color photograph), 46 (*Erigeron linifolius* Willd., Page 881), **56**, **57**, 63 (022412), 77, **85** (022512 - color presentation), 101 (color photograph), 124 (022412 - no record of species; genus record)*

***Conyza canadensis* (C. Linnaeus) A.J. Cronquist: Canadian Horseweed**

COMMON NAMES: Aster canadensis annuus (a name applied to var. *canadensis*, Brunyer 1653); Atakło:lasti (Muskogean: Creek)[140]; Atsil-sun'ti (Iroquoian: Cherokee)[140]; 'Azee' Dilkǫǫh <ʾazeʾ dilkǫkí> (Athapascan: Navajo)[140]; Beschreikraut (var. *canadensis*, German); Bitter Weed (a name also applied to var. *canadensis* and other species); Bitter-weed (a name also applied to var. *canadensis* and other species); Bitterweed (a name also applied to var. *canadensis* and other species); Bitterweed (English: New Mexico)[140]; Blood Stanch (var. *canadensis*); Blood-stanch (var. *canadensis*); Bloodstanch (var. *canadensis*); Butter Weed (a name applied to var. *canadensis* and other species); Butter-weed (a name applied to var. *canadensis* and other species); Butterweed (a name also applied to other species); Butterweed (English)[140]; Caenotus Canadense (var. *canadensis*); Canada Erigeron (var. *canadensis*); Canada Flea-bane (var. *canadensis*); Canada Fleabane (a name applied to var. *canadensis* and the genus *Erigeron*); Canada Fleawort (var. *canadensis*); Canada Horseweed (var. *canadensis*); Canadian Fleabane (var. *canadensis*); Canadian Horse Weed (var. *canadensis*); Canadian Horse-weed (var. *canadensis*); Canadian Horseweed (var. *canadensis*); Canadian-fleabane; Canadisches Berufkraut (var. *canadensis*, German); Canhlo'gan Was'te'mna Iye'cece ("Resembling Sweet-smelling Weed", Siouan: Lakota)[140]; Cola de Caballo ("Horse Tail", Spanish: Arizona, Sonora)[140]; Cola de Zorra (Spanish); Colt's Tail (var. *canadensis*); Colt's Tail (English: New Mexico)[140]; Colt's-tail (var. *canadensis*); Coltstail (var. *canadensis*); Common Horse-weed (var. *canadensis*); Common Horseweed (var. *canadensis*); Cow Tail (var. *canadensis*); Cow's Tail (var. *canadensis*); Cow-tail (var. *canadensis*); Cow's-tail (var. *canadensis*); Cows' Tail; Cowstail (var. *canadensis*); Cowtail (var. *canadensis*); Dlǫǫdą́ą́' <ɬó□dą́ʾ> (Athapascan: Navajo)[140]; Erigeron (a name also applied to var. *canadensis*, other species and to the genus *Erigeron*); Erigeron de Canada (var. *canadensis*, French); Fire Weed (a name also applied to var. *canadensis* and other species); Fire-weed (a name also applied to var. *canadensis* and other species); Fireweed (a name also applied to var. *canadensis* and other species); Flea Bane (a name also applied to var. *canadensis*, other species and to the genera *Conyza* and *Erigeron*); Fleabane (a name also applied to var. *canadensis*, other species and to the genera *Conyza* and *Erigeron*); Fleabane (English: New Mexico)[140]; Fox Tail (English: Dutch Antilles)[140]; Gababi'kw&ucric;na'tig ("Knotted Tree", Chippewa)[140]; Gababi'kwuna'tig ("Knotted Tree", Algic: Ojibwa)[140]; Ha'mo Uvteawe (Language Isolate: Zuni)[140]; Hierba de Burro ("Donkey Herb", Spanish: Sinaloa)[140]; Hierba del Caballo ("Horse's Herb", Spanish: Sonora)[140]; Hog-weed (a name also applied to var. *canadensis* and other species); Hogweed (a name also applied to var. *canadensis* and other species); Horse Tail (var. *canadensis*); Horse Weed (var. *canadensis*); Horse-weed (a name applied to var. *canadensis* and the genus *Erigeron*); Horsetail (var. *canadensis*); Horsetail (English)[140]; Horsetail Conyza (a name also applied to other species); Horseweed (a name also applied to var. *canadensis* and the genera *Conyza* and *Erigeron*); [Canadian, Smooth] Horseweed (English)[140]; Horseweed Fleabane (var. *canadensis*); Jarilla (Spanish); Kanadabinka (Swedish); Kanadisches Berufkraut (German); Mare's Tail (a name applied to var. *canadensis* and other species); Lemonhead (Arizona); Mare's-tail (a name applied to var. *canadensis* and other species); Mares Tail (a name also applied to other species); Monáhaña (Uto-Aztecan: Hopi)[140]; Ne'etsah 'Azee' <neʾecah ʾazéʾ> (Athapascan: Navajo)[140]); Ne'etsah Béé'dító <neʾ ecah beɬoh> (Athapascan: Navajo)[140]; No'sowini ("Sweat", Algic: Mesquakie)[140]; On'tĭmpiwai [On'tĭmpiwatsĭp] (also used for *Chenopodium*, Uto-Aztecan: Shoshoni)[140]; Pazotillo ("Little Skunk Feces", Spanish: New Mexico)[140]; Pride Weed (var. *canadensis*); Pride Weed (English: New Mexico)[140]; Pride-weed (var. *canadensis*); Prideweed (var. *canadensis*); Rayed Horseweed (var. *canadensis*); Scabious (a name also applied to var. *canadensis* and other species); Takłô:cî ("BlackBush", Muskogean: Mikasuki)[140]; Tall Horseweed (var. *canadensis*); Virga aurea virginiana annua (a name applied to var. *canadensis*, Tournefort 1694); Vopoksha <vopoghakam> ("Quiver" or "Step-child", Uto-Aztecan: Akimel O'odham)[140]; Vtakłv Lvste (Muskogean: Muskogee)[140]; Wild Daisy (var. *canadensis*); Wili'lik (Chumash: Barbareño Chumash)[140]; Wililik' (Chumash: Ineseño Chumash)[140]; Yerba del Aire [Aigre] ("Air [Bitter] Herb", Spanish: California)[140].

DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 1 inch to 11½ feet in height); the stem and leaves are a dull light olive-green; the disk florets may be greenish, green-yellow, white or yellow; the ray florets may be cream, pink, white, white with pink tips or yellow; flowering generally takes place between early May and late November (additional records: two for early April, one for mid-April, one for mid-December and one for late December; flowering year round has also been reported with most flowering taking place summer through fall). HABITAT: Within the range of this species it has been reported from along mountains; mountainsides; rocky mesas; plateaus; rocky rims; cliffs; hanging gardens; bases of cliffs; rocky, rocky-clayey and sandy canyons; canyon walls; sandy, sandy-silty and silty canyonsides; rocky-sandy and sandy canyon bottoms; chasms; rincons; talus slopes; bluffs; knolls; ledges; along shaley ridges; loamy clearings and openings in forests and scrub; sandy meadows; foothills; rocky hills; grassy hilltops; along hillsides; bouldery and rocky hillsides; escarpments; rocky, rocky-sandy, rocky-sandy-loamy, rocky-loamy, shaley, stony-loamy, cobbly-sandy-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, loamy, clayey and clayey-loamy slopes; bajadas; rocky, shaley and shaley-sandy outcrops; amongst boulders; lava flows; sand hills; sand dunes; sandy-clayey banks; benches; breaks; clay pans; steppes; prairies; sandy plains; rocky-loamy, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey-loamy, clayey and silty flats; gravelly, gravelly-sandy, sandy and clayey uplands; silty-clayey basins; sandy valley floors; valley bottoms; coastal salt marshes; along railroad right-of-ways; two-tracks; roadbeds; roadcuts; along rocky, rocky-clayey, gravelly, gravelly-sandy, gravelly-clayey and sandy roadsides; within arroyos; along sandy and clayey bottoms of arroyos; within shaley-silty, loamy and loamy-clayey draws; bottoms of draws; gulches; ravines; bottoms of ravines; along rocky and sandy-clayey seeps; along springs; in wet soil along spring runs; along streams; along and in sandy streambeds; along and in creeks; along rocky, stony, gravelly, gravelly-sandy and sandy creekbeds; along rivers; in rocky-clayey and sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along and in rocky-clayey-silty, gravelly, sandy, loamy and silty-clayey drainages; along waterways; floating mats; palm oases; vernal pools; around ponds; along lakes; lakebeds; sandy-loamy playas; ciénegas; freshwater and saltwater marshes; around and in clayey, clayey-loamy and silty-clayey depressions; swales; along (muddy, rocky, gravelly, gravelly-sandy, sandy, sandy-loamy and loamy) banks of springs, streams, streambeds, creeks, creekbeds, rivers and washes; borders of washes; along (rocky, sandy and loamy-clayey) edges of springs, streams, streambeds, creekbeds; rivers, riverbeds, washes, watercourses, lakes and salt marshes; along margins of seeps, streams, streambeds, washes, ponds and lakes; along (sandy and sandy-clayey) shores of creeks, ponds and lakes; along stony-sand, gravel, gravelly-sand, sand, sandy-rock and silty-sand bars; rocky, rocky-sandy, stony and sandy beaches; benches; sandy shelves; rocky strands; stony and gravelly-sandy terraces; gravelly, sandy-clayey, loamy and loamy-clayey bottomlands; along stony, sandy and sandy-loamy floodplains; sandy lowlands; along sandy fencerows; dams; beaver dams; catch basins; sandy stock tanks (represos); along sandy, loamy-clayey and clayey-loamy edges, margins and shores of reservoirs; dry reservoir beds; along canals; canal banks; along and in sandy ditches; along ditch banks; rocky, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, sandy-loamy and clayey-loamy riparian areas; gravelly, sandy and loamy waste places, and gravelly disturbed areas growing in cryptogamic soil; mucky; muddy and wet, moist, damp and dry bouldery, bouldery-rocky, rocky, rocky-sandy, shaley, shaley-sandy, stony, stony-sandy, stony-loamy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, cobbly-sandy clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground, and rocky-clayey silty, shaley silty, sandy silty and silty ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food (*E.c.* var. *canadensis*) and as a drug or medication. *Conyza canadensis* is native to northern, central and southern North America including coastal islands in the North Pacific Ocean and Gulf of St. Lawrence, and Central America; its native range on coastal islands in the North Atlantic Ocean and Caribbean Sea, as well as South America, is obscure. *5, 6, **16**, 43 (061609), 44 (022612 - no listing of Common Names under species or genus, records located under *Erigeron canadensis*, color photograph), 46 (recorded as *Erigeron canadensis* L. and *Erigeron canadensis* L. var. *glabratus* Gray, Page 881), **56**, **57**, 58, 63 (022612 - color presentation), 68, 77 (recorded as *Conyza canadensis* (L.) Cronq. [*Erigeron canadensis* L.]), **85** (022712 - color presentation), 101 (color photograph of the species), 115 (color presentation), 124 (022512), 127, 140 (Pages 64-66 & 284 - recorded as *Conyza canadensis* (Linnaeus) Cronquist [*Erigeron canadensis*])*

***Conyza canadensis* (C. Linnaeus) A.J. Cronquist var. *canadensis*: Canadian Horseweed**

SYNONYMY: *Erigeron canadensis* C. Linnaeus. COMMON NAMES: Aster canadensis annuus (Brunyer 1653); Atakło:lasti (Muskogean: Creek)[140]; Atsil-sun'ti (Iroquoian: Cherokee)[140]; 'Azee' Dilkǫǫh <ʔazeʔ dilkǫkí> (Athapascan: Navajo)[140]; Beschreikraut (German); Bitter Weed (a name also applied to other species); Bitter-weed (a name also applied to other species); Bitterweed (a name also applied to other species); Bitterweed (English: New Mexico)[140]; Blood Stanch; Blood-stanch; Bloodstanch; Butter Weed; Butter-weed; Butterweed (English)[140]; Caenotus Canadense; Canada Erigeron; Canada Fleabane (a name also applied to the genus *Erigeron*); Canadian Fleabane; Canadian Horseweed; Canadisches Berufkraut (German); Canhlo'gan Was'te'mna Iye'cece ("Resembling Sweet-smelling Weed", Siouan: Lakota)[140]; Cola de Caballo ("Horse Tail", Spanish: Arizona, Sonora)[140]; Cola de Zorra (Spanish); Colt's Tail; Colt's Tail (English: New Mexico)[140]; Colt's-tail; Coltstail; Cow Tail; Cow's Tail; Cow's-tail; Cows' Tail; Dlǫǫdą́ą́' <ɬó□dąʔ> (Athapascan: Navajo)[140]; Erigeron (a name also applied to the species, other species and to the genus *Erigeron*); Erigeron de Canada (French); Fire Weed; Fire-weed; Fireweed (a name also applied to other species); Flea Bane (a name also applied to the species, other species and to the genera *Conyza* and *Erigeron*); Fleabane (a name also applied to the species, other species and to the genus *Erigeron*); Fleabane (English: New Mexico)[140]; Fox Tail (English: Dutch Antilles)[140]; Gababi'kw&ucric;na'tig ("Knotted Tree", Chippewa)[140]; Gababi'kwuna'tig ("Knotted Tree", Algic: Ojibwa)[140]; Ha'mo Uvteawe (Language Isolate: Zuni)[140]; Hierba de Burro ("Donkey Herb", Spanish:

Sinaloa)[140]; Hierba del Caballo ("Horse's Herb", Spanish: Sonora)[140]; Hog-weed (a name also applied to other species); Hogweed (a name also applied to other species); Horse Tail; Horse Weed (a name also applied to the genus *Conyza*); Horse-weed (a name also applied to the genus *Conyza*); Horsetail (English)[140]; Horsetail Conyza (a name also applied to other species); Horseweed (a name also applied to the species, other species and to the genus *Conyza*); [Canadian, Smooth] Horseweed (English)[140]; Horseweed Fleabane; Lemonhead (Arizona); Mare's Tail (a name also applied to other species); Mare's-tail (a name also applied to other species); Mares Tail (a name also applied to other species); Monáhaña (Uto-Aztecan: Hopi)[140]; Ne'etsah 'Azee' <ne'ecah 'azé'> (Athapascan: Navajo)[140]; Ne'etsah Béé'ditó <ne' ecah be~~'~~oh> (Athapascan: Navajo)[140]; No'sowini ("Sweat", Algic: Mesquakie)[140]; On'tĭmpiwai [On'tĭmpiwatsĭp] (also used for *Chenopodium*, Uto-Aztecan: Shoshoni)[140]; Pazotillo ("Little Skunk Feces", Spanish: New Mexico)[140]; Pride Weed; Pride Weed (English: New Mexico)[140]; Pride-weed; Prideweed; Scabious (a name also applied to other species); Takłô:cî ("BlackBush", Muskogean: Mikasuki)[140]; Tall Horseweed; Virga aurea virginiana annua (Tournefort 1694); Vopoksha <vopoghakam> ("Quiver" or "Step-child", Uto-Aztecan: Akimel O'odham)[140]; Vtakłv Lvste (Muskogean: Muskogee)[140]; Wild Daisy; Wili'lik (Chumash: Barbareño Chumash)[140]; Wililik' (Chumash: Ineseño Chumash)[140]; Yerba del Aire [Aigre] ("Air [Bitter] Herb", Spanish: California)[140]. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 3 inches to 7 feet in height); the stem and leaves are a dull light olive-green; the disk flowers are greenish, green-yellow or yellow; the ray flowers may be cream, pink, white, white with pink tips or yellow; flowering generally takes place between mid-June and late November (flowering beginning as early as March has been reported). HABITAT: Within the range of this species it has been reported from mountains; canyons; bluffs; slopes; roadsides; along streams; creekbeds; along rivers; riverbeds; along washes; banks of streams and lakes; floodplains; riparian areas; waste places, and disturbed areas growing in wet, moist and dry sandy ground, occurring from 100 to 9,200 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication. *Conyza canadensis* var. *canadensis* is native to northern, central and southern North America including coastal islands in the North Pacific Ocean and Gulf of St. Lawrence, and Central America, its native range in South America is obscure. *5, 6, 15, 43 (061609), 44 (022812 - no listing of Common Names under variety *canadensis*, the species or genus, records located under *Erigeron canadensis*, color photograph), 46 (recorded as *Erigeron canadensis* L., Page 881), 63 (022812 - color presentation), 68, **77** (recorded as *Conyza canadensis* (L.) Cronq. [*Erigeron canadensis* L.]), 85 (022812), 101 (color photograph of the species), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb, recorded as *Erigeron canadensis* L.), 124 (022812), 127, 140 (recorded as *Conyza canadensis* (Linnaeus) Cronquist [*Erigeron canadensis*], Pages 64-66 & 284)*

Conyza coulteri (see *Laennecia coulteri*)

Deinandra kelloggii (see *Hemizonia kelloggii*)

Diaperia verna (see *Evax verna* var. *verna*)

Dieteria incana (see *Machaeranthera canescens* subsp. *canescens* var. *incana*

Dimorphotheca aurantiaca (see *Castalis tragus*)

***Dimorphotheca sinuata* A.P. de Candolle: Glandular Cape Marigold**

COMMON NAMES: African Daisy (a name also applied to other species); African-orange Daisy; Cape Marigold (a name also applied to other species and the genus *Dimorphotheca*); Cape-marigold (a name also applied to the genus *Dimorphotheca*); Glandular Cape Marigold; Glandular Cape-marigold; Margarida (Portuguese: Brazil); Namakwalandse Gosblum; Namaqualand Daisy; Namaqualand-daisy; Solvisare (Swedish); Star of the Veldt; Star-of-the-veldt; Sun-marigold (Sun Marigold is a name applied to other species). DESCRIPTION: Terrestrial annual forb/herb (2 to 12 inches in height); the disk florets are dark (nearly black) or black; the ray florets may be cream, orange, orange-yellow, pumpkin-gold or yellow; flowering generally takes place between early February and late May (additional records: one for early September; flowering beginning as early as December has been reported). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; rocky canyon bottoms; ridges; ridgetops; sandy openings in woodlands; rocky hillsides; escarpments; rocky-clayey, gravelly and sandy slopes; sandy alluvial fans; gravelly bajadas; plains; gravelly and sandy flats; valley floors; along sandy roadsides; creekbeds; riverbeds; along rocky and sandy washes; sinks, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground and rocky clay ground, occurring from sea level to 4,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Dimorphotheca sinuata* is native to southern Africa. *5, 6, 18, 43 (112009), 44 (051911), 46 (no record of genus or species), 63 (022812 - color presentation), 77 (recorded as *Dimorphotheca sinuata* DC. [*D. aurantiaca* Hort., non DC.]), **85** (022812 - color presentation), 115 (color presentation), 124 (051911 - no record species or genus)*

Dimorphotheca tragus (see *Castalis tragus*)

Dyssodia acerosa (see *Thymophylla acerosa*)

Dyssodia concinna (see *Thymophylla concinna*)

Dyssodia pentachaeta (see *Thymophylla pentachaeta* var. *pentachaeta*)

Dyssodia porophylloides (see *Adenophyllum porophylloides*)

Eclipta alba (see *Eclipta prostrata*)

Eclipta alba (see *Eclipta prostrata*)

***Eclipta prostrata* (C. Linnaeus) C. Linnaeus: False Daisy**

SYNONYMY: *Eclipta alba* (C. Linnaeus) J.C. Hasskarl. COMMON NAMES: American False Daisy; American False-daisy; Eclipta (a name also applied to the genus *Eclipta*); Éclipte Blanche (French); False Daisy; False-daisy; Hanryeoncho (transcribed Korean); Hierba de Tajo (Spanish); Prostrate Eclipta; Prostrate False Daisy; Soguilla (Spanish); Trailing Eclipta; White Eclipta; White Heads; White Twinheads; Vitknapp (Swedish); Yerba de Tago (tago may be an error); Yerba-de-tago (tago may be an error); Yerba de Tajo (a name also applied to the genus *Eclipta*, Spanish); Yerba-de-tago; Yerba-de-tajo; Yerbadetajo. DESCRIPTION: Terrestrial (or semi-aquatic) annual or perennial forb/herb (sprawling 4 to 40 inches in length); the stems are purple-brown; the leaves are green; the disk florets are white; the ray florets are white; the anthers are brown; flowering generally takes place between late May and late November (additional records: one for mid-January and one for late March; year round flowering, with flowering occurring mostly in the summer through fall, has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon walls; rocky and gravelly canyon bottoms; rocky and clayey slopes; dunes; silty plains; sandy and clayey flats; along roadsides; stony and sandy arroyos; shaded bottoms of arroyos; seeps; springs; along streams; along creeks; along rocky-sandy-silty creekbeds; along rivers; sandy riverbeds; silty-clayey drainages; clayey lakebeds; backwaters to rivers; freshwater marshes; swamps; (muddy and sandy) banks of arroyos, rivers and drainage ways; (muddy, gravelly and sandy) edges of streams, creeks, rivers, riverbeds, ponds and lakes; margins of ponds; (rocky-sandy, sandy, sandy-clayey and clayey) shores of lakes; mudflats; sand bars; sandy beaches; muddy bottomlands; levees; along canals; along canal banks; along ditches; ditch banks; gravelly, sandy and sandy-clayey riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist and damp rocky, rocky-sandy, stony, gravelly and sandy ground; sandy clay, silty clay and clay ground, and rocky-sandy silty and silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eclipta prostrata* is native to northeast-central, south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 43 (112009), 44 (022812), 46 (recorded as *Eclipta alba* (L.) Hassk., Page 898), 63 (022812 - color presentation), 85 (022812 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain, recorded as *Eclipta alba* (L.) Hassk.), 124 (022812)*

***Encelia farinosa* A. Gray ex J. Torrey: Brittlebush**

SYNONYMY: *Encelia farinosa* A. Gray ex J. Torrey var. *farinosa* A. Gray ex J. Torrey, *Encelia farinosa* A. Gray ex J. Torrey var. *phenicodonta* (S.F. Blake) I.M. Johnston, *Encelia farinosa* A. Gray ex J. Torrey var. *radians* T.S. Brandegee ex S.F. Blake. COMMON NAMES: Brittle Bush (a name also applied to the genus *Encelia*); Brittle-bush (a name also applied to the genus *Encelia*, Arizona); [White] Brittle-bush (English: Arizona, Sonora)[140]; Brittlebush (a name also applied to the genus *Encelia*); Brittlebush Encelia; Brown-center Brittlebush (var. *phenicodonta*); Button Brittlebush; California Desert Brittlebush; Choyoguo ("Tar Bush", Uto-Aztecan: Mayo, Sonora)[140]; Common Brittle Bush; Common Brittle-bush; Common Brittlebush; Cotx ("Acrid Smell", Hokan: Seri)[140]; Desert Brittle Bush; Desert Brittle-bush; Desert Brittlebush; Farinose Brittlebush; Farinose Encelia; Farinose Goldenhills; Goldenhills (English: Arizona)[140]; Hierba Cenisa, Hierba Ceniza ("Ashy Herb", Spanish: Sonora)[140]; Hierba de Gusano; Hierba de las Ánimas ("Soul Herb", Spanish: Sonora)[140]; Hierba del Bazo <vaso> (Enlarged Spleen Herb", Spanish: Sonora)[140]; Hierba del Gusano (Spanish: Sonora); Hierba del Vaso; Incienso ("Incense", Spanish: Arizona, Baja California, California and New Mexico)[140]; Incienso Brittle Bush; Incienso Brittle-bush; Incienso Brittlebush; Pa'akal (Uto-Aztecan: Cahuilla)[140]; Palo Blanco ("White bush", Spanish: Sonora)[140]; Rama Blanca ("White Branch", Spanish: Sonora)[140]; Tahavis (Uto-Aztecan: Mountain Pima)[140]; Tohaves (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Tohavs (Uto-Aztecan: Akimel O'odham)[140]; Tohawes (Uto-Aztecan: Tohono O'odham)[140]; White Brittle Bush; White Brittle-bush (Arizona); White Brittlebush; Yerba de la Vaca ("Cow Herb", Spanish: Paipai)[140]; Wóláchíí' Bitsijį' Bił Nát'oh <wóláčí'biči'iči bił nát'oh> (Athapascan: Navajo)[140]. DESCRIPTION: Terrestrial perennial evergreen (leaves will be shed under extreme drought conditions) subshrub or shrub (stems 1 to 6 feet in height, the relatively few branches located beneath a covering of leaves gives this plant a rounded appearance; one plant was observed and described as being 2 feet in height and width); the foliage may be dark green, pale gray-green, silvery-gray, silvery-gray-green, silvery-green, silvery or whitish; the disk florets are brown, brown-maroon, brown-purple, maroon-brown, orange-yellow, purple, dark purple or yellow; the ray florets may be yellow or yellow-orange (the flowers appear 6 to 12 inches above or beyond the end of the foliage); flowering generally takes place between early November and mid-June (additional records: three for early July, four for late August, one for early September, two for mid-October; the primary flowering period generally occurs February through May). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky and gravelly mesas; cliffs; bases of cliffs; rocky and shaley canyons; rocky canyon walls; rocky, rocky-sandy, gravelly and sandy canyon bottoms; talus slopes; bluffs; buttes; rocky ledges; along ridges; rocky ridgetops; sandy meadows; foothills; rocky and sandy hills; hilltops; bouldery, rocky, stony and cobbly hillsides; bedrock, bouldery-gravelly, rocky, rocky-sandy, rocky-loamy, stony, gravelly, gravelly-clayey, sandy, loamy and clayey slopes;

bouldery-stony-gravelly-sandy, rocky and rocky-sandy-loamy alluvial fans; gravelly-sandy bajadas; gravelly pediments; bouldery and rocky outcrops; amongst boulders and rocks; lava flows; sand dunes; banks; cobbly, sandy and clayey plains; rocky-sandy, gravelly, gravelly-sandy and sandy flats; uplands; rocky and gravelly-sandy valley floors; coastal dunes; sandy coastal plains; coastal beaches; sandy railroad right-of-ways; along rocky, sandy and clayey roadsides; rocky and sandy arroyos; sandy-silty bottoms of arroyos; around springs; along creeks; creekbeds; along rivers; sandy riverbeds; along and in rocky, stony, gravelly, gravelly-sandy and sandy washes; within sandy drainages; drainage ways; along swales; borders of washes; edges of arroyos and washes; shores of rivers; sand bars; sandy beaches; gravelly benches; gravelly, rocky shelves; gravelly-sandy and sandy terraces; rocky-sandy floodplains; mesquite bosques; canal banks; riparian areas, and disturbed areas growing in moist and dry gravelly desert pavement; bouldery, bouldery-stony-gravelly-sandy, bouldery-gravelly, rocky, rocky-sandy, shaley, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam and loam ground; gravelly clay, sandy clay and clay ground (where it reportedly does poorly), and sandy silty ground, occurring from sea level to 4,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and has an estimated life span of 32 years. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (candy), and/or paint (varnish) crop; it was also noted as having been used as fuel, as a tool and waterproofing agent and as a drug or medication. According to the Fire Effects Information System, Brittlebush competes strongly with Buffelgrass (*Pennisetum ciliare*); however, it may be top-killed or completely killed by fire, wind dispersed seed produced by plants located off site may quickly aid in the reestablishment of this plant on burned areas. It is an early colonizer of disturbed areas. Plants with yellow ray flowers and dark purple disk flowers have historically been referred to as variety *phenicodonta*, it has been observed growing with the typical plant (which has yellow disk flowers). The Brittle Bush is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*) and Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), and birds and rodents feed on the seeds. *Encelia farinosa* is native to southwest-central and southern North America. *5, 6, 13 (Pages 293-294, color photograph: Plate V., Page 407), **16**, 18, 26 (color photograph), 28 (color photograph 403), 43 (112009), 44 (022912 - color photograph), 46 (Page 904), 48, 58, 63 (022912 - color presentation including habitat), 77 (recorded as *Encelia farinosa* A. Gray var. *farinosa*), **85** (022912 - color presentation), 86 (color photograph), **89** (reported as being a half-shrub located on Tumamoc Hill), **91** (Pages 188-192), 115 (color presentation), 124 (051911 - no record of species or genus), 127, 140 (Pages 67-68 & 284), **WTK** (October 28, 2009)*

Encelia farinosa var. *farinosa* (see *Encelia farinosa*)

Encelia farinosa var. *phenicodonta* (see *Encelia farinosa*)

Encelia farinosa var. *radians* (see *Encelia farinosa*)

Eremiastrum bellioides (see footnote under *Monoptilon bellioides*)

***Ericameria laricifolia* (A. Gray) L.H. Shinners: Turpentine Bush**

SYNONYMY: *Haplopappus laricifolius* A. Gray. COMMON NAMES: Ericameria (a name also applied to the genus *Ericameria*); Gold-brush (English)[140]; Hierba del Pasmo (Herb for Pasmo", a name also applied to other species, Spanish)[140]; Larch-leaf [Narrow-leaved] Golden-weed (English)[140]; Larch-leaf Goldenweed; Narrow-leaved Golden-weed; Roundleaf Rabbitbrush; Turpentine Brush (a name also applied to other species); Turpentine Brush [Bush] (English)[140]; Turpentine Bush (a name also applied to other species); Turpentine Golden-bush; Turpentine Goldenbush; Turpentine-brush (a name also applied to other species); Turpentine-brush Ericameria; Turpentine-bush (a name also applied to other species); Turpentine-bush Ericameria; Turpentinebush; Xal ShaB U (Yuman: Paipai)[140]. DESCRIPTION: Terrestrial perennial subshrub or shrub (ascending to erect stems 10 to 50 inches in height; one plant was observed and described as being 1 foot in height and 2 to 3 feet in width, one plant was observed and described as being 16 inches in height and 40 inches in width, one plant was observed and described as being 40 inches in height and 40 inches in width); the young stems are green; the leaves may be gray, gray-green, gray-silver, green or yellow-green; the disk florets may be orange-yellow or yellow, the ray florets may be orange-yellow or yellow; flowering generally takes place between mid-August to late January (additional records: one for mid-February, one for late March, one for late April, two for early May, one for mid-May, four for late May, one for early July and one for late July); the fruits are white. HABITAT: Within the range of this species it has been reported from mountains; bouldery-gravelly mountainsides; mesas; plateaus; rock walls; bouldery bases of cliffs and walls; bouldery and rocky canyons; along bouldery and rocky-clayey canyon bottoms; rocky talus; crevices in rocks; rocky knolls; rocky ledges; rocky and gravelly ridges; stony ridgetops; ridgelines; clearings in woodlands; bouldery foothills; rocky hills; rocky and silty hillsides; bases of hills; bedrock, rocky, rocky-gravelly, gravelly, gravelly-loamy-silty sandy-loamy, loamy-clayey and clayey-loamy slopes; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders; bouldery coves; plains; gravelly and sandy flats; rocky basins; valley floors; along gravelly, gravelly-sandy, sandy and loamy roadsides; along arroyos; draws; gulches; rocky gullies; seeps; along streams; along streambeds; along creekbeds; bouldery-cobbly-sandy riverbeds; along and in bedrock, bouldery and sandy washes; drainage ways; borders of washes; (gravelly-sandy) edges of washes; margins of arroyos; gravelly terraces; floodplains; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy loam, gravelly-silty loam, clayey loam and loam ground; rocky clay and gravelly clay ground, and gravelly-loamy silty and silty ground, occurring from 1,000 to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations.

NOTES: This plant may be an attractive component of a restored native habitat. The flowers are visited by many types of insects. *Ericameria laricifolia* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Haplopappus laricifolius* A. Gray, Pages 330-331), 15, **16**, 28 (color photograph 481), 43 (112109), 44 (022912), 46 (recorded as *Aplopappus laricifolius* Gray, Page 861), 58, 63 (022912 - color presentation including habitat), 77, **85** (022912 - color presentation), **89** (reported as being a dwarf shrub located on Tumamoc Hill, recorded as *Aplopappus laricifolia* Gray), 115 (color presentation), 124 (022912 - no record of species; genus record), 140 (Pages 68-70, 87 & 284)*

Erigeron canadensis (see *Conyza canadensis* var. *canadensis*)

***Erigeron colomexicanus* A. Nelson: Running Fleabane**

SYNONYMY: *Erigeron divergens* J. Torrey & A. Gray var. *cinereus* A. Gray; *Erigeron tracyi* E.L. Greene. COMMON NAMES: Running Daisy; Running Fleabane. DESCRIPTION: Terrestrial biennial forb/herb (erect stems (with prostrate runners) 1 to 10 inches in height; plants were observed and recorded as being 6 to 8 inches in height and 4 inches in width; a mat was observed and reported that had a mass of spreading stolons measuring 10 to 15 feet across with a few upright stems); the foliage may be gray-green or yellow-green; the disk florets may be orange-yellow or yellow; the ray florets may be lavender, pinkish, light purple, purple, white (turning pink with age, purplish abaxially), white-pale lavender, white with a pink tint, white tinged with purple or red-purple or white with purple tips; flowering generally takes place between mid-March and early August (additional records: eleven for late August, five for mid-September and two for late September; flowering ending as late as October has also been reported). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky-clayey plateaus; rocky rims; cliffs; sandy bases of cliffs; along canyons; rocky and gravelly canyon bottoms; talus slopes; pockets of sandy soil in caprock; rocky bluffs; hogbacks; rocky ledges; rocky ridges; ridgetops; sandy clearings and openings in forests; rocky and sandy meadows; cinder cones; bases of cinder cones; foothills; bases of foothills; rocky hills; rocky hilltops; rocky and gravelly-sandy hillsides; escarpments; rocky, rocky-sandy, rocky-loamy, shaley, shaley-silty-clayey, stony, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, clayey and clayey-loamy slopes; bases of slopes; rocky outcrops; amongst boulders and rocks; sandy lava flows; grassy sand dunes; breaks; edges of rocky shelves; sandy steppes; sandy and clayey prairies; plains; rocky, sandy, sandy-clayey and clayey flats; rocky uplands; grassy basins; grassy valley floors; railroad right-of-ways; along gravelly roadbeds; roadcuts; along rocky, gravelly, gravelly-loamy and sandy roadsides; within rocky and sandy arroyos; rocky and sandy draws; gulches; rocky ravines; springs; sandy rivulets; along streams; sandy streambeds; along and in creeks; along creekbeds; in gravels along rivers; gravelly-loamy and sandy washes; within rocky-sandy, shaley and sandy drainages; within bouldery drainage ways; around ponds; clayey and silty-clayey lakebeds; loamy playas; bogs; sandy-silty swales; along banks of streams, creeks and washes; edges of rivers; along (gravelly) margins of streams and rivers; grassy shores of lakes; sand bars; rocky shelves; sandy bottomlands; floodplains; lowlands; along rocky and sandy fencerows; edges of stock tanks (charcos); ditches; riparian areas, and disturbed areas growing in moist, damp and dry shaley rimrock; bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam, sandy-clayey loam and clayey loam ground; rocky clay, shaley-silty clay, sandy clay, silty clay and clay ground, and sandy silty ground, occurring from 2,200 to 10,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Erigeron colomexicanus* is native to southwest-central and southern North America. *5, 6, 15, 43 (022912), 44 (022912 - no record of species; genus record), 46 (no record of species, record for *Erigeron divergens* Torr. & Gray is located on Page 880), 48 (genus), 63 (022912), 77, **85** (022912 - color presentation), 124 (022912 - no record of species; genus record), 140 (Pages 71 & 284)*

***Erigeron divergens* J. Torrey & A. Gray: Spreading Fleabane**

SYNONYMY: *Erigeron divergens* J. Torrey & A. Gray var. *typicus* A.J. Cronquist. COMMON NAMES: Ats'os Níí'iinit <ʔacose níʔin'iɬ> (Athapascan: Navajo)[140]; 'Azee' [Ch'il] Łibá <aze'[c'il] labahi, labaʔigi> (Athapascan: Navajo)[140]; 'Azee' Ná'oołtádii <azee'ná'ołtxátiih> (Athapascan: Navajo)[140]; <c'os be'yi'c'ol, béyi.c'ol> ("Vein Spurter", Athapascan: Navajo)[140]; Chį́į́h 'Azee' <c'ís ʔazéʔ> (Athapascan: Navajo)[140]; Desert Fleabane (a name also applied to other species); Dibetsétah Ch'il <dibecetah ch'il> (Athapascan: Navajo)[140]; Diffuse Daisy; Divergent Fleabane; Fleabane (a name also applied to other species and the genera *Conyza* and *Erigeron*); [Desert, Spreading] Fleabane (English)[140]; Fleabane Daisy (a name also applied to other species and the genus *Erigeron*); Green Rabbit Bush; Hierba Pulguera ("Herb for Fleas", Spanish: Mexico)[140]; K'aalógiidą́ą́ (Athapascan: Navajo)[140]; Layered Daisy; Na'ashjé'iidą́ą́' (Athapascan: Navajo)[140]; Spreading Daisy (English: Utah)[140]; Spreading Daisy Fleabane; Spreading Daisy-fleabane; Spreading Fleabane; Spreading Fleabane Daisy; Spreading Fleabane-daisy; Wóláchíí Dą́ą́ <wolaciʔ da> (Athapascan: Navajo)[140]. DESCRIPTION: Terrestrial biennial forb/herb (ascending and/or erect stems 2¾ to 28 inches in height; plants were observed and described as being 8 inches in height and 6 inches in width, plants were observed and described as being 12 inches in height and 16 inches in width); the stems may be reddish at base; the leaves are a dull gray-green or green; the disk florets may be orange-yellow or yellow; the ray florets may be blue, blue-lavender, blue-purple, pale lavender, lavender, lavender-blue, lavender-pink, lavender-purple, pale pink, pink, pinkish, pinkish-white, light purple, pale violet, white or white tinged with lavender or purple; flowering may take place throughout the year with flowering records for mid-January through late December. HABITAT: Within the range of this species it has been reported from mountains; rocky, gravelly-loamy and sandy mountaintops; rocky crags; mountainsides; rocky-gravelly and sandy mesas; rocky and sandy plateaus; rocky and sandy rims; rocky cliffs; bases of cliffs; rocky, gravelly, gravelly-loamy and sandy canyons; rocky canyon walls; along rocky, stony, sandy and sandy-silty canyon bottoms; talus slopes; sandy pockets of soil in rock; bluffs; shaley buttes; bases of hogbacks; rocky and sandy knolls; rocky ledges; bouldery and rocky ridges; rocky and gravelly ridgetops;

sandy clearings in forests and woodlands; rocky, rocky-sandy, stony, gravelly, sandy and clayey meadows; margins of meadows; cinder cones; bases of cinder cones; rocky foothills; bouldery, bouldery-rocky and rocky hills; rocky hilltops; rocky, rocky-sandy and sandy hillsides; escarpments; bouldery, bouldery-rocky-gravelly, rocky, rocky-loamy, rocky-clayey, shaley, stony, cobbly, cobbly-sandy-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, gravelly-silty-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, clayey, clayey-loamy, silty and silty-loamy slopes; bajadas; bedrock, bouldery, rocky and shaley outcrops; amongst boulders and rocks; lava flows; sand hills; sandy dunes; rocky-sandy ashflows; banks; sandy benchlands; steppes; stony, gravelly, gravelly-loamy, sandy, sandy-loamy, loamy, silty and silty-loamy prairies; rocky and sandy plains; muddy, bouldery-rocky-gravelly, bouldery-gravelly-sandy, rocky, gravelly, gravelly-sandy, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, clayey, clayey-loamy and silty-loamy flats; rocky and clayey basins; glens; rocky and sandy valley floors; along railroad right-of-ways; along roadcuts; along rocky, gravelly, gravelly-clayey-loamy, sandy, sandy-clayey-loamy and clayey roadsides; along sandy arroyos; bottoms of arroyos; bouldery and rocky-sandy draws; bottoms of draws; gulches; stony and sandy ravines; within seeps; springs; along rivulets in silted beaver ponds; along streams; along rocky-gravelly, rocky-sandy and gravelly-loamy streambeds; in sand along creeks; along cobbly-loamy, gravelly-sandy and sandy creekbeds; gravelly and sandy soil along rivers; along sandy riverbeds; along and in bedrock, gravelly, gravelly-sandy, sandy and silty washes; along and in rocky and clayey drainages; along and in rocky, rocky-silty-clayey, sandy, silty-clayey and clayey drainage ways; within watercourses; along waterways; boggy areas; ciénegas; marshes; depressions; sinks; swales; (muddy and gravelly-sandy) banks of streams, creeks, rivers and ponds; borders of washes; (sandy-silty) edges of rivers, vernal pools and playas; margins of streams, creeks, rivers and lakes; along shores of lakes; mudflats; gravel, gravelly-sand and sand bars; beaches; sandy and silty-loamy benches; clayey shelves; sandy terraces; sandy bottomlands; sandy, sandy-silty, clayey and silty floodplains; clayey lowlands; mesquite bosques; sandy fencerows; along levees; edges of stock tanks; along sandy shores and rocky embankments of reservoirs; along and in sandy ditches; gravelly, gravelly-sandy and sandy riparian areas; sandy waste places; recently burned areas of forests, and disturbed areas growing in muddy and wet, moist, damp and dry cryptogamic soil; rimrock pavement and bouldery, bouldery-rocky, bouldery-rocky-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy loam, rocky-clayey loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky clay, rocky-silty clay, cobbly-sandy clay, gravelly clay, sandy clay, silty clay, powdery clay and clay ground, and rocky silty, sandy silty and silty ground, occurring from 300 to 12,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and the plants were used in the home as a good luck charm. The flowers may be visited by butterflies. *Erigeron divergens* is native to west-central and southern North America. *5, 6, 15, **16**, 43 (112209), 44 (030212), 46 (Page 880), 48 (genus), **56**, **57**, 58, 63 (030212 - color presentation including habitat), 77, **85** (030312 - color presentation including habitat), 86 (color photograph), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 115 (color presentation), 124 (030212), 127, 140 (Pages 70-71 & 284)*

Erigeron divergens var. *cinereus* (see *Erigeron colomexicanus*)

Erigeron divergens var. *typicus* (see *Erigeron divergens*)

Erigeron linifolius (see *Conyza bonariensis*)

***Erigeron lobatus* A. Nelson: Lobed Fleabane**

COMMON NAMES: Desert Fleabane; Fleabane (a name also applied to other species and the genera *Conyza* and *Erigeron*); Fleabane Daisy (a name also applied to other species and the genus *Erigeron*); Lobed Daisy; Lobed Fleabane. DESCRIPTION: Terrestrial biennial forb/herb (erect stems 4 to 20 inches in height); the disk florets are yellow; the ray florets may be blue, blue-lavender, lavender, lavender-blue, lavender-pink, purple, white, white-blue, white-purple or white turning purple (drying blue or dark blue); flowering generally takes place between early February and mid-May (additional records: one for early January, three for mid-January, two for early June, one for mid-June, two for late June, one for mid-July, one for mid-August, two for late August, three for mid-September, one for late September, one for early October, two for late October, one for early November, two for mid-November, one for early December, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; bouldery and rocky canyons; canyon walls; along bouldery-gravelly-sandy and sandy canyon bottoms; chasms; gorges; talus slopes; crevices in rock walls; rocky hills; hilltops; rocky hillsides; bouldery-rocky, rocky, rocky-sandy, cobbly and gravelly slopes; rocky outcrops; amongst boulders and rocks; lava flows; plains; shaley esplanades; sandy flats; along rocky roadsides; arroyos; seeps; springs; around seeping streams; along streambeds; along creeks; rocky riverbeds; along and in rocky, gravelly-sandy and sandy washes; around and in drainages; along and in sandy drainage ways; bases of waterfalls; playas; marshes; depressions; around water holes; banks of streams and rivers; along (rocky) edges of rivers and washes; (sandy) shores of lakes; rocky and rocky-sandy beaches; mesquite bosques; along ditches; riparian areas, and disturbed areas growing in muddy and wet and dry bouldery, bouldery-rocky, bouldery-gravelly-sandy, rocky, rocky-sandy, shaley, gravelly and sandy ground and sandy clay and clay ground, occurring from 500 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Erigeron lobatus* is native to southwest-central and southern North

America. *5, 6, 43 (112609), 44 (030312 - no listing under Common Names; genus record), 46 (Page 880), 48 (genus), 63 (030312), **77**, **85** (030312 - color presentation of dried material), 124 (030312 - no record of species; genus record), 140 (Page 284)*

Erigeron tracyi (see *Erigeron colomexicanus*)

Eriophyllum lanosum (see *Antheropeas lanosum*)

Eupatorium solidaginifolium (see *Koanophyllon solidaginifolium*)

Evax caulescens (see footnote 89 under *Evax verna* var. *verna*)

Evax multicaulis (see *Evax verna* var. *verna*)

***Evax verna* C.S. Rafinesque (var. *verna* is the variety reported as occurring in Arizona): Spring Pygmycudweed**

SYNONYMY: (*Diaperia verna* (C.S. Rafinesque) J.D. Morefield, for *E.v.* var. *verna*: *Evax multicaulis* A.P. de Candolle). COMMON NAMES: Cotton-rose; Evax (a name also applied to the genus *Evax*); Manystem Evax; Rabbit Tobacco; Roundhead Rabbit-tobacco; Spring Pygmy-cudweed; Spring Pygmycudweed. DESCRIPTION: Terrestrial annual forb/herb (prostrate stems 1 to 10 inches in height); the herbage is light gray, light grayish, grayish, greenish or white woolly; the flower heads are white; flowering generally takes place between mid-March and late May. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky canyons; ridgetops; hills; hilltops; rocky slopes; bajadas; prairies; clayey-loamy plains; rocky, gravelly and loamy flats; valley floors; along clayey roadsides; within sandy arroyos; sandy-silty bottoms of arroyos; streambeds; creekbeds; along rivers; riverbeds; along and in gravelly, gravelly-sandy and sandy washes; depressions; swales; edges of washes; margins of ciénegas; channel bars; benches; gravelly-sandy bottomlands; floodplains; lowlands; mesquite bosques; around stock tanks; ditches; riparian areas, and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground; clayey loam and loam ground; clay ground, and sandy silty ground, occurring from 400 to 5,600 feet in elevation in the forest, grassland, desertscrub and wetland ecological formations. NOTE: *Evax verna* is native to south-central and southern North America. *5, 6, 43 (112609), 44 (052311 - no records listed under Common Names of genus or species), 46 (recorded as *Evax multicaulis* DC., Page 885), 63 (030112), **85** (030112 - color presentation), 124 (052311 - no record of genus or species), 140 (Page 284 - recorded as *Diaperia verna* (Rafinesque) Moerfield [*Evax verna* Rafinesque])*

***Evax verna* C.S. Rafinesque var. *verna*: Spring Pygmycudweed**

SYNONYMY: *Diaperia verna* (C.S. Rafinesque) J.D. Morefield, *Evax multicaulis* A.P. de Candolle. COMMON NAMES: Cotton-rose (a name also applied to the species); Evax (a name also applied to the species and the genus *Evax*); Manystem Evax (a name also applied to the species); Rabbit Tobacco (a name also applied to the species); Roundhead Rabbit-tobacco (a name also applied to the species); Spring Pygmy-cudweed (a name also applied to the species); Spring Pygmycudweed (a name also applied to the species). DESCRIPTION: Terrestrial annual forb/herb (prostrate stems 1 to 10 inches in height); the herbage is light gray, light grayish, grayish, greenish or white woolly; the flower heads are white; flowering generally takes place between mid-March and late May. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky canyons; ridgetops; hills; hilltops; rocky slopes; bajadas; clayey-loamy plains; rocky, gravelly and loamy flats; valley floors; along clayey roadsides; within sandy arroyos; streambeds; along rivers; riverbeds; along and in gravelly, gravelly-sandy and sandy washes; depressions; swales; edges of washes; margins of ciénegas; benches; channel bars; gravelly-sandy bottomlands; floodplains; mesquite bosques; around stock tanks; riparian areas and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground; clayey loam and loam ground, and clay ground, occurring from 400 to 4,900 feet in elevation in the forest, grassland, desertscrub and wetland ecological formations. NOTE: *Evax verna* var. *verna* is native to south-central and southern North America. *5, 6, 15 (recorded as *Evax multicaulis* DC.), **16** (recorded as *Evax multicaulis* DC.), 43 (112609), 44 (052311 - no records listed under Common Names of genus, species or variety), 46 (recorded as *Evax multicaulis* DC., Page 885), 58 (recorded as *Evax multicaulis* DC.), 63 (030112), **77** (recorded as *Evax multicaulis* DC.), **85** (030112 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Evax caulescens* Gray and as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Evax multicaulis* DC.), 124 (052311 - no record of genus, species or variety), 140 (Page 284 - recorded as *Diaperia verna* (Rafinesque) Moerfield [*Evax verna* Rafinesque])*

Filago arizonica (see *Logfia arizonica*)

Filago californica (see *Logfia californica*)

Filago depressa (see *Logfia depressa*)

Franseria ambrosioides (see Ambrosia ambrosioides)

Franseria confertiflora (see *Ambrosia confertiflora*)

Franseria cordifolia (see *Ambrosia cordifolia*)

Franseria deltoidea (see *Ambrosia deltoidea*)

Franseria dumosa (see *Ambrosia dumosa*)

Franseria tenuifolia (see footnote 89 under *Ambrosia confertiflora*)

***Gaillardia arizonica* A. Gray: Arizona Blanketflower**

SYNONYMY: *Gaillardia arizonica* A. Gray var. *arizonica* A. Gray; *Gaillardia arizonica* A. Gray var. *pringlei* (P.A. Rydberg) S.F. Blake; *Gaillardia pringlei* P.A. Rydberg. COMMON NAMES: Arizona Blanket Flower; Arizona Blanketflower; Pringle Blanketflower; Pringle's Blanketflower. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 16 inches in height); the foliage is dark green; the disc florets may be gold, orange-yellow or yellow; the ray florets may be gold, orange, orange-yellow or yellow; flowering generally takes place between early March and mid-May. HABITAT: Within the range of this species it has been reported from mountains; clayey-loamy mountainsides; mesas; gravelly and sandy canyons; foothills; hills; stony-clayey, slopes; bajadas; alluvial plains; sandy plains; sandy flats; gravelly valley floors; gravelly roadsides; grassy arroyos; draws; along and in gravelly-sandy, sandy and sandy-silty washes; depressions; gravelly-sandy-loamy terraces; mesquite bosques, and riparian areas growing in dry desert pavement; gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, gravelly-clayey loam and clayey loam ground; stony clay and sandy clay ground, and sandy silty ground, occurring from 600 to 5,200 feet in elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. *Gaillardia arizonica* is native to southwest-central and southern North America. *5, 6, **16**, 43 (112709), 44 (030312 - no record of species; genus record), 46 (Page 930), 48 (genus), 63 (030312), **77**, **85** (030312 - color presentation of dried material), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 124 (030312 - no record of species; genus record)*

Gaillardia arizonica var. *arizonica* (see *Gaillardia arizonica*)

Gaillardia arizonica var. *pringlei* (see *Gaillardia arizonica*)

Gaillardia pringlei (see *Gaillardia arizonica*)

Greenella arizonica (see *Gutierrezia arizonica*)

***Gutierrezia arizonica* (A. Gray) M.A. Lane: Arizona Snakeweed**

SYNONYMY: *Greenella arizonica* A. Gray. COMMON NAME: Arizona Snakeweed; Broomweed (a name also applied to the genus *Gutierrezia*); Matchweed; Snakeweed (a name also applied to the genus *Gutierrezia*). DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (erect stems 5 to 12 inches in height); the disk florets are white or yellow; the ray florets are white (drying reddish or light yellow); flowering generally takes place between late February and mid-June (additional records: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; rocky and sandy canyons; foothills; hillsides; slopes; bajadas; rocky-sandy, gravelly and sandy plains; gravelly flats; sandy valley floors; along roadsides; along washes; depressions; (sandy-loamy) margins of washes; floodplains; lowlands, and riparian areas growing in dry rocky, rocky-sandy, gravelly and sandy ground and sandy loam ground, occurring from 600 to 4,300 feet in elevation in the desertscrub ecological formation. NOTE: *Gutierrezia arizonica* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (112909), 44 (030412 - no record of species; genus record), 46 (recorded as *Greenella arizonica* Gray, Page 867), 63 (030412), 77, **85** (030412 - color presentation of dried material), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Greenella arizonica* Gray), 124 (0300412 - no record of species; genus record), 140 (Pages 74 & 284)*

***Gutierrezia microcephala* (A.P. de Candolle) A. Gray: Threadleaf Snakeweed**

COMMON NAMES: Broomweed (a name also applied to other species and the genus *Gutierrezia*); Hair-worm Snakeweed; Little-head Snakeweed; Matchweed (a name also applied to other species); Perennial Snakeweed; Resinweed; Small-head Matchbrush; Small-head Snakeweed; Small-headed Matchweed; Smallhead Snakeweed; Snakeweed (a name also applied to other species and the genus *Gutierrezia*); Sticky Snakeweed (a name also applied to other species); Thread Leaf Snake Weed; Thread Snakeweed; Thread-leaf Snake-weed; Thread-leaf Snakeweed; Thread-leaved Snakeweed; Threadleaf Snakeweed; Turpentineweed (a name also applied to other species). DESCRIPTION: Terrestrial perennial subshrub or shrub (erect stems 2 inches to 4½ feet in height); the lower portion of the stem may be brown with the upper portion of the stem being green or yellow; the leaves are dark gray-green; the disk florets may be gold or yellow; the ray florets are yellow; flowering generally takes place between mid-June and late November, plants may cease flowering during a summer drought (additional records: two for early January, one for late January, one for late February, one for late March, one for early April, one for mid-April and three for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy and

sandy-silty mesas; plateaus; rocky rims of canyons and craters; rocky spurs; rocky bases of cliffs; along rocky and gravelly-loamy canyons; rocky canyon walls; along rocky canyon bottoms; rocky gorges; knolls; rocky ridges; sandy ridgetops; clearings in forests; glades; meadows; foothills; bouldery, rocky, sandy and silty hills; gravelly-silty hilltops; rocky hillsides; bedrock, bouldery-cobbly-gravelly, rocky, shaley, cobbly, cindery, gravelly, gravelly-loamy, sandy and clayey-loamy slopes; sandy bajadas; rocky outcrops; amongst boulders; alcoves; rocky lava flows; sand hills; sand dunes; stony and sandy plains; gravelly, sandy and silty-loamy flats; basins; rocky valley floors; gravelly-sandy valley bottoms; along rocky railroad right-of-ways; along rocky, gravelly, gravelly-loamy and sandy roadsides; along arroyos; bottoms of arroyos; within gravelly draws; gullies; seeps; springs; along streams; gravelly-loamy streambeds; creekbeds; along rivers; along rocky, gravelly-sandy and sandy washes; silty lakebeds; ciénegas; along (gravelly and sandy) banks of streams, creeks, rivers and washes; (sandy) edges of washes and marshes; mudflats; beaches; benches; cobbly terraces; floodplains; mesquite bosques; ditches; sandy riparian areas, and disturbed areas growing in wet (rarely reported) and dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-cobbly-gravelly, rocky, shaley, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and silty loam ground; rocky clay, shaley clay, gravelly clay, sandy clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from 1,200 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication, as cooking tools and as decorations on prayer sticks. Threadleaf Snakeweed may live to be 10 to 18 years of age; however, the average lifespan is less than ten years. Threadleaf Snakeweed invades disturbed areas and may serve as an indicator of overgrazed rangelands reducing both native plant diversity and forage values, populations may best be reduced by increasing native grass competition. *Gutierrezia microcephala* is native to southwest-central and southern North America. *5, 6, 13 (Page 317), 15, **16**, 28 (note under *Gutierrezia sarothrae*), 43 (112909), 44 (052411 - color photograph), 46 (Snake-weeds "are more or less poisonous to sheep and goats when eaten in quantity, but are unpalatable and are seldom grazed. It is said that *G. microcephala* absorbs selenium in large quantity on certain soils.", Page 853), **56**, **57**, 58, 63 (030512 - color presentation), 68, **77**, 80 (This species is listed as a Major Poisonous Range Plant. "The poisonous principal is apparently a saponin. It is most toxic at earlier stages of growth during early leaf development and when growing on sandy soils. ... Livestock apparently eat small amounts of the relatively unpalatable snakeweed without serious consequences. Therefore, range improvement to provide alternate, desirable feed and to reduce snakeweed infestations through grass competition will control most losses." See text for additional information.), **85** (030512 - color presentation), 86 (note under *Gutierrezia sarothrae*), **89** (reported as being a perennial herb located on the Santa Cruz Floodplain), 124 (052411 - no record of species; genus record), 127, 140 (pages 73, 74 & 284)*

Haplopappus gracilis (see *Machaeranthera gracilis*)

Haplopappus laricifolius (see *Ericameria laricifolia*)

Haplopappus spinulosus (see *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Haplopappus spinulosus var. *australis* (see *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Haplopappus spinulosus var. *turbinellus* (see *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Haplopappus tenuisectus (see *Isocoma tenuisecta*)

***Hedosyne ambrosiifolia* (A. Gray) J.L. Strother: Ragged Marsh-elder**

SYNONYMY: *Iva ambrosiifolia* (A. Gray) A. Gray. COMMON NAMES: Marsh Elder (a name also applied to the genus *Iva*); Ragged Marsh-elder; Ragged Marshelder; Rag Sumpweed (Sumpweed is a name also applied to the genus *Iva*). DESCRIPTION: Terrestrial annual forb/herb or subshrub (erect stems 32 inches to 5 feet in height); the flower heads are yellow; flowering generally takes place between early August and late October (additional record: flowering beginning as early as May and ending as late as November and/or December has been reported). HABITAT: Within the range of this species it has been reported from mountains; bouldery bases of cliffs; canyons; canyon bottoms; along ridges; rocky ridgetops; gravelly hills; bouldery escarpments; bedrock and rocky slopes; alluvial fans; rocky outcrops; amongst boulders; rocky flats; valley floors; sandy roadsides; arroyos; gulches; springs; along streams; riverbeds; along and in sandy washes; ciénegas; terraces; mesquite bosques; floodplains; riparian areas, and disturbed areas growing in dry bouldery, rocky, gravelly and sandy ground, occurring from 1,000 to 6,600 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE: *Hedosyne ambrosiifolia* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Iva ambrosiaefolia* (Gray) Gray), 43 (113009), 44 (052511 - no record of species or genus; record of the genus *Iva*), 46 (recorded as *Iva ambrosiaefolia* Gray, Page 892), 63 (030612), 77 (recorded as *Iva ambrosiaefolia* A. Gray), **85** (030612 - color presentation), **89** (reported as being a long-lived annual herb located on the Mesa-like Mountain Slopes, recorded as *Iva ambrosiaefolia* Gray), 124 (052511 - no record of species or genus; record of the genus *Iva*)*

***Helenium thurberi* A. Gray: Thurber's Sneezeweed**

COMMON NAMES: Thurber Sneezeweed; Thurber's Sneezeweed. DESCRIPTION: Terrestrial annual forb/herb (erect stems 16 to 40 inches in height); the foliage is yellow-green; the disk florets may be brown, reddish-brown or yellow-

orange; there are no ray florets; flowering generally takes place between early April and late October (additional record: flowering beginning as early as March has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky and stony canyons; along rocky canyon bottoms; hillsides; rocky slopes; valley floors; gravelly arroyos; bottoms of arroyos; sandy draws; silty bottoms of draws; ravines; seeps; along streams; within sandy streambeds; along creeks; creekbeds; riverbeds; along rocky-sandy and sandy washes; drainages; around ponds; marshy places; along (sandy) banks of rivers; (sandy) edges of streams and creeks; (sandy) margins of creeks; floodplains; culverts; silty canal banks; within ditches, and riparian areas growing in wet, moist, damp and dry rocky, rocky-sandy, stony, gravelly and sandy ground; clay ground, and silty ground, occurring from sea level to 5,900 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formation. NOTE: *Helenium thurberi* is native to southwest-central and southern North America. *5, 6, 15, 43 (113009), 44 (052611 - no record of species; genus record), 46 (Page 929), 58, 63 (030612), **85** (030612 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 124 (052611 - no record of species; genus record)*

***Helianthus annuus* C. Linnaeus: Common Sunflower**

COMMON NAMES: Alizeti (Swahili); Annual Sunflower (a name also applied to other species); Chimalati (Mexico); Comb Flower (a name also applied to other species); Comb-flower (a name also applied to other species); Common Annual Sunflower; Common Garden Sunflower; Common Sunflower (a name also applied to other species); Common Western Sunflower; Common Wild Sunflower; Flor de Sol (Spanish); Garden Sunflower; Girasol (Spanish); Girassol (Portuguese); Gold (a name also applied to other species); Golden (a name also applied to other species); Grand Soleil (French); Haebaragi (transcribed Korean); Himaawari (Japanese Rōmaji); Hopi Sunflower; Isoauringonkukka; Kansas Sunflower; Kirik-tara-kata ("Yellow Eyes", Pawnee); Larea Ball; Larea-bell; Larrabell; Le Tournesol (French); Mira Sol (a name also applied to other species, New Mexico); Mirasol ("Looks at the Sun", Spanish); Omatts'aba (Zuni); Soleil; Sonnenblume (German); Solros (Swedish); Sunflower (a name also applied to other species, the genus *Helianthus* and to the Asteraceae); Tournesol (French); Wah'cha-zizi ("Yellow Flower", Dakota); Wallflower (misapplied); Western Sunflower (a name also applied to other species); Wild Artichoke (a name also applied to other species); Wild Sun-flower (a name also applied to other species); Wild Sunflower (a name also applied to other species); Zha-zi ("Yellow Weed", Omaha-Ponca). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to13 feet in height); the leaves are green; the disk florets may be black, brown, dark brown, brownish, maroon, purple, dark purple, dark purple-brown, reddish, reddish-brown, reddish-purple, rust-brown or yellow; the ray florets may be golden, orange-yellow, yellow or yellow with red-brown tips; the anthers are brownish to black; flowering generally takes place between early February and early November (additional records: one for mid-January, one for late November and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; silty-loamy mesas; plateaus; cliffs; rocky walls; canyons; rocky and sandy canyon bottoms; talus slopes; bluffs; rocky, gravelly-sandy, gravelly-clayey, sandy-clayey and clayey buttes; clayey knolls; rocky ridges; gravelly-clayey ridgetops; rocky, sandy and loamy meadows; clayey foothills; rocky, stony and sandy hills; hilltops; bouldery, rocky and clayey hillsides; rocky-gravelly, shaley-silty, stony-gravelly, cobbly-sandy-clayey, gravelly, gravelly-loamy, gravelly-sandy, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, clayey, clayey-loamy, silty-loamy and silty-clayey slopes; bajadas; pediments; rocky outcrops; amongst rocks; sandy hummocks; sand bluffs; sand dunes; banks; steppes; rocky, sandy, clayey-loamy, silty-clayey and silty-clayey-loamy prairies; sandy, sandy-clayey and chalky plains; muddy, gravelly, gravelly-silty, sandy and clayey flats; clayey, clayey-loamy, silty-clayey and silty-clayey-loamy uplands; sandy valley floors; along gravelly railroad right-of-ways; shaley roadcuts; along muddy-clayey, rocky-gravelly, shaley, cindery, gravelly, gravelly-loamy, sandy, sandy-loamy, loamy-clayey and clayey roadsides; within sandy arroyos; bottoms of arroyos; within sandy, loamy and loamy-clayey draws; clayey bottoms of draws; within gullies; bottoms of gullies; ravines; seeps; springs; along streams; gravelly-clayey and clayey streambeds; along and in creeks; muddy, sandy and clayey creekbeds; along rivers; gravelly-sandy riverbeds; bouldery and bouldery-cobbly-sandy, stony, gravelly and sandy riverbeds; along and in rocky, rocky-sandy, sandy, clayey and silty washes; within rocky-clayey-silty, gravelly, sandy, clayey and silty-loamy drainages; along and in rocky drainage ways; watersheds; vernal pools; around ponds; around lakes; ciénegas; freshwater and saltwater marshes; blowout areas; sandy depressions; clay pans; swales; along (gravelly and sandy) banks of streams, creeks, creekbeds, rivers and lakes; along (silty) edges of streams, rivers, ponds and lakes; around and along (silty) margins of ponds and lakes; along and in (sandy, sandy-loamy, gravelly-clayey, clayey and clayey-loamy) shores of creeks, rivers, ponds, lakes and backwaters; stony-sand, cobbly-stony-gravel and gravel bars; stony-gravelly and loamy benches; gravelly-sandy and sandy bottomlands; mucky and clayey floodplains; gravelly lowlands; along sandy fencelines; around sandy-clayey stock tanks; along mucky-clayey-loamy margins and shores of reservoirs; canals; canal banks; along and in gravelly, sandy, sandy-loamy and silty ditches; along ditch banks; sandy and clayey riparian areas; waste places, and disturbed areas growing in mucky; muddy, and wet, moist, damp and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, stony-gravelly, stony-sandy, cobbly-stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky clay, cobbly-sandy clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground; rocky-clayey silty, shaley silty, gravelly-sandy silty, gravelly silty, sandy silty and silty ground, and chalky ground, occurring from sea level to 9,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, candy, cooking agent, fodder, fiber, and/or dye (red) crop; it was also noted as having been used for lighting, as a tool, as musical instruments, as a drug or medication, as ceremonial items, decorations and as a commodity used for personal hygiene. The flower heads follows the sun through the day. *Helianthus annuus* is native to northwest-central, south-

central and southern North America. *5, 6, 15, 18, 28 (color photograph), 43 (061709), 44 (052611), 46 (Page 903), 48, 58, 63 (030612 - color presentation including habitat), 68, 77, 80 (The Common Sunflower is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This common, annual forb has been reported to accumulate toxic levels of nitrate."), **85** (030712 - color presentation), 86 (color photograph), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 101 (color photograph), 115 (color presentation), 124 (052611), 127*

***Helianthus petiolaris* T. Nuttall: Prairie Sunflower**

COMMON NAMES: Deceptive Sunflower (for subsp. *fallax*); Girasol (a name also applied to other species, Spanish); Kansas Sunflower (a name also applied to other species); Lesser Sunflower; Narrowleaf Sunflower; Petioled Sunflower (for subsp. *petiolaris*); Pikkuauringonkukka; Plains Sunflower; Prairie Sun-flower; Prairie Sunflower; Sand Sunflower (North Dakota); Sandhill Sunflower (Kansas); Sunflower (a name also applied to other species, the genus *Helianthus* and to the Asteraceae); Western Sunflower (a name also applied to other species, Iowa); Wild Sunflower (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (erect stems 6 inches to 6½ feet in height; plants were reported that were 12 inches in height with a crown 6 inches in width); the foliage is bluish-green, green or greenish; the disk florets are brown, dark brown, red, reddish-brown or yellow (rarely); the ray florets are gold, golden-yellow, lemon-yellow, orange or yellow; the anthers are purplish to reddish; flowering generally takes place between early May and early November (additional records: one for mid-March, one for late March and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; bases of cliffs; canyons; sandy canyon bottoms; sandy bluffs; gravelly meadows; cindery craters; hills; bases of escarpments; rocky, gravelly-clayey, sandy, sandy-clayey and clayey slopes; bouldery outcrops; amongst shale rocks; sandy lava flows; sand hills; sand dunes; sandy hummocks; sand flats; sandy steppes; sandy prairies; sandy plains; sandy, sandy-loamy and clayey flats; uplands; sandy valley floors; along rocky-clayey, cindery-gravelly, gravelly, gravelly-clayey-loamy, sandy, sandy-loamy, clayey-loamy and silty roadsides; along and in sandy arroyos; rocky draws; gulches; within ravines; along streams; sandy streambeds; along creeks; creekbeds; along rivers; sandy riverbeds; along and in gravelly-sandy, sandy, sandy-clayey and sandy-silty washes; sandy-loamy playas; swales; banks of washes; (sandy) edges of washes; clayey and silty benches; terraces; sandy bottomlands; along floodplains; mesquite bosques; within ditches; riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, shaley, cindery, cindery-gravelly, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-sandy loam, shaley-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam and clayey loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and sandy silty and silty ground, occurring from 300 to 9,700 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and fodder crop; it was also noted as having been used as a drug or medication, for ceremonial items, decorations and as an indicator of the seasons (the amount of flowers related to the amount of rainfall and quality of the harvest). *Helianthus petiolaris* is native to northwest-central, south-central and southern North America. *5, 6, 28 (color photograph 413), 43 (061709), 44 (052711), 46 (Page 903), 58, 63 (030712 - color presentation), 68, 77, **85** (030712 - color presentation), 86 (note under *Helianthus annuus*), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 124 (052711), 127*

Hemizonia fitchii (see footnote 89 under *Hemizonia pungens*)

***Hemizonia kelloggii* E.L. Greene: Kellogg's Tarweed**

SYNONYMY: *Deinandra kelloggii* (Greene) Greene. COMMON NAMES: Kellogg Spikeweed; Kellogg Tarplant; Kellogg Tarweed; Kellogg's Spikeweed; Kellogg's Tarplant; Kellogg's Tarweed; Tarweed (a name also applied to other species and may also be applied to the genera *Deinandra*, *Hemizonia* and *Madia*). DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 5 feet in height); the foliage has been described as being sticky; the disk florets may be yellow or deep yellow; the ray florets are yellow; the anthers may be brownish maroon, dark purple, reddish or yellow; flowering generally takes place between early April and mid-July (additional records: one for early August, one for late August, one for early October and one for mid-October; flowering beginning as early as March and ending as late as November has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky and clayey canyons; openings in woodlands and shrublands; clayey foothills; bouldery, bouldery-silty-clayey and rocky, sandy, loamy and clayey hills; hilltops; hillsides; bases of hills; rocky-loamy, clayey, clayey-loamy and loamy slopes; barrens; pebbly and clayey plains; sandy and clayey flats; rocky valley floors; rocky-gravelly and sandy roadsides; sandy arroyos; springs; along sandy washes; within rocky-sandy-loamy drainages; along edges of washes; benches; bottomlands; within clayey ditches; riparian areas; recently burned areas in woodlands and chaparral, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, pebbly and sandy ground; rocky loam, rocky-sandy loam, sandy loam, clayey loam and loam ground, and bouldery-silty clay and clay ground, occurring from sea level to 6,900 feet elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Hemizonia kelloggii* is plant is native to southwest-central and southern North America. *5, 6, 43 (030812 - *Deinandra kelloggii* Greene), 44 (030803 - no listing under Common Names; genus record, records located under *Deinandra kelloggii* (Greene) Greene), 46 (Page 913), 63 (030812), 77, **85** (030812 - color presentation of dried material), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb, recorded as *Hemizonia wrightii* Gray), 106 (03082012 - no record of species; genus record), 124 (030812 - no record of species or genus)*

Hemizonia pungens (see *Centromadia pungens* subsp. *pungens*)

Hemizonia wrightii (see footnote 89 under *Hemizonia kelloggii*)

Heterotheca psammophila (see *Heterotheca subaxillaris*)

***Heterotheca subaxillaris* (J.B. de Lamarck) N.L. Britton & H.H. Rusby: Camphorweed**

SYNONYMY: *Heterotheca psammophila* B.L. Wagenknecht. COMMON NAMES: Árnica (Spanish: Kickapoo in Cahuilla and others in Durango, Sonora)[140]; Arniko (Uto-Aztecan: Mountain Pima)[140]; Camphor Daisy; Camphor Weed; Camphor-daisy; Camphor-daisy [weed] (English: Arizona, New Mexico)[140]; Camphor-weed; Camphor-weed Golden-aster; Camphorweed; Camphorweed Golden-aster; Camphorweed Goldenaster; Dune Camphorweed; False Arnica (a name which may also be applied to other species); False Arnica (English)[140]; Golden Aster (a name also applied to other species); Golden [Gold] - aster (English)[140]; Gordo Lobo ("Fat Wolf", Spanish: Chihuahua, Sonora)[140]; Gordolobo; Haramkulyi (Uto-Aztecan: Mountain Pima)[140]; Heterotheca (a name also applied to the genus *Heterotheca*); Malamujer ("Bad Woman", Spanish: Mountain Pima)[140]; Telegraph Plant (a name also applied to other species); Telegraph Plant (English)[140]; Wóláchíí' Bi'ghą́ <wolaciˀ be.ga> (Athapascan: Navajo)[140]. DESCRIPTION: Terrestrial annual forb/herb (procumbent and/or erect stems 4 inches to 6½ feet in height); the leaves are light green; the disk florets may be orange or yellow; the ray florets may be yellow or yellow-orange; flowering generally takes place between mid-May and late December (additional records: two for late January, two for early March and two for early April). HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; bouldery and rocky canyons; canyon bottoms; sandy ridgetops; openings in woodlands; sandy meadows; sandy foothills; sandy hilltops; rocky hillsides; rocky, gravelly and gravelly-sandy slopes; alluvial fans; bajadas; amongst boulders; sand dunes; breaks; sandy prairies; rocky-loamy, gravelly, gravelly-sandy, sandy and clayey flats; basins; valley floors; along railroad right-of-ways; along gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy and sandy roadsides; along arroyos; ravines; along streams; streambeds; rocky creekbeds; rocky-gravelly-sandy and rocky-sandy creekbeds; riverbeds; along and in sandy and clayey washes; within drainages; around ponds; sandy depressions; within swales; along banks of rivers; edges of streams; along (gravelly and sandy-loamy) shores of ponds and lakes; benches; cobbly terraces; clayey bottomlands; floodplains; along and in sandy ditches; ditch banks; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam and sandy loam ground, and gravelly clay and clay ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The foliage is strongly scented with crushed leaves smelling like camphor. *Heterotheca subaxillaris* is native to south-central and southern North America. *5, 6, 15, **16**, 28 (color photographs 414 A&B), 43 (061909), 44 (030812), 46 (Page 854, with an additional note on Page 1071 in the supplement), 58, 63 (030812 - color presentation), 68, 77, **85** (030812 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 101 (color photograph), 115 (color presentation), 124 (030812), 140 (Pages 75-76 & 285)*

Hymenatherum hartwegii (see footnote 89 under *Thymophylla pentachaeta*)

***Hymenoclea monogyra* J. Torrey & A. Gray: Singlewhorl Burrobrush**

SYNONYMY: *Ambrosia monogyra* (J. Torrey & A. Gray) J.L. Strother & B.G. Baldwin. COMMON NAMES: Arrow-wood (English)[140]; Burro Brush (a name also applied to other species and the genus *Ambrosia*); [Single-whorl] Burro-brush [bush] (English)[140]; Burrobrush (a name also applied to other species and the genus *Ambrosia*); Burrobush (a name also applied to other species); Cheese-bush (a name also applied to other species); Cheese-bush (English)[140]; Cheeseweed Burrobrush; Hécota <jécota, jejego> (Spanish: Guarijío, Mayo, Onavas Pima)[140]; Hierba del Pasmo ("Herb for Treating Pasmo", Spanish: Sonora)[140]; 'I:vadhod (Uto-Aztecan: Hiá Ceḍ O'odham); I'ivdag <i'ivdad> (Uto-Aztecan: Onavas Pima)[140], Iivdad (Pima Bajo); Iivdat (Gila Pima); Iivdhat (Uto-Aztecan: Akimel O'odham)[140]; 'I:wadhoḍ <'i:watoḍ, i:watodh, iivadhoḍ> (Uto-Aztecan: Tohono O'odham)[140]; Jeco (Uto-Aztecan: Guarijío, Mayo)[140]; Jécota (Spanish); Jejego (Spanish); Leafy Burrobrush; Leafy Burrobush; O'gach (Yuman: Walapai)[140]; Mono Burrobrush; Païab (Uto-Aztecan: Southern Paiute)[140]; Romerillo (a name also applied to other species, Spanish); Romerillo [Dulce] ("[Sweet] Little Rosemary", Spanish: Baja California, Sinaloa, Sonora)[140]; Single-whorl Burro-brush; Single-whorl Burrow-brush; Single-whorl Burro-bush; Single-whorl Cheesebush; Singlewhorl Burrobrush; Singlewhorl Burrobush; Singlewhorl Cheesebush; Slender Burro Brush; Slender Burrow-brush; Slender Burrowbrush; <tłeł> (Athapascan: Western Apache)[140]; White Burrobush (a name also applied to other species); Winged Ragweed (English)[140]. DESCRIPTION: Terrestrial perennial deciduous subshrub or shrub (erect stems 1 to 13 feet in height; plants were observed and described as being 71 inches in height and 79 inches in width); the foliage may be gray-green, green or olive-green; the flower heads may be cream, light green, greenish-white, white, yellow or yellow-cream; flowering generally takes place between early March and early June and again between early September and mid-December (additional records: two for mid-January, one for mid-March, one for early April, one for mid-May and two for late July; flowering in August has also been reported). HABITAT: Within the range of this species it has been reported from mountains; clayey mesas; bases of cliffs; rocky canyons; along rocky and sandy canyon bottoms; rocky-sandy buttes; foothills; bases of foothills; rocky hills; rocky hillsides; bouldery-gravelly, rocky, rocky-clayey and sandy slopes; sand dunes; plains; rocky and gravelly flats; basins; valley floors; valley bottoms; gravelly banks; sandy flats; valley floors; coastal sand dunes; coastal plains; along rocky, gravelly-sandy, gravelly-loamy, sandy-loamy and clayey roadsides; along and in rocky, gravelly and sandy arroyos; rocky, gravelly and sandy

bottoms of arroyos; gulches; within sandy ravines; springs; along streams; along and in streambeds, along creeks; along and in gravelly-sandy and sandy creekbeds; along rivers; along and in cobbly-sandy, gravelly and sandy riverbeds; along and in rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy, sandy and sandy-clayey washes; along and in gravelly drainages; along watercourses; ciénegas; along (gravelly and gravelly-sandy) banks of rivers and washes; borders of washes; along edges of arroyos and rivers; margins of rivers and washes; (sandy) sides of rivers; gravel bars; gravelly-sandy benches; sandy terraces; bottomlands; sandy floodplains; mesquite bosques; within ditches; rocky edges of ditches; along canals; sandy riparian areas, and disturbed areas growing in damp and dry bouldery-gravelly, rocky, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam and sandy loam ground, and rocky clay, sandy clay and clay ground, occurring from sea level to 6,100 feet elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and is useful in controlling erosion. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Burrowbrush is a host plant of the Burrobrush Leaf Beetle, *Leptinotarsa lineolata*; rodents, including the Merriam's Kangaroo Rat (*Dipodomys merriami*), feed on the buds and sprouts. *Hymenoclea monogyra* is native to southwest-central and southern North America. *5, 6, 13 (Pages 301-302), 15, 43 (062009), 44 (030912 - recorded as *Ambrosia monogyra*), 46 (Page 894), 48 (genus), 58, 63 (030812 - color presentation), 85 (030912 - color presentation), 91 (Page 236), 124 (030812 - no record of species or genus; record of the genus *Ambrosia* L.), 127, 140 (Pages 55-56, 68,87 & 283 - recorded as *Ambrosia monogyra* (Torrey & A. Gray) Strother & B.G. Baldwin), **WTK** (August 2006)*

Hymenothrix wislizeni A. Gray: Trans-Pecos Thimblehead

COMMON NAMES: Burro-brush (English)[140]; Golden Ragweed; Thimblehead (a name also applied to the genus *Hymenothrix*); [Trans-Pecos] Thimblehead (English: Arizona, California, Texas)[140]; Trans-Pecos Thimblehead; TransPecos Thimblehead; Wislizen's Burro-brush (English)[140]; Wislizenus Beeflower; Yellow Thimblehead. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 8 inches to 5 feet in height); the foliage is green; the disc florets may be creamish to bright yellow; the ray florets may be green-yellow or yellow; the anthers are yellowish; flowering generally takes place between early June and early December (additional record: one for late March). HABITAT: Within the range of this species it has been reported from mountains; mesas; clefts in cliffs; rocky canyons; crevices in lava; buttes; meadows; foothills; rocky and stony-gravelly hills; rocky and gravelly hillsides; escarpments; bouldery-rocky-sandy, rocky, rocky-stony, rocky-clayey-loamy, sandy, sandy-loamy and sandy-clayey slopes; alluvial fans; bajadas; amongst boulders; rocky lava beds; plains; gravelly, sandy and clayey flats; valley floors; valley bottoms; along gravelly, gravelly-sandy-clayey-loamy, gravelly-silty, sandy and sandy-clayey-loamy roadsides; along and in sandy arroyos; along sandy bottoms of arroyos; springs; sandy streambeds; along creeks; along rivers; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy, sandy and clayey washes; drainages; (gravelly-sandy and sandy) banks of washes; (sandy) edges of washes; terraces; floodplains; mesquite bosques; around stock tanks, and disturbed areas growing in dry bouldery, bouldery-rocky-sandy, rocky, rocky-stony, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and gravelly silty ground, occurring from 1,300 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Javelina (*Peccari tajacu*) may browse this plant. Leaf-cutting Ants (*Acromrymex* spp.) and Lesser Goldfinch (*Carduelis psaltria*), House Finch (*Carpodacus mexicanus*) as well as other birds feed on the seed. *Hymenothrix wislizeni* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (062009), 44 (052811 - no species record; genus record), 46 (Page 920), **56**, **57**, 58, 63 (030912), 77, **85** (030912 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 115 (color presentation), 124 (052811 - no record of species or genus), 140 (Pages 76-78 & 285)*

Isocoma coronopifolia (A. Gray) E.L. Greene: Common Goldenbush

COMMON NAMES: Burroweed (a name also applied to other species); Common Goldenbush; Common Goldenweed; Common Jimmyweed; Goldenaster; Goldenbush (a name also applied to other species); Goldenweed (a name also applied to other species); Hierba del Burro (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial perennial subshrub (erect stems 8 inches to 2 feet in height); the flower heads are gold-yellow; based on few flowering records located, flowering generally takes place between early July and mid-October (flowering records: two for early July, one for late July, three for late September and two for mid-October; flowering beginning as early as May and June has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; rocky-sandy canyon walls; foothills; rocky and sandy slopes; gravelly bajadas; plains; gravelly-sandy flats; basins; along roadsides; draws; within sandy-clayey washes; (sandy) edges of marshy areas; floodplains; ditch banks, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam ground; sandy clay ground, and sandy silty ground, occurring from sea level to 5,600 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Isocoma coronopifolia* is native to southwest-central and southern North America. *5, 6, 43 (120209 - *Isocoma coronopifolia* Greene), 44 (052811 - no record of species; genus record), 46 (no record of species), **56**, **57**, 63 (052811 - this species is not recognized as being present in Arizona), **85** (030912), 124 (052811 - no record of species or genus), 140 (Page 285)*

Isocoma tenuisecta E.L. Greene: Burroweed

SYNONYMY: *Haplopappus tenuisectus* (E.L. Greene) S.F. Blake. COMMON NAMES: Bitter-weed (English)[140]; Burro Weed; Burro-weed (a name also applied to other species); Burro-weed (English)[140]; Burrow Golden-bush; Golden-bush (English)[140]; Goldenweed; Burroweed (a name also applied to other species); Goldenweed (a name also applied to other species);

Hierba del Burrow (a name also applied to other species); Shrine Golden-weed (English)[140]; Shrine Jimmy-weed (English)[140]; Shrine Jimmyweed; Tatṣagĩ <taḍshagi, tatshagi> (Uto-Aztecan: Tohono O'odham, Arizona)[140]; Turpentine Bush (a name also applied to other species); Turpentine-bush (English)[140]. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 6 to 40 inches in height and 12 to 40 inches in width); the bark is gray or whitish; the leaves may be gray, green, silvery or yellow-green; the flower heads may be cream, tawny-yellow or yellow; flowering generally takes place between late July and mid-November (additional records: three for late June, one for early July, three for early December and two for late December). HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; mesas; canyons; along canyon bottoms; ridges; rocky-loamy foothills; rocky hills; rocky and gravelly hillsides; rocky, gravelly, sandy and sandy-clayey slopes; bajadas; rocky outcrops; amongst rocks; rocky-clayey plains; gravelly, gravelly-clayey, sandy and clayey flats; valley floors; along gravelly roadsides; sandy arroyos; draws; gulches; sandy bottoms of ravines; around streams; along and in sandy and sandy-silty washes; drainages; within clayey drainage ways; clayey playas; (rocky, gravelly-sandy and sandy) banks of arroyos and washes; borders of washes; sides of washes; mudflats; alluvial terraces; gravelly floodplains; mesquite bosques; ditch banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground; rocky loam and gravelly-sandy loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and sandy silty ground, occurring from 2,000 to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may live to be from 7 to 20 years of age. The fruits are gathered by a Leaf-cutting Ant (*Acromrymex* sp.). *Isocoma tenuisecta* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Haplopappus tenuisectus* (Greene) Blake Pages 327-328) 15, **16**, 28 (note under *Isocoma wrightii*), 43 (062009), 44 (031012 - no record of species; genus record), 46 (recorded as *Aplopappus tenuisectus* (Greene) Blake, Page 862), 58, 63 (031012), 68, 77, 80 (This species is listed as a Major Poisonous Range Plant. "The poisonous principle of burroweed is the alcohol, tremetol. All parts of the plant are poisonous, although the dried flowers are most often eaten. ... Burroweed produces the affliction called "trembles." Poisoned animals tremble violently when exercised and usually lie down in the normal position. Upon arising, the trembling recurs. Appetite is markedly depressed, and the severely poisoned animal eventually stays down until it dies. Acetonemia, characterized by the odor of acetone in the urine and on the breath, is also a product of burroweed poisoning. ... Burroweed is generally low in palatability, but is eaten in quite large amounts when better forage is not available. Special precautions must be taken with new animals brought into burroweed-infested areas as they are more likely to graze the plants. Native livestock apparently become sickened from eating the plant and tend to avoid it. An adequate supply of good feed during harsh times when livestock might be more prone to consume burroweed, may reduce its consumption." See text for additional information.), **85** (031012 - color presentation), **89** (reported as being a half-shrub located on the Mesa-like Mountain Slopes, recorded as *Bigelowia hartweggii*), 115 (color presentation), 124 (031012 - no record of species or genus), 140 (Pages 78-79 & 285)*

Iva ambrosiifolia (see *Hedosyne ambrosiifolia*)

***Koanophyllon solidaginifolium* (A. Gray) R.M. King & H.E. Robinson: Shrubby Thoroughwort**

SYNONYMY: *Eupatorium solidaginifolium* A. Gray. COMMON NAMES: Boneset (a name also applied to the genus *Eupatorium*), Shrubby Thoroughwort. DESCRIPTION: Terrestrial perennial subshrub (stems 18 inches to 5 feet in height); the flower heads are cream-yellow, white (tinged with purple) or yellowish; based on few records located, flowering generally takes place between late April and early December (flowering records: one for late April, one for early May, one for late June, two for late August, two for early September, six for late September, four for early October, two for mid-October, one for mid-November and two for early December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rock faces; in shade at bases of cliffs; within rocky and gravelly canyons; canyon walls; rocky canyon bottoms; rocky talus slopes; crevices in rocks; buttes; ledges; rocky promontories; rocky ridges; foothills; rocky hilltops; rocky-sandy cuts in hillsides; rocky slopes; bases of rocky outcrops; on and amongst boulders and rocks; in shade bases of rocks; in partial shade along valley bottoms; within draws; within ravines; along streams; along and in washes; shady bottomlands, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly and sandy ground, occurring from 100 to 6,800 feet in elevation in the grassland and desertscrub ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. *Koanophyllon solidaginifolium* is native to southwest-central and southern North America. *5, 6, 15, 43 (071710), 44 (031012 - no record of species or genus), 46 (recorded as *Eupatorium solidaginifolium* Gray, Page 845), 58, 63 (031012), 77 (color photograph #69), **85** (031012 - color presentation), 124 (031012 - no record of species or genus; genus record for *Eupatorium*), 140 (Page 285)*

***Lactuca serriola* C. Linnaeus: Prickly Lettuce**

SYNONYMY: *Lactuca scariola* C. Linnaeus. COMMON NAMES: Alface-de-espinho (Portuguese: Brazil); Alface-silvestre (Portuguese); Azee' Hókánii Łibáhígíí <azee'xokhánii'łipáhikíih> (Athapascan: Navajo)[140]; Ch'il 'abe' <c'il ʔabeʔ, coh, nca.gi'> (Athapascan: Navajo)[140]; China Lettuce; Common Prickly Lettuce; Compass Plant (a name also applied to other species); Compass Plant (English)[140]; Compass-plant (a name also applied to other species); Compassplant; English Thistle (a name also applied to other species); Escarola (Spanish); Horse Thistle (a name also applied to other species); Horse Thistle (English)[140]; Horse-thistle (a name also applied to other species); It'ąą'dotł'izhí (Athapascan: Western Apache)[140]; Khass El-baqar (Arabic); Khass El-homar (Arabic); Laitue Sauvage (French); Lecheras ("One Who Sells Milk", Spanish: Spain)[140]; Lechuga Espinaca [Silvestre] ("[Wild] Spinach Lettuce", Spanish: Sonora)[140]; Lechuguilla ("Little Lettuce" a name also applied to other species, Spanish: Mexico)[140]; Lechuuwa (Uto-Aztecan: Yaqui)[140]; Lettuce (a name also applied to other species and the genus *Lactuca*; noted as being under cultivation by English colonists by 1671); Licú [Ricú] (Yuman: Cocopa)[140]; Milk Thistle

(misapplied, a name applied to another species and the genus *Silybum*); Milk-thistle (misapplied, a name applied to another species and to the genus *Silybum*); Prickly Lettuce (a name also applied to other species); Prickly [Opium, Acrid, Wild] Lettuce (English)[140]; Prickly Wild Lettuce; Saĝwátųkápi (Uto-Aztecan: Ute)[140]; Serriola Prickly Lettuce; Stachellattich (German); Taggsallat (Swedish); Wild Lettuce (a name also applied to other species); Wild Opium (a name also applied to other species); Wilder Lattich (German). DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 6 inches to 10 feet in height); the stems are whitish; the leaves are medium green; the ray florets may be light blue, greenish-white, lemon-yellow, pinkish, pink-white, purple, rose, whitish, pale yellow or yellow (sometimes with bluish or purplish tips); flowering generally takes place between late May and late October (additional records: one for early February, two for late March and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; rims of canyons; bases of cliffs; along and in rocky canyons; bedrock, rocky, rocky-gravelly-sandy and rocky-sandy-silty canyon bottoms; scree slopes; rock slides; talus slopes; shaley bluffs; bases of bluffs; buttes; rocky ridges; ridgetops; loamy-clayey clearings and openings in forests; loamy-clayey and silty-clayey meadows; cinder cones; bases of cinder cones; rocky, rocky-gravelly and gravelly hills; hilltops; rocky hillsides; bedrock, bouldery, rocky, shaley, stony-sandy, stony-loamy, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, clayey, silty-loamy, silty-clayey-loamy and humusy-loamy slopes; bedrock and rocky outcrops; lava flows; rocky and gravelly-clayey banks; breaks; grassy steppes; sandy, sandy-loamy and clayey prairies; sandy plains; stony, gravelly, sandy, sandy-loamy, sandy-silty, loamy, clayey, clayey-loamy and silty flats; rocky, sandy, clayey and clayey-loamy uplands; valley floors; basins; along railroad right-of-ways; sandy roadbeds; shaley roadcuts; along rocky, cindery, gravelly, gravelly-sandy, sandy, sandy-loamy, clayey, clayey-loamy and silty-loamy roadsides; along arroyos; bottoms of arroyos; along and in sandy, loamy and loamy-clayey draws; bottoms of draws; gulches; gullies; grassy ravines; grassy bottoms of ravines; around seeps; springs; along streams; within loamy-clayey streambeds; along and in creeks; along and in muddy creekbeds; along rivers; stony and gravelly riverbeds; along and in rocky, gravelly, sandy and loamy washes; along and in bedrock and rocky-clayey-silty drainages; drainage ways; along waterways; vernal pools; around ponds; lakebeds; ciénegas; freshwater marshes; clayey depressions; bottoms of sinks; swales; along (rocky-clayey, gravelly, clayey and humusy-loamy) banks of streams, creeks, rivers and drainages; edges of creeks and ponds; along margins of arroyos, streams, creeks, washes, ponds and lakes; (gravelly) sides of streams and lakes; (clayey-loamy) shores of ponds and lakes; areas of drawdown; mudflats; stony-gravel, gravel and sand bars; rocky-sandy beaches; loamy benches; terraces; rocky, stony, gravelly, loamy and clayey bottomlands; along rocky-gravelly-sandy, gravelly-sandy-loamy, sandy, clayey, silty-loamy and silty-clayey floodplains; rocky-gravelly and clayey lowlands; along sandy fencelines; around stock tanks; bottoms of stock tanks; along banks, edges, margins and shores of reservoirs; within clayey reservoirs; dry beds of reservoirs; along canals; along sandy ditches; along ditch banks; bouldery-sandy, cobbly and sandy riparian areas; sandy-clayey and clayey-loamy waste places, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, stony-gravelly, stony-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, stony loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, silty loam, silty-clayey loam, humusy loam and loam ground; gravelly clay, sandy clay, loamy clay, silty clay and clay ground, and rocky-sandy silty, rocky-clayey silty, sandy silty and silty ground, occurring from sea level to 9,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Prickly lettuce may be browsed by Mule Deer (*Odocoileus hemionus*). *Lactuca serriola* is native to Europe and coastal islands in the North Atlantic Ocean and Mediterranean Sea; Asia, and northern Africa. *5, 6, 15, **16**, 28 (color photograph), 43 (053011), 44 (060111 - color photograph), 46 (Page 966), **56**, **57**, 58, 63 (031012 - color presentation), 68, **77**, 80 (This species is listed as a Rarely Poisonous or Suspected Poisonous Range Plant. “Hungry animals consuming large amounts of this biennial milky-juiced forb may develop pulmonary emphysema. It at also develops toxic levels of nitrate.”), **85** (031312 - color presentation), 101 (color photograph), 115 (color presentation), 124 (053011), 127, 140 (Pages 79-80 & 285)*

Laennecia coulteri (A. Gray) G.L. Nesom: Coulter’s Horseweed

SYNONYMY: *Conyza coulteri* A. Gray. COMMON NAMES: Annual Horsetail; Conyza (a name also applied to the genus Conyza); Coulter Conyza; Coulter Horseweed; Coulter Marshtail; Coulter’s Conyza; Coulter’s Horseweed; Coulter’s Marshtail; Coutler’s Woolwort; Sticky Conyza. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 6 feet in height; plants were observed and reported as being 16 to 40 inches in height and 6 inches in width); the disk flowers are yellow; the ray flowers may be cream, dull white, whitish or yellow; flowering generally takes place between late March and late October (additional records: three for mid-February, two for late February, one for mid-November, one for late November and one for early December; flowering taking place year round has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy mesas; rocky and sandy canyons; canyonsides; canyon bottoms; meadows; foothills; hills; hillsides; rocky, clayey and silty-loamy slopes; bajadas; rocky outcrops; amongst boulders; sandy lava beds; sand dunes; grassy plains; sandy, clayey and clayey-loamy flats; valley floors; valley bottoms; coastal beach sand; along sandy, sandy-loamy and clayey roadsides; arroyos; along bottoms of arroyos; sandy draws; ravines; seeps; around springs; along streams; along streambeds; along rivers; sandy and sandy-silty riverbeds; along and in sandy washes; along and in silty-clayey drainages; clayey drainage ways; clayey lakebeds; playas; cienegas; freshwater and salt marshes; clayey-loamy mudholes; depressions; sandy swales; banks of rivers, drainage ways and lakes; edges of ponds and salt marshes; (gravelly) margins of creeks and poolbeds; (rocky-sandy) shores of lakes; mudflats; sandy benches; rocky-sandy floodplains; lowlands; mesquite bosques; around stock tanks; along ditches; gravelly and sandy riparian areas; recently burned areas in forests, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam and silty

loam ground; silty clay and clay ground, and sandy silty ground, occurring from below sea level to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant is often confused with the Pineland Marshtail, *Laennecia schiedeana*. *Laennecia coulteri* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Conyza coulteri* Gray), **16** (recorded as *Conyza coulteri* Gray), 43 (120309), 44 (031312 - color photograph), 46 (recorded as *Conyza coulteri* Gray, Page 881),), **56** (recorded as *Conyza coulteri* A. Gray), **57** (recorded as *Conyza coulteri* A. Gray 58 (recorded as *Conyza coulteri* Gray), 63 (031612), **77** (recorded as *Conyza coulteri* A. Gray), 80 (Listed as a Secondary Poisonous Range Plant, see text for additional information. "The poisonous principal is unknown but sheep have been poisoned by feeding fresh green leaves totaling 3% of the body weight over 3 days. Some losses can be expected in Arizona from these plants, particularly in abandoned fields and on overgrazed ranges."), **85** (031612 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain, recorded as *Conyza coulteri* Gray), 124 (031312 - no record of species; genus record)*

***Lasthenia californica* A.P. de Candolle ex J. Lindley (subsp. *californica* is the subspecies reported as occurring in Arizona): California Goldfields**

SYNONYMY: (for subsp. *californica*: *Baeria chrysostoma* F.E. von Fischer & C.A. von Meyer; *Baeria chrysostoma* F.E. von Fischer & C.A. von Meyer var. *gracilis* (A.P. de Candolle) H.M. Hall; *Lasthenia chrysostoma* (F.E. von Fischer & C.A. von Meyer) E.L. Greene). COMMON NAMES: California Gold Fields; California Gold-fields; California Goldfield; California Goldfields; California Goldenfields; California Goldfield; California Goldfields; Coast Gold Fields; Coast Gold-fields; Coast Goldfield; Coast Goldfields; Dwarf Goldfields; Gold-fields (a name also applied to the genus *Lasthenia*); Goldfields (a name also applied to the genus *Lasthenia*). DESCRIPTION: Terrestrial annual or perennial forb/herb (decumbent [cespitose], ascending and/or erect stems 3 to 16 inches in height); the foliage is green; the disc florets may be orange or yellow; the ray florets may be golden-yellow, yellow or yellow-orange; flowering generally takes place between late January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; plateaus; rocky canyons; canyon bottoms; bluffs; ridges; ridgetops; sandy meadows; foothills; rocky hills; rocky hillsides; rocky, rocky-loamy, gravelly, sandy-loamy, clayey and clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; sandy and clayey-loamy plains; rocky and gravelly flats; sandy basins; valley floors; coastal bluffs; along sandy roadsides; sandy draws; seeps; along streams; sandy riverbeds; along and in rocky and sandy washes; clayey lakebeds; banks of arroyos and washes; edges of creeks and rivers; gravelly and sandy-loamy terraces; bottomlands; floodplains; lowlands; gravelly-sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, sandy loam, clayey loam and loam ground, and clay ground, occurring from sea level to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Lasthenia californica* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Lasthenia chrysostoma* - color photograph 418), 43 (120409), 44 (060211 - color photograph of habitat), 46 (recorded as *Baeria chrysostoma* Fisch. & Mey. var. *gracilis* (DC.) Hall, reports that variety *gracillis* is the only form occurring in Arizona, Pages 917-918), 63 (031612 - color presentation including habitat), 77, 85 (031612 - color presentation), 86 (recorded as *Lasthenia chrysostoma*, color photograph), 124 (053111 - no record of species or genus), 127, 140 (Page 285 - recorded as *Lasthenia californica* DeCandolle ex Lindley [*Lasthenia chrysostoma* (Fischer & C.A. Meyer) Greene])*

***Lasthenia californica* A.P. de Candolle ex J. Lindley subsp. *californica*: California Goldfields**

SYNONYMY: *Baeria chrysostoma* F.E. von Fischer & C.A. von Meyer; *Baeria chrysostoma* F.E. von Fischer & C.A. von Meyer var. *gracilis* (A.P. de Candolle) H.M. Hall; *Lasthenia chrysostoma* (F.E. von Fischer & C.A. von Meyer) E.L. Greene. COMMON NAMES: California Gold Fields (a name also applied to the species); California Gold-fields (a name also applied to the species); California Goldfield (a name also applied to the species); California Goldfields (a name also applied to the species); California Goldenfields (a name also applied to the species); California Goldfield (a name also applied to the species); California Goldfields (a name also applied to the species); Coast Gold Fields (a name also applied to the species); Coast Gold-fields (a name also applied to the species); Coast Goldfield (a name also applied to the species); Coast Goldfields (a name also applied to the species); Dwarf Goldfields (a name also applied to the species); Gold-fields (a name also applied to the species and the genus *Lasthenia*); Goldfields (a name also applied to the species and the genus *Lasthenia*). DESCRIPTION: Terrestrial annual forb/herb (decumbent [cespitose], ascending and/or erect stems 3 to 16 inches in height); the foliage is green; the disc florets may be orange or yellow; the ray florets may be golden-yellow, yellow or yellow-orange; flowering generally takes place between late January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; plateaus; rocky canyons; canyon bottoms; bluffs; ridges; ridgetops; meadows; foothills; rocky hills; rocky hillsides; rocky, gravelly and stony-loamy slopes; bajadas; amongst boulders and rocks; clayey-loamy plains; gravelly flats; sandy basins; valley floors; along roadsides; sandy draws; seeps; along streams; bouldery-gravelly streambeds; sandy riverbeds; along and in rocky and sandy washes; clayey lakebeds; banks of washes; edges of creeks and rivers; gravelly and sandy-loamy terraces; bottomlands; floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, sandy loam and clayey loam ground, and clay ground, occurring from sea level to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers are reportedly fragrant. The species, *Lasthenia californica*, was reported to have been utilized by native peoples of North America

and could be investigated to determine its value as a home garden or commercial food crop. *Lasthenia californica* subsp. *californica* is native to southwest-central and southern North America. *5, 6, 15, 28 (recorded as *Lasthenia chrysostoma*, color photograph 418), 43 (120409), 44 (060211), 46 (recorded as *Baeria chrysostoma* Fisch. & Mey. var. *gracilis* (DC.) Hall, reports that variety *gracillis* is the only form occurring in Arizona, Pages 917-918), 63 (031712 - color presentation including habitat), **77**, **85** (031712 - color presentation), 86 (recorded as *Lasthenia chrysostoma* - color photograph), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Baeria gracilis* (DC.) Gray), 124 (053111 - no record of subspecies, species or genus), 127 (species), 140 (Page 285 - recorded as *Lasthenia californica* DeCandolle ex Lindley [*Lasthenia chrysostoma* (Fischer & C.A. Meyer) Greene])*

Lasthenia chrysostoma (see *Lasthenia californica* subsp. *californica*)

Leucelene erioides (see *Chaetopappa ericoides*)

***Logfia arizonica* (A. Gray) J. Holub: Arizona Cottonrose**

SYNONYMY: *Filago arizonica* A. Gray. COMMON NAMES: Arizona Cotton Rose; Arizona Cotton-rose; Arizona Cottonrose; Arizona Filago; Arizona Fluffweed; Arizona Herba Impia. DESCRIPTION: Terrestrial annual forb/herb (prostrate and or ascending stems 1 to 8 inches in height); the leaves may be gray, grayish or green; the flower heads may be brownish to yellowish; flowering generally takes place between mid-February and mid-May (additional records: one for early January, one for mid-June and one for early September). HABITAT: Within the range of this species it has been reported from mountains; mesas; escarpments; canyons; gravelly and sandy-loamy canyon bottoms; sandy bases of buttes; crevices in rocks; ridges; rocky hills; rocky, clayey and silty-clayey hillsides; rocky and gravelly-clayey slopes; gravelly bajadas; amongst rocks; lava fields; gravelly and sandy plains; rocky, gravelly, gravelly-sandy, sandy and clayey flats; valley floors; valley bottoms; rocky coastal bluffs; coastal slopes; along sandy roadsides; arroyos; along streams; riverbeds; along and in rocky-silty, gravelly, gravelly-sandy and sandy washes; sandy drainages; drainage ways; rocky-clayey soils in and about vernal pools; shores of lakes; depressions; beaches; clayey terraces; floodplains; sandy-silty edges of stock tanks (charcos); gravelly-sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, gravelly, gravelly-sandy, sandy ground; cobbly-sandy loam, sandy loam and clayey loam ground; rocky clay, gravelly clay and clay ground; rocky silty, gravelly-sandy silty and sandy silty ground, and chalky ground, occurring from sea level to 6,000 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formation. NOTE: *Logfia arizonica* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Filago arizonica* Gray), 43 (120509), 44 (031712), 46 (recorded as *Filago arizonica* Gray, Page 886), 63 (031712 - color presentation), **77** (recorded as *Filago arizonica* Gray), **85** (031712 - color presentation), 124 (031712 - no record of species; genus record)*

***Logfia californica* (T. Nuttall) J. Holub: California Cottonrose**

SYNONYMY: *Filago californica* T. Nuttall. COMMON NAMES: California Cottonrose; California Filago; California Fluffweed; Herba Impia (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (erect stems 3 to 22 inches in height); the stems may be grayish to green; the leaves may be grayish, gray-green or green; the flower heads may be cream-white, white, white-straw, yellow or yellowish; flowering generally takes place between mid-February and early June (additional records: three for late June and one record for early November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky-sandy and gravelly mesas; plateaus; rocky cliffs; rocky canyons; rocky canyon rims; rocky, rocky-gravelly, gravelly-sandy and sandy canyon bottoms; shaley-cobbly talus slopes; buttes; ridges; rocky ridgetops; rocky ridgecrests; openings in chaparral; foothills; bouldery and rocky hills; rocky, cobbly-sandy-loamy and clayey hillsides; bouldery, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-loamy-clayey, cobbly-sandy-loamy, gravelly, gravelly-sandy, sandy, loamy, clayey and clayey-loamy slopes; sandy alluvial fans; bajadas; bouldery and rocky outcrops; sandy bases of rocky outcrops; amongst boulders and rocks; edges of boulders; plains; gravelly, sandy and sandy-loamy flats; basins; hollows; valley floors; roadbeds along roadsides; rocky arroyos; around springs; along sandy streams; within sandy streambeds; along creeks; along sandy creekbeds; rivers; riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; drainage ways; sandy depressions; (rocky) banks of arroyos and rivers; (cobbly) edges of washes; (sandy) shorelines of lakes; benches; bouldery-gravelly-sandy and sandy terraces; loamy bottomlands; floodplains; bar ditches; sandy riparian areas; recently burned areas in woodlands and chaparrals, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley-cobbly, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, sandy loam, clayey loam and loam ground; rocky-loamy clay and clay ground, and gravelly-sandy silty ground, occurring from sea level to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Logfia californica* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Filago californica* Nutt.), **16** (recorded as *Filago californica* Nutt.), 43 (120509), 44 (060211 - no records listed under Common Names), 46 (recorded as *Filago californica* Nutt., Page 886), 58, 63 (031712), 77 (recorded as *Filago californica* Nutt.), **85** (031712 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Filago californica* Nutt.), 124 (060211 - no record of species; genus record), 140 (Page 285)*

***Logfia depressa* (A. Gray) J. Holub: Dwarf Cottonrose**

SYNONYMY: *Filago depressa* A. Gray. COMMON NAMES: Dwarf Cotton Rose; Dwarf Cotton-rose; Dwarf Cottonrose; Dwarf Filago; Dwarf Herba Impia; Little Fluffweed; Spreading Cottonrose; Spreading Filago. DESCRIPTION:

Terrestrial annual forb/herb (stems ½ to 4 inches in height); the stems may be grayish, gray-green or whitish (possibly with a purplish cast; the leaves may be grayish to whitish; the flower heads may be brownish, pink-lavender, yellow or yellowish; flowering generally takes place between early late February and mid-May. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; drier edges of wet meadows; hills; rocky, cobbly-sandy, gravelly and gravelly-sandy slopes; rocky-cobbly-sandy and rocky-sandy alluvial fans; bajadas; bases of rocky outcrops; sand dunes; sandy hummocks; blow-sand deposits; gravelly and sandy flats; basins; gravelly valley floors; along sandy roadsides; along and in gravelly, gravelly-sandy and sandy washes; drainages; sandy edges of lakes; margins of washes; sandy benches; sandy terraces; gravelly-sandy floodplains; along edges of canals; gravelly-sandy riparian areas, and disturbed areas growing in wet and dry (often with a little extra moisture) desert pavement and rocky-cobbly-sandy, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 5,300 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: The Dwarf Cottonrose is reported to be a food plant of the Desert Tortoise (*Gopherus agassizi*). *Logfia depressa* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Filago depressa* Gray), **16** (recorded as *Filago depressa* Gray), 43 (120509), 44 (031712), 46 (recorded as *Filago depressa* Gray, Page 886), 58, 63 (031712), **77** (recorded as *Filago depressa* Gray), **85** (031712 - color presentation of dried material), 124 (060211 - no record of species; genus record)*

Machaeranthera arida B.L. Turner & D.B. Horne: Arid Tansyaster

SYNONYMY: *Arida arizonica* (R.C. Jacks. & R.R. Johnson) D.R. Morgan & R.L. Hartm.; *Machaeranthera coulteri* (A. Gray) B.L. Turner & D.B. Horne var. *arida* (B.L. Turner & D.B. Horne) B.L. Turner; *Psilactis coulteri* auct. non A. Gray. p.p. COMMON NAMES: Arid Machaeranthera; Arid Spiny Daisy; Arid Tansyaster; Silver Lake Daisy. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 to 16 inches in height); the disk florets may be gold or yellow; the ray florets may be blue, bluish-lavender, lavender, lavender-blue, pale lavender-pink, lavender-white, pink, purple, pale violet, violet, white or whitish; flowering generally takes place between early March and early September (additional records: one for late September, three for early October, one for mid-October, one for early November, two for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; crater walls; hills; hilltops; hillsides; rocky and gravelly slopes; gypsum outcrops; sand dunes; blowout areas between dunes; banks; sandy breaks; sandy plains; gravelly and sandy flats; basins; gravelly-sandy and sandy-clayey-loamy valley floors; coastal plains; along railroad right-of-ways; along rocky, sandy and sandy-loamy roadsides; along sandy arroyos; springs; gravelly-sandy and sandy-silty riverbeds; along and in gravelly and sandy washes; drainages; around pools; silty lakebeds; depressions; alkali sinks; banks of rivers; edges of seeps and playas; shores of lakes; sandy islands in riverbeds; gravelly benches; along gravelly-sandy-silty and clayey floodplains; along and in ditches; ditch banks, and disturbed areas growing in wet, moist and dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam and sandy-clayey loam ground; clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 4,800 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTE: *Machaeranthera arida* is native to southwest-central and southern North America. *5, 6, 43 (120509), 44 (031712 - no listing under Common Names; genus listing), 46 (recorded as *Psilactis coulteri* Gray, Page 867), **56** (recorded as *Machaeranthera coulteri* (A. Gray) Turner & Horne var. *arida* (Turner & Horne) Turner), **57** (recorded as *Machaeranthera coulteri* (A. Gray) Turner & Horne var. *arida* (Turner & Horne) Turner), 63 (031712), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as Rarely Poisonous and Suspected Poisonous Range Plants. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), **85** (031712 - color presentation of dried material), 124 (031712 - no record of species; genus record)*

Machaeranthera canescens (F.T. Pursh) A. Gray subsp. *canescens* var. *incana* (J. Lindley) A. Gray: Hoary Tansyaster

SYNONYMY: *Aster tephrodes* (A. Gray) S.F. Blake; *Dieteria incana* (J. Lindley) J. Torrey & A. Gray; *Machaeranthera incana* (J. Lindley) E.L. Greene; *Machaeranthera tephrodes* (A. Gray) E.L. Greene. COMMON NAMES: Aster (a name also applied to other species, the genus *Machaeranthera* and to the Aster Family); Cutleaf Goldenweed; Fall Tansyaster; Hoary Aster (a name also applied to the species); Hoary Tansyaster (a name also applied to the species); New Mexico Tansy-aster (a name also applied to other species); New Mexico Tansyaster (a name also applied to other species); Purple Aster. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (ascending and/or erect stems 6 to 40 inches in height); the disk florets are yellow; the ray florets may be lavender, purple, purple-blue, violet-blue, white or white tinged with lavender; flowering generally takes place between mid-February and early November. HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; sandy ridges; sandy-loamy hills; cindery-loamy slopes; amongst rocks; rocky alcoves; sand dunes; blow-sand deposits; flats; along sandy roadsides; gullies; rivers; along and in sandy washes; (rocky and sandy) edges of streams; sandy terraces; floodplains; sandy fencelines, and riparian areas growing in dry rocky, rocky-sandy and sandy ground; cindery loam, sandy loam and sandy-clayey loam ground, and sandy silty ground, occurring from 100 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera canescens* subsp. *canescens* var. *incana* is native to west-central and southern (Baja California) North America. *5, 6, 43 (031812), 44 (031812 - no listings recorded under Common Names for var. *incana* or for the species; genus record), 46 (recorded as *Aster tephrodes* (Gray) Blake, Page 874), 58 (recorded as *Machaeranthera tephrodes* (Gray) Greene), 63 (031812 - mapping does not show this plant as being native to or as occurring in Arizona), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to

livestock."), 85 (031812 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain, recorded as *Aster incanus* (Lindl.) Gray), 101 (species, recorded as *Machaeranthera canescens*, (Pursh) Gray, color photograph), 124 (031812 - no record of var. *incana* or subspecies *canescens*; species and genus records)*

Machaeranthera coulteri var. *arida* (see *Machaeranthera arida*)

***Machaeranthera gracilis* (T. Nuttall) L.H. Shinners: Slender Goldenweed**

SYNONYMY: *Haplopappus gracilis* (T. Nuttall) A. Gray. COMMON NAMES: Goldenweed (a name also applied to other species); Slender Goldenweed; Slender Spine-aster (New Mexico); Tabacote (Spanish); Yellow Daisy; Yellow Spiny Daisy. DESCRIPTION: Terrestrial annual forb/herb (decumbent, ascending and/or erect stems 4 to 28 inches in height); the foliage may be gray-green or yellow-green; the disk florets may be gold, yellow or yellow-orange; the ray florets may be gold, yellow or yellow-orange; flowering generally takes place between mid-March and mid-November (additional records: one for early January, two for early February and three for early December). HABITAT: Within the range of this species it has been reported from mountains; mountain summits; mountainsides; bases of mountains; mesas; sandy bases of cliffs; rocky canyons; sandy canyon bottoms; bouldery and sandy ridges; rocky ridgetops; clearings in forests and woodlands; sandy meadows; foothills; rocky, stony and sandy hills; rocky, gravelly-clayey, sandy-clayey and clayey hillsides; rocky, rocky-stony, rocky-silty, gravelly, gravelly-loamy, silty-loamy, sandy and clayey slopes; bajadas; amongst boulders; sand dunes; plains; rocky, sandy and clayey flats; valley floors; valley bottoms; along railroad right-of-ways; along rocky, gravelly-sandy, sandy and clayey roadsides; arroyos; draws; along streams; streambeds; along gravelly-sandy creeks; rocky creekbeds; along rivers; bouldery-cobbly-sandy and sandy riverbeds; along and in bouldery, rocky, stony, gravelly, gravelly-sandy, sandy and clayey washes; drainages; bouldery and gravelly-sandy-loamy drainage ways; within swales; along lakes; bog-like areas; (sandy and silty) banks of streams, creeks and lakes; shores of lakes; beaches; sandy benches; sandy and loamy bottomlands; sandy floodplains; lowlands; around and in stock tanks; along ditches; gravelly and sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-stony, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, silty loam and loam ground; gravelly clay, sandy clay and clay ground, and rocky silty and powdery silty ground, occurring from 1,100 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Machaeranthera gracilis* is native to south-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 419), 43 (062009), 44 (022711 - no listings under Common Names; genus record), 46 (recorded as *Aplopappus gracilis* (Nutt.) Gray, Page 860), 58, 63 (031812 - color presentation), 77, 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (031912 - color presentation), **89** (reported as being a long-lived annual herb located on the Mesa-like Mountain Slopes, recorded as *Aplopappus gracilis* (Nutt.) Gray), 124 (031812 - no record of species; genus record), 127, 140 (Page 285)*

Machaeranthera incana (see *Machaeranthera canescens* subsp. *canescens* var. *incana*)

***Machaeranthera parviflora* A. Gray: Smallflower Tansyaster**

SYNONYMY: *Aster parvulus* S.F. Blake. COMMON NAMES: Small-flower Tansy-aster; Smallflower Tansyaster; Small-flowered Spiny Daisy. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 3 to over 20 inches in height); the disk florets may be yellow or yellow-gold; the ray florets may be blue, purple or white; flowering generally takes place between late February and late October (flowering records: one for late February, one for mid-April, one for late April, two for late May, one for early June, four for early August, one for mid-August, one for late August, four for early September, five for mid-September, two for early October, one for mid-October and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; escarpments; canyons; gravelly hills; gravelly slopes; sand dunes; plains; clayey flats; basins; coastal sand dunes; along rocky, gravelly and sandy roadsides; springs; along and in sandy washes; drainage ways; playas; within sandy-clayey-loamy depressions; (silty and silty-clayey) margins of seeps; edges of playas; mudflats; along edges of impoundments; along canals; riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground; sandy-clayey loam ground; silty clay and clay ground, and silty ground, occurring from sea level to 9,200 feet in elevation in the desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant reportedly has a foul odor to it. *Machaeranthera parviflora* is native to southwest-central and southern North America. *5, 6, 43 (120509), 44 (032012 - no record of species; genus record), 46 (recorded as *Aster parvulus* Blake, Page 873), 63 (032012), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (032012 - color presentation of dried material), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain, recorded as *Aster parviflorus* Gray), 124 (032012 - no record of species; genus record), 127*

***Machaeranthera pinnatifida* (W.J. Hooker) L.H. Shinners: Lacy Tansyaster**

SYNONYMY: *Xanthisma spinulosum* (F.T. Pursh) D.R. Morgan & R.L. Hartman. COMMON NAMES: Cut-leaf Ironplant; Cutleaf Goldenweed; Cutleaf Ironplant; Ironplant (a name also applied to the genus *Machaeranthera*); Lacy Tansy-aster; Lacy Tansyaster; Pinnate Machaeranthera; Spiny Daisy; Spiny Goldenweed; Spiny Haplopappus; Tansyaster (a name also applied to the genus *Machaeranthera*); Yellow Spiny Daisy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (spreading to sprawling and/or stiffly erect (rarely) stems 3 to 40 inches in height); the leaves may be bluish, gray-green or green; the disk florets may be brown, brownish, golden-yellow, pale orange, orange, orange-yellow, yellow or yellow-orange; the ray florets may be golden-yellow, yellow or yellow-orange; flowering generally takes place year round from early January to late December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky peaks; rocky mountainsides; bases of mountains; rocky mesas; plateaus; rock cliffs; rocky and rocky-sandy rims of canyons and craters; bases of cliffs; along rocky, shaley and sandy canyons; canyon walls; bouldery-gravelly-sandy and sandy canyon bottoms; talus slopes; rocky clefts; crevices in bedrock, boulders, rocks and cracks in soil; sand bluffs; cindery (scoria) tops of buttes; stony-gravelly, rocky and sandy knolls; ledges; rocky, sandy and chalky ridges; bouldery, sandy-clayey and sandy-silty ridgetops; openings in forests and woodlands; gravelly meadows; crater walls; foothills; along rocky, gravelly, shaley-clayey, stony and sandy hills; hilltops; bouldery and rocky hillsides; escarpments; bouldery, rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, loamy, clayey-loamy and silty-loamy slopes; gravelly, gravelly-sandy and sandy bajadas; rocky outcrops; amongst bedrock, boulders and rocks; alcoves; along lava flows; lava fields; sand hills; sand dunes; sandy hummocks; clayey banks; sandy benches; breaks; sandy, sandy-loamy, clayey, silty-loamy and silty-loamy-clayey prairies; rocky, gravelly, sandy and sandy-clayey plains; rocky, gravelly, sandy, sandy-clayey and clayey flats; clayey-loamy uplands; sandy bowls; valley floors; along gravelly roadbeds; gravelly, sandy and clayey roadcuts; along rocky, rocky-sandy, rocky-loamy, gravelly, gravelly-loamy and sandy roadsides; two-tracks; arroyos; within sandy, sandy-silty and silty draws; gulches; gullies; springs; along streams; along streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in rocky, gravelly and sandy washes; along and in rocky-sandy, cobbly and sandy drainages; silty-clayey depressions; swales; along banks of creeks and rivers; borders of washes; edges of rivers; margins of rivers; shorelines of lakes; mudflats; sand bars; along rocky beaches; gravelly and sandy benches; rocky and gravelly-sandy terraces; rocky terrace alcoves; bottomlands; floodplains; mesquite bosques; fencelines; dry bottoms of stock tanks (charcos); along and in sandy ditches; sandy riparian areas, and disturbed areas growing in wet (rarely reported) and dry rimrock; bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, stony-gravelly, stony-sandy, cobbly, cindery, gravelly, gravelly-sandy, sandy and chalky ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam and loam ground; shaley clay, sandy clay, silty clay, silty-loamy clay and clay ground; sandy silty and silty ground, and chalky ground, occurring from sea level to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera pinnatifida* is native to central and southern North America. *5, 6, **16**, 43 (062109), 44 (032112 - no listings under Common Name; genus record), 46 (recorded as *Aplopappus spinulosus* (Pursh) DC., Page 860; *Aplopappus spinulosus* (Pursh) DC. subsp. *typicus* H.M. Hall, Page 860; *Aplopappus spinulosus* (Pursh) DC. var. *gooddingii* (A. Nels.) Blake, Page 860, and *Aplopappus spinulosus* (Pursh) DC. var. *turbinellus* (Rydb.) Blake, Page 860), 63 (032212 - color presentation), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), **85** (032412 - color presentation), 86 (recorded as *Haplopappus spinulosus*, color photograph), 124 (032112), 140 (Page 286 - recorded as *Xanthisma spinulosum* (Pursh) D.R. Morgan & R.L. Hartman var. *gooddingii* (A. Nelson) D.R. Morgan & R.L. Hartman)*

***Machaeranthera pinnatifida* (W.J. Hooker) L.H. Shinners subsp. *pinnatifida* var. *pinnatifida*: Lacy Tansyaster**

SYNONYMY: *Haplopappus spinulosus* (F.T. Pursh) A.P. de Candolle; *Haplopappus spinulosus* (F.T. Pursh) A.P. de Candolle var. *australis* (E.L. Greene) H.M. Hall; *Haplopappus spinulosus* (F.T. Pursh) A.P. de Candolle var. *turbinellus* (P.A. Rydberg) S.F. Blake. COMMON NAMES: Cut-leaf Aplopappus (Texas); Cut-leaf Eriocarpum (South Dakota); Cut-leaf Ironplant; Cut-leaf Sideranthus; Cut-leaved Sideranthus; Cutleaf Aplopappus (Texas); Cutleaf Eriocarpum (South Dakota); Cutleaf Goldenweed; Cutleaf Ironplant; Glabrous Sideranthus (Oklahoma): Glandular Sideranthus (Oklahoma); Ironplant (a name also applied to the genus *Machaeranthera*); Ironplant Goldenweed; Lacy Tansy-aster; Lacy Tansyaster; Pinnate Machaeranthera; Sideranthus; Spiny Goldenweed; Spiny Haplopappus; Yellow Spiny Daisy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (ascending and/or erect stems 6 to 16 inches in height); the foliage is gray-green; the flower heads are yellow or yellowish-green; based on few records located, flowering generally takes place between late February and March and early October (flowering records: one for late February, one for mid-April, three for early May, three for late May, three for early June, one for mid-June, one for early July, six for mid-July, one for early August, one for late September and four for early October). HABITAT: Within the range of this species it has been reported from cliffs; canyons; gorges; hills; bouldery and rocky-sandy hillsides; rocky slopes; gravelly bajadas; rocky outcrops; amongst boulders; silty-clayey breaks; prairies; gravelly flats; valley floors; railroad right-of-ways; roadcuts; along rocky-gravelly-sandy roadsides; arroyos; washes; banks of rivers; beaches; lowlands, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, gravelly and gravelly-sandy ground and silty clay ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida* is native to central and southern North America. *5, 6, 15, 43 (062109), 44 (032512 - no record of subspecies; no listings under Common Names for species; genus record), 46 (recorded as *Aplopappus spinulosus* (Pursh) DC., Page 860 and *Aplopappus spinulosus* (Pursh) DC. var. *turbinellus* (Rydb.) Blake, Page 860), 63 (032512 - color presentation), 77 (recorded as *Machaeranthera pinnatifida* (Hooker) Shinners var. *pinnatifida* [*Aplopappus*

spinulosus (Pursh) DC.]), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (032512 - color presentation of dried material), 86 (recorded as *Haplopappus spinulosus*, color photograph), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Aplopappus australis* (Greene)), 124 (032512 - redirected to *Machaeranthera pinnatifida* ssp. *pinnatifida*; genus and species records)*

Machaeranthera tagetina E.L. Greene: Mesa Tansyaster

SYNONYMY: *Aster tagetinus* (E.L. Greene) S.F. Blake. COMMON NAMES: Flor de Capita (Spanish); Mesa Tansy-aster; Mesa Tansyaster; Tansyleaf Spine Aster. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 40 inches in height; one plant was observed and described as being 10 inches in height and width); the foliage is gray-green; the disk florets are yellow, the ray florets may be blue, dark blue, blue-purple, blue-violet, lavender, dark lavender, purple, purple-blue, purple-indigo or violet; flowering generally takes place between early July and mid-December (additional records: one for mid-March and one for mid-April). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; bases of cliffs; ridges; ridgetops; foothills; hills; rocky and rocky-clayey hillsides; rocky, gravelly, gravelly-sandy-loamy and sandy-loamy slopes; alluvial fans; bajadas; rocky-loamy, gravelly, gravelly-sandy and clayey flats; basins; valley floors; gravelly roadbeds; along rocky roadsides; bottoms of arroyos; springs; along streams; streambeds; along creeks; sandy creekbeds; along and in rocky washes; rocky drainages; within drainage ways; ciénegas; banks of rivers; benches; terraces; floodplains; rocky mesquite bosques; ditch banks; riparian areas, and disturbed areas growing in dry rocky, stony-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, sandy loam and clayey loam ground, and rocky clay, sandy clay and clay ground, occurring from 300 to 8,100 feet elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera tagetina* is native to southwest-central and southern North America. *5, 6, **16**, 43 (062109), 44 (060611 - no record of species; genus record), 46 (recorded as *Aster tagetinus* (Greene) Blake, Page 873), **56**, **57**, 58, 63 (032512), 77, 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), **85** (032512 - color presentation), 124 (060611 - no record of species; genus record), 140 (Page 285)*

Machaeranthera tanacetifolia (K.S. Kunth) C.G. Nees von Esenbeck: Tansyleaf Tansyaster

SYNONYMY: *Aster tanacetifolius* K.S. Kunth. COMMON NAMES: Aster (a name also applied to other species and the genus *Machaeranthera* and to the Aster Family); Prärieaster (Swedish); Tahoka Daisy; Tahoka-daisy; Tansy Leaf Aster; Tansy Leaved Aster; Tansy-aster (a name also applied to other species and the genus *Machaeranthera*); Tansy-leaf Aster; Tansy-leaf Tansy Aster; Tansy-leaf Tansy-aster; Tansy-leaf-aster; Tansy-leaved Aster; Tansyleaf Aster; Tansyleaf Goldenweed; Tansyleaf Spine Aster; Tansyleaf Tansyaster; Udeya Lianna (Zuni, "Blue Flower"). DESCRIPTION: Terrestrial annual or biennial forb/herb (ascending and/or erect stems 2 inches to 6 feet in height); the foliage is gray-green or pale green; the disk florets may be orange-yellow or are yellow; the ray florets may be light bluish-purple, blue, dark blue, blue-lavender, blue-purple, lavender, deep lavender, lavender-blue, pink, purple, red-violet, violet or violet-lavender; flowering generally takes places between late April and mid-November (additional record: one for early April). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy-loamy plateaus; rocky rims of canyons; sandy bases of cliffs; along rocky and gravelly-loamy canyons; canyonsides; sandy and sandy-silty canyon bottoms; bouldery-silty-clayey talus slopes; sandy pockets of soil; sandy-clayey bluffs; cindery (scoria) and sandy-clayey buttes; rocky and gravelly ridges; sandy ridgetops; meadows; foothills; sandy hills, rocky and rocky-gravelly-loamy hillsides; rocky, rocky-gravelly-loamy, rocky-sandy, shaley, shaley-clayey, stony-sandy, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey-loamy, clayey, clayey-loamy and clayey-silty slopes; sandy banks; clayey breaks; sand hills; sand dunes; clayey breaks; rocky-sandy and sandy steppes; gravelly-sandy, sandy and clayey prairies; rocky, sandy and sandy-clayey plains; sandy, sandy-loamy, sandy-clayey, sandy-silty, clayey and clayey-loamy flats; rocky, sandy and sandy-clayey uplands; sandy valley floors; along cindery railroad right-of-ways; along rocky-gravelly, rocky-clayey, shaley, gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey roadsides; bottoms of arroyos; along bouldery draws; gullies; ravines; seeps; around and in springs; streambeds; in sand along creeks; sandy creekbeds; along rivers; sandy riverbeds; within gravelly and sandy washes; within sandy and clayey drainages; swampy areas; sumps; grassy swales; along banks of streams, creeks and rivers; (sandy) edges of rivers and lakes; margins of creeks and rivers; along (marshy and sandy-loamy) shores of ponds; sand and silty-sand bars; sandy beaches; sandy-clayey benches; sandy terraces; sandy bottomlands; sandy floodplains; lowlands; margins of reservoirs; along canals; within ditches; sandy riparian areas; waste places, and disturbed areas growing in wet (rarely reported), moist (rarely reported), damp (rarely reported) and dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; bouldery-silty clay, rocky clay, shaley clay, sandy clay and clay ground, and rocky silty, gravelly silty, gravelly-sandy silty, sandy silty, clayey silty and silty ground, occurring from 1,000 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Machaeranthera tanacetifolia* is native to west-central and southern North America. *5, 6, 18, 28 (color photograph), 43 (062109), 44 (032512), 46 (recorded as *Aster tanacetifolius* H.B.K., Page 873), 63 (032512 - color presentation), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (032712 - color presentation), 86

(color photograph), **89** (reported as being a long-lived annual herb located on the Mesa-like Mountain Slopes, recorded as *Aster tanacetifolius* H.B.K.), 124 (032512 - no record of species; genus record), 127, 140 (Page 285)*

Machaeranthera tephrodes (see *Machaeranthera canescens* subsp. *canescens* var. *incana*)

Malacothrix californica var. *glabrata* (see *Malacothrix glabrata*)

***Malacothrix clevelandii* A. Gray: Cleveland's Desertdandelion**

COMMON NAMES: Annual Malacothrix (a name also applied to other species); Cleveland Cliff-aster; Cleveland Dandelion; Cleveland Desert Dandelion; Cleveland Desert-dandelion; Cleveland Desertdandelion; Cleveland Malacothrix; Cleveland Yellow Saucers; Cleveland's Cliff-aster; Cleveland's Dandelion; Cleveland's Desert Dandelion; Cleveland's Desert-dandelion; Cleveland's Desertdandelion; Cleveland's Malacothrix; Cleveland's Yellow Saucers; Yellow Saucers (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 to 22 inches in height); the flower heads may be cream, cream-white, cream-yellow, bright lemon-yellow, white, pale yellow or yellow; flowering generally takes place between mid-March and early July. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; gravelly bases of cliffs; canyons; sandy canyon bottoms; rocky ledges; ridges; ridgetops; ridgelines; hills; rocky hillsides; rocky and sandy slopes; bajadas; rocky outcrops; amongst gravels; gravelly flats; along bottoms of arroyos; along streams; along creeks; along and in sandy washes; drainage ways; banks of washes; (sandy) edges of washes, margins of ciénegas; floodplains; shaley and sandy riparian areas; recently burned areas in chaparral and inland sage scrub, and disturbed areas growing in moist and dry rocky, shaley, gravelly and sandy ground, occurring from sea level to 6,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Malacothrix clevelandii* is native to southwest-central and southern North America and coastal islands in the North Pacific Ocean. *5, 6, 15, **16**, 43 (120709 - no record of species), 44 (032712), 46 (Page 963), 58, 63 (032712), 77, **85** (032712 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill), 115 (color presentation), 124 (032712 - no record of species or genus)*

***Malacothrix coulteri* W.H. Harvey & A. Gray: Snake's Head**

COMMON NAMES: Coulter Desert-dandelion; Coulter Desertdandelion; Coulter Malacothrix; Coulter Snake's-head; Coulter's Desert-dandelion; Coulter's Desertdandelion; Coulter's Malacothrix; Coulter's Snake's-head; Snake's Head (a name also applied to other species); Snake's Head Desertdandelion; Snake's Head Malacothrix; Snake-head Desert-dandelion; Snake's-head (a name also applied to other species); Snake's-head Desert-dandelion; Snakehead; Snakehead Desert Dandelion; Snakehead Desert-dandelion; Snakehead Desertdandelion; Snakehead Malacothrix; Snakes-head (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 inches to 2 feet in height); the flower heads may be cream, white, pale yellow or yellow; flowering generally takes place between late February and mid-May (additional records: one for early June and one for mid-June). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; ridges; ridgetops; rocky, stony-sandy, gravelly and clayey slopes; hills; hilltops; rocky alluvial fans; gravelly and sandy outwash fans; plains; sandy, clayey and silty flats; gravelly valley floors; clayey roadsides; springs; draws; in rocky and sandy washes; along drainage ways; silty lakebeds; silty playas; sandy depressions; alkali sinks; (sandy) banks of washes; (sandy) edges of lakes and dry lakes; shores of lakes; benches; recently burned areas of coastal sage scrub, and disturbed areas growing in damp and dry desert pavement; rocky, rocky-gravelly, shaley, stony-sandy, cindery, gravelly and sandy ground; sandy loam and loam ground; clay ground, and sandy silty and silty ground, occurring from 300 to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Malacothrix coulteri* is native to southwest-central and southern North America and coastal islands in the North Pacific Ocean. *5, 6, **16**, 43 (120709), 44 (032812), 46 (Page 963), 63 (032812), 77, 85 (032812 - color presentation), 86 (color photograph), **89** (reported as being a winter annual herb located on Tumamoc Hill), 124 (032712 - no record of species or genus)*

***Malacothrix glabrata* (A. Gray ex D.C. Eaton) A. Gray: Smooth Desertdandelion**

SYNONYMY: *Malacothrix californica* A.P. de Candolle var. *glabrata* A. Gray ex D.C. Eaton. COMMON NAMES: California Desert-dandelion (a name also applied to other species and the genus *Malacothrix*); Desert Dandelion (a name also applied to other species and the genus *Malacothrix*); Desert-dandelion (a name also applied to other species and the genus *Malacothrix*); Filiform Malacothrix; Smooth Desert Dandelion; Smooth Desert-dandelion; Smooth Desertdandelion; Smooth Malacothrix. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 to 16 inches in height); the flower heads may be creamy-white & yellow, lemon-yellow, white, pale yellow, bright yellow or yellow; flowering generally takes place between early February and mid-July (additional records: one for mid-January and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; mesas; rocky-sandy plateaus; canyon rims; rocky canyons; bouldery-gravelly-sandy, rocky, rocky-gravelly-sandy and sandy canyon bottoms; gorges; bouldery talus slopes; bluffs; sandy and clayey knolls; rocky ledges; sandy-clayey ridgetops; foothills; rocky, shaley and sandy hills; rocky hilltops; bouldery and rocky hillsides; bedrock, rocky, rocky-sandy, shaley, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; lava hills; lava flows; sand hills; sand dunes; sand mounds; sand flats; gravelly-sandy banks; sandy alluvial fans; gravelly-sandy and sandy plains; cindery, gravelly, sandy and sandy-clayey flats; rocky uplands; rocky-sandy, gravelly and sandy valley floors; sandy coastal plains; along rocky-sandy, stony, gravelly and sandy roadsides; gullies; springs; along gravelly-sandy creeks; creekbeds; along sandy rivers; along and in bouldery, rocky-sandy, gravelly, gravelly-sandy and sandy washes; sandy lakebeds; playas;

sandy and silty depressions; clayey pans; (rocky, gravelly-sandy and sandy) banks of washes; borders of washes; (sandy) edges of rivers, washes, lakes and lakebeds; alkaline mudflats; gravelly-sand bars; sandy beaches; benches; sandy terraces; sandy bottomlands; canal banks; riparian areas; recently burned areas in woodlands, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-gravelly-pebbly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, cobbly-gravelly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky-sandy loam, gravelly loam and sandy loam ground; sandy clay and clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant has a milky sap. *Malacothrix glabrata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 450), 43 (120709), 44 (032812), 46 (Page 963 and Supplement Page 1076), 58, 63 (032812 - color presentation), 77, **85** (032812 - color presentation), 86 (color photograph), **89** (reported as being a winter annual herb located on Tumamoc Hill), 124 (032712 - no record of species or genus), 127, 140 (Page 285)*

***Malacothrix sonchoides* (T. Nuttall) J. Torrey & A. Gray: Sowthistle Desertdandelion**

COMMON NAMES: Sow Thistle Desert Dandelion; Sow Thistle Malacothrix; Sow-thistle Desert Dandelion; Sow-thistle Desert-dandelion; Sow-thistle Desertdandelion; Sow-thistle Malacothrix; Sowthistle Desert Dandelion; Sowthistle Desert-dandelion; Sowthistle Desertdandelion; Sowthistle Malacothrix; Yellow Saucers (a name also applied to other species); Yellow-saucers (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 to 20 inches in height); the flower heads may be lemon-yellow or yellow; flowering generally takes place between mid-March and early July. HABITAT: Within the range of this species it has been reported from mountains; along sandy bases of mountains; sandy mesas; along gravelly and sandy rims of craters; canyons; sandy talus slopes; sandy bluffs; sandy buttes; rocky ridges; sandy meadows; rocky and sandy hills; rocky hillsides; bouldery-sandy, rocky, shaley, gravelly, gravelly-sandy, gravelly-clayey, sandy, sandy-silty and powdery-loamy slopes; gravelly alluvial fans; rocky and chalky outcrops; alcoves; sand hills; sand dunes; sand hammocks; sand mounds; sand flats; blow-sand deposits; steppes; sandy plains; sandy and silty flats; basins; sandy valley floors; valley bottoms; along gravelly roadbeds; along sandy, sandy-loamy, sandy-clayey and silty-loamy roadsides; two-tracks; within sandy arroyos; rocky-sandy draws; gulches; along rivers; along gravelly-sandy and sandy washes; sandy-clayey drainages; alkali sinks; sandy beaches; sandy benches; bottomlands; sandy floodplains; riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery-sandy, rocky, rocky-sandy, shaley, shaley-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, silty loam, powdery loam and loam ground; gravelly clay, sandy clay and clay ground, and rocky silty and sandy silty ground, occurring from 800 to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant has a milky sap. *Malacothrix sonchoides* is native to southwest-central North America. *5, 6, 43 (120709 - *Malacothrix sonchoides* Torr. & A. Gray), 44 (032812), 46 (Page 963 and Supplement Page 1076), 58, 63 (032812 - color presentation including habitat), 85 (032912 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill), 124 (032712 - no record of species or genus), 127*

***Malacothrix sonorae* W.S. Davis & P.H. Raven: Sonoran Desertdandelion**

COMMON NAME: Sonoran Desert Dandelion; Sonoran Desertdandelion. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 to 14 inches in height); the flower heads may be cream, white, pale yellow or yellow; flowering generally takes place between mid-March and early May (additional record: one for late May and two for early June). HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; mesas; rocky cliffs; gravelly faces of cliffs; rock faces; gravelly bases of cliffs; rocky canyons; shaded canyon walls; canyon bottoms; hilltops; hillsides; rocky slopes; rocky and rocky-shaley outcrops; sheltered bases of outcrops; amongst gravels; shady banks; shady roadcuts; arroyos; gulches; along streams; along creeks; rocky-sandy creekbeds; along and in sandy washes; drainage ways; margins of washes; around reservoirs, and bouldery and sandy riparian areas growing in moist and dry bouldery, rocky, rocky-shaley, rocky-sandy, gravelly and sandy soils, occurring from 100 to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Malacothrix sonorae* is native to southwest-central and southern North America. *5, 6, 43 (120809), 44 (032912 - no record of species; genus record), 46 (no record of species; genus Pages 962-963 and Supplement Page 1076), 63 (032912), **85** (032912 - color presentation), 124 (032712 - no record of species or genus)*

***Matricaria discoidea* A.P. de Candolle: Disc Mayweed**

SYNONYMY: *Matricaria matricarioides* auct. non (C.F. Lessing) T.C. Porter; *Matricaria suaveolens* (F.T. Pursh) F.G. Buchenau. COMMON NAMES: Chamomile (a name also applied to other species; South Dakota); Common Pineapple Weed; Common Pineapple-weed; Common Pineappleweed; Disc May Weed; Disc May-weed; Disc Mayweed; False Chamomile (a name also applied to the genus *Matricaria*); Gatkamomill (Swedish); Green Dog Fennel (Montana); Green Dog-fennel (a name also applied to the genus *Matricaria*; Montana, Nebraska); Lavender Cotton; Lavender-cotton; Manzanilla (a name also applied to other species); Matricaire Odorante (French); Pineapple Camomile; Pineapple Chamomile; Pineapple Mayweed; Pineapple Weed (a name also applied to other species); Pineapple-weed (a name also applied to other species); Pineapple-weed Chamomile; Pineappleweed (a name also applied to other species); Rayless Camomile; Rayless Chamomile; Rayless Dog Fennel; Rayless Dog-fennel; Rayless Dogfennel (Montana); Rayless Mayweed; Rounded Chamomile; Strahlenlose Kamille (German); Tong Hua Mu Ju (transcribed Chinese); Uv Spuluv ‘Smelly Clover’ (Pima); Wild Marigold (a name also applied to

other species, Col. Springs, California). DESCRIPTION: Terrestrial annual forb/herb (decumbent, ascending or erect stems ½ to 20 inches in height); the disc florets may be green, greenish-yellow, white, dull yellow, yellow, dull yellow-green or yellow-green; flowering generally takes place between mid-February and late September (additional records: one for mid-October and two for late October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; rocky canyons; canyon bottoms; pockets of soil in rock; gravelly bluffs; buttes; calcareous ledges; ridges; ridgetops; clearings in forests; rocky and sandy meadows; foothills; rocky and loamy hills; sandy hilltops; hillsides; bouldery, bouldery-sandy, rocky, gravelly, sandy-loamy, loamy, clayey and silty slopes; rocky outcrops; sandy banks; clay pans; steppes; plains; sandy-loamy and clayey flats; uplands; valley floors; loamy valley bottoms; railroad right-of-ways; along and in roadbeds; along muddy, rocky, rocky-sandy, gravelly, sandy, loamy, clayey and silty roadsides; draws; gulches; ravines; seep-springs; springs; along streams; streambeds; along creeks; creekbeds; along rivers; along riverbeds; along and in gravelly and sandy washes; along sandy-clayey-loamy drainages; pothole lakes; alkali lakebeds; marshy areas; within swales; (sandy) banks of streams, creeks, rivers, pools and lakes; margins of streams, ponds and lakes; shores of lakes; areas of drawdown; rocky-sand, gravel and sand bars; rocky beaches; sandy terraces; sandy bottomlands; lowlands; beaver ponds; stock tanks; banks and shores of reservoirs; canals; along and in ditches; riparian areas; sandy, loamy and clayey waste places, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery, bouldery-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, sandy clay and clay ground, and silty ground, occurring from sea level to 10,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber (dried and crushed plants used to line baby cradles crop; it was also noted as having been used as a drug or medication, the dried blossoms were used for jewelry, perfume and as an insect repellent, and the plant was used as an indicator of the salmonberry picking time. *Matricaria discoidea* is native to northwestern, northern, west-central and southern North America, and eastern Asia; however, its exact native range is obscure. *5, 6, **16**, 43 (120809), 44 (060611), 46 (recorded as *Matricaria matricarioides* (Less.) Porter, Page 937), 63 (032912), **77**, **85** (033012 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb, recorded as *Matricaria suaveolens* (Pursh) Buchenau), 101 (color photograph), 124 (060611), 127*

Matricaria matricarioides (see *Matricaria discoidea*)

Matricaria suaveolens (see *Matricaria discoidea*)

***Microseris lindleyi* (A.P. de Candolle) A. Gray: Lindley's Silverpuffs**

SYNONYMY: *Microseris linearifolia* (T. Nuttall) C.H. Schultz; *Uropappus lindleyi* (A.P. de Candolle) T. Nuttall; *Uropappus linearifolius* T. Nuttall. COMMON NAMES: Lindley False Silverpuffs; Lindley Microseris; Lindley Silver Puff; Lindley Silver Puffs; Lindley Silver-puffs; Lindley Silverpuffs; Lindley Uropappus; Lindley's False Silverpuffs; Lindley's Microseris; Lindley's Silver Puff; Lindley's Silver Puffs; Lindley's Silver-puffs; Lindley's Silverpuffs; Lindley's Uropappus; Linear-leaf Microseris; Linearleaf Microseris; Narrowleaf Microseris; Narrow-leaved Microseris; Silver Puffs (a name also applied to other species); Starpoint. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 20 inches in height); the foliage is gray-green or green with the leaves located in a basal rosette; the ray florets may be greenish, straw-yellow, white, pale yellow or yellow; flowering generally takes place between mid-January and mid-June (additional record: one for early September). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; mesas; canyon rims; bases of cliffs; rocky, gravelly-sandy and sandy canyons; along rocky, rocky-sandy and sandy canyon bottoms; chasms; gorges; rocky knobs; knolls; rocky and rocky-stony ledges; rocky promontories; along ridges; bedrock and rocky ridgetops; openings in woodlands; rocky-sandy meadows; sandy foothills; bouldery, rocky, cobbly-sandy-loamy, gravelly and gravelly-sandy hills; hilltops; rocky and clayey hillsides; along rocky, rocky-gravelly-loamy, rocky-sandy, rocky-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy-loamy, sandy-clayey-loamy, clayey, clayey-loamy, loamy and silty slopes; gravelly bajadas; bouldery and rocky outcrops; amongst boulders and rocks; lava flows; sand dunes; sandy plains; rocky and sandy flats; basins; sandy and clayey valley floors; along gravelly, gravelly-sandy and sandy roadsides; along bottoms of arroyos; around streams; bouldery and gravelly-clayey-loamy streambeds; creeks; sandy creekbeds; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along and in sandy drainages; in cobbly drainage ways; playas; sandy and clayey depressions; along (sandy) banks of arroyos, rivers and washes; edges of streams and creeks; (sandy) margins of creeks; benches; shelves; sandy terraces; sandy and loamy bottomlands; floodplains; mesquite bosques; along fencelines; ditches; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-stony, rocky-sandy, cobbly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky-loamy clay, rocky clay and clay ground, and silty ground, occurring from sea level to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant has a milky sap. *Microseris lindleyi* is native to west-central and southern North America and coastal islands in the North Pacific Ocean. *5, 6, 15, **16** (recorded as *Microseris linearifolia* (DC.) Schultz Bip.), 28 (recorded as *Microseris lindleyi* and *Microseris linearifolia*, color photographs 452 &453), 43 (120809 - *Microseris lindleyi* A.Gray), 44 (033112 - no listings under Common Names; records located under *Uropappus lindleyi*, color photograph, 46 (recorded as *Microseris linearifolia* (DC.) Schultz Bip., Page 959), 58, 63 (033112 - color presentation), 77 (recorded as *Microseris linearifolia* (DC.) Schultz Bip., color photograph #20), **85** (033112 - color presentation), **89** (reported as being a

winter annual herb located on Tumamoc Hill, recorded as *Microseris linearifolia* (DC.) Gray), 115 (color presentation), 124 (033112 - no record of species or genus), 140 (Page 286 - recorded as *Uropappus lindleyi* (DeCandolle) Nuttall)*

Microseris linearifolia (see *Microseris lindleyi*)

***Monoptilon bellioides* (A. Gray) H.M. Hall: Mojave Desertstar**

COMMON NAMES: Bristly Desert-star; Bristly Desertstar; Desert Daisy; Desert Star (a name also applied to the genus *Monoptilon*); Desertstar (a name also applied to the genus *Monoptilon*); Mohave Desert Star; Mohave Desert-star; Mohave Desertstar; Mojave Desert Star; Mojave Desert-star; Mojave Desertstar; Rock Daisy. DESCRIPTION: Terrestrial annual forb/herb (stems 1 inch to 1 foot in height with plants being up to 10 inches in width reported; plants were observed and reported as being ¾ inch in height and 5 inches in width); the stems are often reddish-purple; the leaves are grayish-green; the disk florets may be golden or yellow; the ray florets may be blue, blue-lavender-white, lavender, pink, purplish-lavender, white, white-lavender or white tinged with pink, pink-purple, purple or rose; flowering generally takes place between mid-January and mid-June (additional record: one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; stony and sandy mesas; rocky canyons; gravelly foothills; rocky, gravelly and sandy hills; rocky, rocky-cobbly and gravelly hillsides; rocky, rocky-gravelly-sandy, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, gravelly-sandy, sandy and clayey slopes; rocky alluvial fans; gravelly-sandy and sandy bajadas; bouldery outcrops; amongst rocks; lava flows; lava fields; sand dunes; gravelly plains; rocky, gravelly and sandy flats; valley floors; coastal sand dunes; sandy roadsides; gullies; creekbeds; along and in stony-sandy, gravelly, gravelly-sandy and sandy washes; stony drainage ways; playas; silty depressions; (gravelly and sandy) banks of drainage ways; shores of lakes; gravel bars; gravelly and sandy benches; terraces; canal banks, and gravelly-sandy riparian areas growing in dry desert pavement; bouldery, rocky, rocky-cobbly, rocky-gravelly-sandy, rocky-sandy, stony, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and sandy loam ground, and clay ground, occurring from sea level to 6,000 feet in elevation in the desertscrub and wetland ecological formations. NOTES: This small winter annual may be an attractive component of a restored native habitat, the flowers are about ¾ inch in width. *Monoptilon bellioides* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph 255), 43 (120809 - *Monoptilon bellioides* H.M. Hall), 44 (033112 - color photograph), 46 (Page 868), 63 (033112 - color presentation), 77 (color photograph #21), **85** (033112 - color presentation including habitat), 86 (color photograph), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Eremiastrum bellioides* Gray), 115 (color presentation), 124 (033112 - no record of species or genus)*

***Parthenice mollis* A. Gray: Annual Monsterwort**

COMMON NAME: Annual Monsterwort. DESCRIPTION: Terrestrial annual forb/herb (erect stem 20 inches to 8 feet in height); the foliage is pale green or green; the flower heads may be green or greenish-white; flowering generally takes place between mid-August and late October (additional records: one for late March, one for early April, one for late April, one for late June and one for early July, flowering ending as late as December has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky cliffs; sandy canyons; canyon bottoms; foothills; rocky hills; rocky hillsides; rocky and silty-loamy slopes; bajadas; amongst rocks; banks; flats; rocky and gravelly roadsides; ravines; seeps; along streams; along streambeds; along and in sandy washes; in rocky drainages; banks of washes and lakes; along edges of washes; benches; floodplains; riparian areas, and disturbed areas growing in dry rocky and sandy ground and silty loam ground, occurring from 400 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Parthenice mollis* is native to southwest-central and southern North America. *5, 6, 15, 43 (120909), 44 (060611 - no record of species or genus), 46 (Page 891), 58, 63 (033112), 85 (033112 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 124 (060611 - no record of species or genus), 140 (Page 285)*

***Parthenium incanum* K.S. Kunth: Mariola**

COMMON NAMES: Crowded Rayweed; Hierba Ceniza (Spanish); Hierba del Guayule (Spanish); Mariola (Spanish). DESCRIPTION: Terrestrial perennial shrub (1 to 4 feet in height; plants were observed and described as being 8 inches in height and width, one plant was observed and described as being 30 inches in height and 40 inches in width); the foliage may be gray, gray-green or white; the flower heads may be cream, cream-white, cream-yellow, green, greenish-white, greenish-yellow, white, whitish-green, yellow, pale yellow-white or yellow-cream; flowering generally takes place between late May and mid-December (additional records: two for early January, three for mid-January, one for late February, one for mid-March, one for mid-April, one for late April and one for early May). HABITAT: Within the range of this species it has been range reported from mountains; mountainsides; rocky and sandy mesas; plateaus; cliffs; rocky and gravelly-loamy canyons; gorges; talus slopes; crevices in rock; hogbacks; knolls; ledges; ridges; rocky ridgetops; sandy foothills; rocky hills; rocky, sandy and sandy-loamy hillsides; bouldery escarpments; bedrock, bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-sandy-clayey-loamy, rocky-loamy, rocky-silty-loamy, stony, gravelly, sandy, sandy-loamy, sandy-clayey, sandy-silty-clayey, clayey and chalky slopes; gravelly bajadas; rocky and clayey-loamy-gypsum outcrops; amongst rocks; lava flows; breaks; terraces; plains; gravelly and sandy flats; sandy esplanades; basins; valley floors; along rocky-sandy and gravelly-loamy roadsides; within rocky arroyos; ravines; springs; along rivers; along and in rocky, rocky-gravelly and gravelly washes; along drainages; drainage ways; clayey depressions; (sandy) banks of creeks; (rocky-sandy) borders of washes; shores of lakes; floodplains; lowlands; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy-clayey loam, rocky-silty loam, sandy

loam and clayey loam ground; sandy clay, sandy-silty clay and clay ground, and chalky ground, often growing on limestone soils, occurring from 900 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial crop. *Parthenium incanum* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 43 (120909), 44 (033112 - no record of species or genus), 46 (Page 891), 63 (040112 - color presentation including habitat), 77, **85** (040112 - color presentation including habitat), **89** (reported as being a half-shrub located on Tumamoc Hill), 124 (033112), 127*

***Pectis cylindrica* (M.L. Fernald) P.A. Rydberg: Sonoran Chinchweed**

COMMON NAMES: Fetid-marigold; Sonoran Chinchweed; Summer Mat. DESCRIPTION: Terrestrial annual forb/herb (prostrate, ascending and/or erect stems ½ to 8 (though usually less than 4) inches in height and width; sometimes forming dense mats); the leaves are bluish-green; the disk flowers are yellow; the ray flowers are yellow; flowering generally takes place between late August and early October (additional records: one for late October and one for early December; flowering beginning as early as May and ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; gravelly-sandy mesas; ridges; foothills; rocky hills; bajadas; lava flows; banks; gravelly-sandy and silty plains; sandy-silty, clayey and silty flats; valley floors; valley bottoms; gravelly roadsides; within shaded arroyos; washes; drainages; playas; (gravelly-sandy) banks of streambeds; mudflats; channel bars; floodplains; mesquite bosques, and disturbed areas growing in moist and dry rocky, gravelly and gravelly-sandy ground; rocky-gravelly-sandy loam and gravelly loam ground; clay ground, and sandy-silty and silty ground, occurring from 600 to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectis cylindrica* is native to southwest-central and southern North America. *5, 6, 43 (071710), 44 (040112 - no record of species; genus record), 46 (Page 935), 63 (040112), 77, **85** (040112 - color presentation of dried material), 124 (040112 - no record of species; genus record)*

***Pectis papposa* W.H. Harvey & A. Gray: Manybristle Chinchweed**

COMMON NAMES: Chinchweed (a name also applied to the genus *Pectis*); Chinchweed Fetidmarigold; Cinchweed (a name also applied to the genus *Pectis*); Cinchweed Fetid-marigold; Cinchweed Fetidmarigold; Common Chinchweed; Desert Chinchweed; Desert Cinchweed; Dissected Chinchweed; Fetid Marigold; Fetid-marigold; Limoncillo (Spanish); Many Bristle Cinchweed; Many-bristle Cinchweed; Many-bristle Fetid-marigold; Many-bristled Cinch-weed; Many-bristled Cinchweed; Manybristle Chinchweed; Manybristle Cinchweed; Manzanilla Coyote; Manzanilla de Coyote (Spanish). DESCRIPTION: Terrestrial annual forb/herb (ascending stems ½ inch to 1 foot in height and up ½ to 15 inches in width often forming rounded bushes; plants were observed and described as being 6 inches in height and 8 inches in width); the foliage may be green or yellow; the disk florets are yellow; the ray florets are yellow; flowering generally takes place between early July and late December (additional records: one for early April, one for late April, two for early May, one for mid-May, one for late May and two for early June). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy mesas; plateaus; cliff faces; rocky canyons; crevices in rock; buttes; sandy ridges; crater floors; rocky and sandy foothills; bouldery and gravelly hills; rocky-gravelly hilltops; rocky hillsides; bouldery-rocky-gravelly, rocky, rocky-gravelly, rocky-loamy, gravelly, sandy and sandy-silty slopes; gravelly alluvial fans; bajadas; amongst boulders and rocks; sand hills; sand dunes; sand hummocks; sand flats; blow-sand deposits; gravelly and gravelly-sandy plains; bouldery, bouldery-sandy, rocky-sandy, gravelly, gravelly-silty, sandy and sandy-loamy flats; basins; sandy valley floors; valley bottoms; coastal dunes; coastal flats; along gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; rocky and sandy arroyos; along sandy bottoms of arroyos; silty springs; along streams; along streambeds; sandy riverbeds; along and in bouldery-sandy, cobbly, gravelly, gravelly-sandy, sandy and silty washes; gravelly drainages; depressions; swales; (sandy) banks of rivers and washes; bayside sand spits; (silty) edges of washes and lakebeds; terraces; floodplains; lowlands; mesquite bosques; impoundments; bottoms of dry stock tanks (charcos); riparian areas; waste places, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, pebbly, pebbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam and sandy loam ground; clay ground, and gravelly silty, gravelly-sandy silty, sandy silty and silty ground, occurring from below sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and has been reported to be pleasantly aromatic (one record reported that it has a pungent aroma somewhat like that of a lemon). This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop; it was also noted as having been used as a drug or medication and as a ceremonial item. This plant is a host of the Beet Leaf Hopper. *Pectis papposa* is native to southwest-central and southern North America. *5, 6, **16**, 43 (121009), 44 (040212), 46 (Page 935), 63 (040212), 77, **85** (040212 - color presentation including habitat), 86 (color photograph), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes), 124 (040112 - no record of species; genus record), 127*

***Pectis papposa* W.H. Harvey & A. Gray var. *papposa*: Manybristle Chinchweed**

COMMON NAMES: Chinchweed (a name also applied to the species and genus *Pectis*), typical Cinchweed Fetid-marigold; typical Cinchweed Fetidmarigold; typical Common Chinchweed; typical Desert Chinchweed; typical Desert Cinchweed; typical Dissected Chinchweed; Fetid Marigold (a name also applied to the species and other species); Fetid-marigold (a name also applied to the species and other species); Limoncillo (a name also applied to other species, Spanish); typical Many

Bristle Cinchweed; typical Many-bristle Cinchweed; typical Many-bristle Fetid-marigold; typical Many-bristled Cinch-weed; typical Many-bristled Cinchweed; typical Manybristle Chinchweed; typical Manybristle Cinchweed; typical Manzanilla Coyote; Manzanilla de Coyote (a name also applied to the species and other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb (ascending stems ½ to 8 inches in height and up to 2 to 12 inches in width, plants were described as being 2 inches in height and 2 to 4 inches in width); the foliage may be green or yellow; the disk florets are yellow; the ray florets are yellow; flowering generally takes place between mid-July and late December (additional records: one for late May and two for early June). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; buttes; sandy ridges; crater floors; rocky foothills; rocky hillsides; rocky, rocky-loamy, gravelly and sandy slopes; bajadas; sand hills; sand dunes; sand hummocks; gravelly and gravelly-sandy plains; bouldery-sandy, rocky-sandy, gravelly, sandy and sandy-loamy flats; sandy valley floors; coastal dunes; coastal flats; gravelly roadsides; sandy arroyos; sandy bottoms of arroyos; sandy bottoms of ravines; along streams; along streambeds; sandy riverbeds; along and in cobbly, gravelly-sandy, sandy and silty washes; gravelly drainages; depressions; (sandy) banks of rivers and washes; (sandy) baysides; terraces; floodplains; lowlands; sandy riparian areas; waste areas, and disturbed areas growing in dry desert pavement; bouldery-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, sandy loam, silty loam and loam ground; clay ground, and gravelly-sandy silty and silty ground, occurring from below sea level to 5,900 feet in elevation in the scrub, grassland, desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat, and has been reported to be pleasantly aromatic (one record reported that it has a pungent aroma somewhat like that of a lemon). The species, *Pectis papposa*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop; it was also noted as having been used as a drug or medication and as a ceremonial item. This plant is a host of the Beet Leaf Hopper. *Pectis papposa* var. *papposa* is native to southwest-central and southern North America. *5, 6, 15, 43 (121009), 44 (040312), 46 (species, Page 935), 63 (040312), **85** (040312 - color presentation of dried material), 86 (color photograph of species), 124 (040112 - no record of species; genus record), 127 (species)*

***Pectis prostrata* A.J. Cavanilles: Spreading Chinchweed**

SYNONYMY: *Pectis prostrata* A.J. Cavanilles var. *urceolata* M.L. Fernald. COMMON NAMES: Creeping Pectis; Dwarf Chinchweed;, Spreading Chinchweed; Spreading Cinchweed. DESCRIPTION: Terrestrial annual forb/herb (prostrate and/or ascending stems ½ inch to 1 foot in height and/or width); the foliage is yellow-green; the flower heads are yellow; flowering generally takes place between mid-August and late October (additional records: one for late July and one for mid-December; flowering beginning as early as July and ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky canyons; sandy canyon bottoms; gravelly pockets of soil in rock; ridges; rocky ridgetops; meadows; rocky foothills; rocky hills; rocky-gravelly hilltops; rocky and gravelly-clayey hillsides; rocky, rocky-gravelly, stony, gravelly, sandy-loamy and clayey slopes; alluvial fans; bajadas; rocky outcrops; volcanic barrens; sandy plains; gravelly flats; valley floors; coastal dunes; gravelly roadbeds; along rocky and gravelly roadsides; along sandy arroyos; along spring seepages; along streams; sandy streambeds; silty creekbeds; along and in gravelly, gravelly-sandy and sandy washes; clayey lakebeds; swampy areas; scrapes; swales; (silty) banks of creeks; benches; alluvial terraces; bottomlands; floodplains; around and in stock tanks; riparian areas, and disturbed areas growing in muddy and wet and dry bouldery-gravelly, rocky, rocky-gravelly, stony, stony-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam ground; gravelly clay and clay ground, and gravelly-silty and silty ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant often forms mats. *Pectis prostrata* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and northern South America. *5, 6, 15, 43 (062209), 44 (040112 - no record of species; genus record), 46 (Page 935), 63 (040412), 85 (040412 - color presentation of dried material), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes), 124 (040112 - no record of species; genus record)*

Pectis prostrata var. *urceolata* (see *Pectis prostrata*)

Perezia nana (see *Acourtia nana*)

Perezia wrightii (see *Acourtia wrightii*)

***Pluchea sericea* (T. Nuttall) F.V. Coville: Arrowweed**

SYNONYMY: *Tessaria sericea* (T. Nuttall) L.H. Shinners. COMMON NAMES: Arrow Weed; Arrow-weed; Arrowweed; Arrowweed Pluchea; Arrowwood; Cachanilla (Spanish); Cachinilla (Spanish); Marsh Fleabane (a name also applied to the genus *Pluchea*); Os Ha Ma Kee (Pima). DESCRIPTION: Terrestrial perennial deciduous shrub (stems 3 to 16½ feet in height); the foliage may be grayish, gray-green, light green, green or silvery; the disk florets may be magenta, pink, purple-pink, rose or deep rose; the ray florets may be lavender, magenta, reddish-purple or deep rose; flowering generally takes place between mid-February and early September (additional records: three for mid-January, two for late September, one for early October, one for mid-October and three for mid-December; flowering year round has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons, sandy-loamy and sandy-silty canyon bottoms; sandy ridges; rocky hills; rocky, gravelly, sandy and clayey slopes; sand dunes; plains; flats; sandy uplands; basins; bolsons; valley bottoms; beach dunes; coastal beaches; along sandy-silty roadsides; arroyos; along bottoms of arroyos; draws; in seeps;

around springs; along streams; streambeds; along sandy creeks; sandy creekbeds; along rivers; along rocky-sandy, gravelly-sandy, gravelly-sandy-loamy, sandy and sandy-loam riverbeds; within washes; along drainages; around poolbeds; lakebeds; playas; ciénegas; marshes; swamps; within depressions; sinks; along (stony-gravelly-loamy) banks of streams and rivers; borders of washes; along (sandy) edges of streams, rivers, washes, lakes and freshwater marshes; margins of washes; along (gravelly-clayey, sandy and loamy) shorelines of rivers and lakes; sandy beaches; sandy benches; gravelly-sandy, sandy and sandy-clayey terraces; bottomlands; bouldery-gravelly-sandy and sandy floodplains; lowlands; mesquite bosques; margins of charcos (stock tanks); sandy canals; sandy banks of canals; along ditches; sandy ditch banks; sandy riparian areas; waste places, and disturbed areas growing in wet, damp and dry ground bouldery-gravelly-sandy, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; stony-gravelly loam, gravelly-sandy loam, sandy loam and loam ground; gravelly clay, sandy clay and clay ground, and sandy-silty and silty ground, occurring from sea level to 4,300 feet in elevation in the woodland, scrub, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as a tool and as a drug or medication. This plant is a host for the parasitic Sand Root (*Pholisma sonorae*) and is browsed by deer. *Pluchea sericea* is native to southwest-central and southern North America. *5, 6, 13, 28 (color photograph 732), 43 (121109), 44 (040412), 46 (Page 884), 48, 63 (040412 - color presentation including habitat), **85** (040412 - color presentation), **89** (reported as being a shrub located on the Santa Cruz Flood-plain), 124 (040412 - no record of species; genus record), 127*

***Porophyllum gracile* G. Bentham: Slender Poreleaf**

COMMON NAMES: Deerweed (a name also applied to other species); Hierba del Venado ("Herb of the Deer" a name also applied to other species, Spanish); Odora; Poreleaf (a name also applied to other species and the genus *Porophyllum*); Slender Pore Leaf; Slender Pore-leaf; Slender Poreleaf; Yerba de Venado (a name also applied to other species); Yerba del Vernada; Yerba del Vernada. DESCRIPTION: Terrestrial perennial subshrub (spreading and/or erect stems 4 inches to 5 feet in height; one plant was observed and described as being 8 inches in height and 12 inches in width, one plant was described as being 16 inches in height and 20 inches in width); the foliage may be bluish, blue-gray, gray, gray-green, green or purple-gray; the disk florets may be cream, cream-maroon, cream-purple, cream-white, flesh, grayish-white, maroon, maroon-cream, pinkish, pinkish-white, purple, purple-white, purplish, purplish-white, white, whitish, white tinged with purple, yellow or yellow-white; flowering generally takes place between mid-February and late December (additional records: one for early January and one for mid-January). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky-gravelly, stony and gravelly mesas; cliffs; bouldery bases of cliffs; in rocks along walls; bouldery, rocky and stony canyons; rocky and sandy canyon bottoms; scree; talus slopes; crevices in boulders and rocks; rocky bluffs; ledges; rocky ridges; rocky ridgetops; meadows; foothills; rocky and rocky-sandy hills; along bouldery hilltops; rocky hillsides; bedrock, bouldery, rocky, rocky-gravelly, rocky-loamy, rocky-clayey, gravelly and sandy slopes; alluvial fans; rocky and gravelly bajadas; rocky outcrops; amongst boulders and rocks; gravelly bases of boulders; sandy lava beds; sand dunes; sandy hummocks; sandy plains; rocky-sandy, gravelly and sandy flats; basins; valley floors; sea-bluffs; sandy coastal dune ridges; along gravelly roadsides; along rocky and sandy arroyos; rocky arroyo walls; rocky bottoms of arroyos; draws; along gullies; seeps; around springs; along streams; along creeks; sandy creekbeds; along rivers; rocky riverbeds; along and in rocky, rocky-clayey, gravelly, gravelly-sandy and sandy washes; drainages; within drainage ways; (rocky, cobbly and sandy) banks of arroyos, rivers and washes; borders of washes; (rocky) edges of arroyos; along shores; beaches; gravelly terraces; floodplains; riparian areas, and recently burned areas of chaparral growing in wet and dry gravelly desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, shaley, shaley-pebbly, stony, cobbly, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam and rocky-gravelly loam ground, and rocky clay and clay ground, occurring from sea level to 6,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Slender Poreleaf emits a pungent odor when bruised. This plant was reported to have been utilized by native peoples of North America crop; it was noted as having been used as a drug or medication. Deer browse this plant. *Porophyllum gracile* is native to southwest-central and southern North America. *5, 6, 13 (Page 311), 15, **16**, 28 (color photograph 733), 43 (121109), 44 (040512), 46 (Pages 933-934), **56**, **57**, 58, 63 (040512 - color presentation), 77, **85** (040512 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill), 115 (color presentation), 124 (040512 - no record of species or genus), 127, 140 (Page 285)*

Psilactis coulteri (see *Machaeranthera arida*)

***Psilostrophe cooperi* (A. Gray) E.L. Greene: Whitestem Paperflower**

SYNONYMY: *Riddellia cooperi* A Gray. COMMON NAMES: Cooper Paper Daisy; Cooper Paper Flower; Cooper Paper-daisy; Cooper Paper-flower; Cooper Paperflower; Cooper's Paper Daisy; Cooper's Paper Flower; Cooper's Paper-daisy; Cooper's Paper-flower; Coopers Paperflower; Paper Daisy; Paper Flower (a name also applied to the genus *Psilostrophe*); Paper-daisy; Paper-flower (a name also applied to the genus *Psilostrophe*); Paperflower (a name also applied to the genus *Psilostrophe*); White Stem Paperflower; White-stem Paper-flower; White-stem Paperflower; Whitestem Paperflower; Yellow Paper Daisy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 4 to 32 inches in height; one plant was observed and described as being 32 inches in height and 40 inches in width); the stems are white; the leaves may be blue-green, gray, gray-green, green, greenish-gray or white; the disk florets are yellow, the ray florets are lemon-yellow, pale yellow or yellow fading to cream or white and remaining on the plants when dry; flowering generally takes place between early January and early December. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas;

bouldery, bouldery-gravelly and rocky canyons; along canyon bottoms; buttes; rocky and chalky ridges; ridgelines; foothills; rocky, stony-gravelly, cobbly-gravelly-loamy and clayey hills; rocky and gravelly hillsides; bouldery, rocky, rocky-gravelly-clayey, stony, gravelly-sandy-silty, gravelly-clayey, sandy-loamy and sandy-silty slopes; sandy bajadas; rocky outcrops; amongst boulders and rocks; lava fields; sand dunes; rocky banks; plains; gravelly, sandy and clayey-loamy flats; basins; sandy valley floors; roadbeds; along rocky-sandy-loamy, gravelly-sandy, sandy and clayey roadsides; arroyos; along streams; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; sandy along rocky drainage ways; sandy depressions; along (sandy) banks of arroyos, rivers and washes; borders of washes; (gravelly-silty) edges of draws; mudflats; rocky benches; gravelly terraces; sandy bottomlands; floodplains; sandy riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-sandy, stony, stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, cobbly-gravelly loam, sandy-clayey loam, sandy-silty loam and clayey loam ground; rocky clay, rocky-gravelly clay, gravelly clay and clay ground; gravelly silty, gravelly-sandy silty and sandy silty ground, and chalky ground, occurring from 500 to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Psilostrophe cooperi* is native to southwest-central and southern North America. *5, 6, 13 (Page 309, color photograph: Plate W., Page 408), 15, **16**, 18, 28 (color photograph 421), 43 (040912 - *Psilostrophe cooperi* Greene), 44 (060611), 46 (Page 914), 48 (genus), **56**, **57**, 63 (040912 - color presentation), 77, 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This showy, low-growing shrub is widespread in Arizona. No losses have been documented, but it may cause some poisoning similar to the other paperflowers."), **85** (060811 - color presentation), 86 (color photograph), **89** (reported as being a half-shrub located on the Mesa-like Mountain Slopes, recorded as *Riddellia cooperi* Gray), 115 (color presentation), 124 (060611 - no record of species; genus record), 140 (Page 286), **HR**, **WTK** (October 28, 2009)*

Rafinesquia neomexicana A. Gray: New Mexico Plumeseed

COMMON NAMES: Desert Chickory (a name also applied to other species); Desert Chicory (a name also applied to other species); Desert Chicory (English)[140]; Desert-chicory (a name also applied to other species); Desert Dandelion (a name also applied to other species); Goatsbeard; Mexican Plumeseed; New Mexico Chicory; New Mexico Desert Chicory; New Mexico Desert-chicory; New Mexico Plume-seed; New Mexico Plume-seeded Chicory; New Mexico Plumeseed; Plume-seed (a name also applied to the genus *Rafinesquia*); [New Mexico] Plume-seed (English: Arizona, New Mexico, Texas)[140]; Plumeseed (a name also applied to the genus *Rafinesquia*); Sí^{a} (Uto-Aztecan: Southern Paiute)[140]. DESCRIPTION: Terrestrial annual forb/herb (ascending or erect stems 4 to 24 inches in height); the foliage may be bluish-gray-green or gray; the flowering heads (to 2 inches in width) may be cream, cream-white, white, white with lavender or pink stripes, yellow or yellow-cream; flowering generally takes place between early January and late May (additional record: one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy-silty mesas, along rocky cliffs; bases of cliffs; rocky canyons; sandy and sandy-loamy canyon bottoms; knobs; ridges; ridgetops; foothills; rolling hills; rocky and sandy hillsides; bases of hills; rocky escarpments; bouldery-sandy-clayey, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-silty-clayey, rocky-powdery, stony, cobbly-gravelly-sandy, cobbly-sandy loam, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy and silty slopes; alluvial fans; rocky-sandy and gravelly bajadas; amongst rocks; lava fields; sand dunes; sand flats; blow-sand deposits; terraces; bouldery-pebbly and sandy plains; rocky, cindery-sandy, gravelly, sandy, sandy-loamy, sandy-silty silty flats; rocky uplands; gravelly and sandy valley floors; coastlines; along rocky-sandy, gravelly, gravelly-sandy-clayey-loamy and sandy roadsides; rocky and sandy arroyos; draws; along gullies; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; cobbly drainage ways; silty lakebeds; sandy and silty depressions; alkaline sinks; (gravelly-sandy and sandy) banks of washes; (sandy) edges of washes and lakes; margins of washes; shores of lakes; gravelly-sandy benches; terraces; floodplains; ditches; sandy riparian areas and disturbed areas growing in dry desert pavement; bouldery-pebbly, bouldery-sandy, rocky, rocky-sandy, stony, cobbly, cobbly-gravelly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam and sandy loam ground; bouldery-sandy clay, rocky-silty clay, gravelly clay, sandy clay, silty clay and clay ground; sandy silty and silty ground, and rocky powdery ground, occurring from sea level to 5,800 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers "close" for the night and then re-open in the morning. It is often found growing up through the crowns of and supported by Triangleleaf Bursage (*Ambrosia deltoidea*) and other small low shrubs. *Rafinesquia neomexicana* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph 261), 43 (121209), 44 (040912 - color photograph, 46 (Page 961), 58, 63 (040912 - color presentation), 77 (color photograph #22), **85** (041012 - color presentation), 86 (color photograph), **89** (reported as being a winter annual herb located on Tumamoc Hill), 115 (color presentation), 124 (040912 - no record of species or genus), 140 (Pages 82-83 & 286)*

Riddellia cooperi (see *Psilostrophe cooperi*)

Sanvitalia aberti A. Gray: Abert's Creeping Zinnia

COMMON NAMES: Abert Creeping Zinnia; Abert Dome; Abert Sanvitalia; Abert's Creeping Zinnia; Abert's Dome; Abert's Sanvitalia. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 24 inches in height; one plant was described as being 24 inches in height and 32 inches in width); the stems are green, sometimes with a reddish tinge; the leaves are green; the disk florets are pale green, green, greenish-yellow, yellow or yellow-green; the ray florets are lemon-yellow, pale yellow or yellow drying cream or straw; flowering generally takes place between early August and late October (additional record: one for

mid-July). HABITAT: Within the range of this species it has been reported from mountains; rocky and clayey mesas; rocky cliffs; rocky canyons; sandy and clayey canyon bottoms; rocky gorges; pockets of soil in rock; rocky ledges; ridges; ridgetops; clearings in forests; meadows; cinder cones; foothills; rocky-sandy and sandy hills; rocky, gravelly and gravelly-clayey hillsides; rocky, cindery, gravelly, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey and loamy slopes; bajadas; plains; rocky and clayey outcrops; bouldery-sandy, rocky-gravelly, gravelly, sandy and sandy-loamy flats; valley floors; along gravelly-loamy and sandy-clayey-loamy roadsides; rocky, sandy and clayey arroyos; sandy bottoms of arroyos; along draws; springs; along streams; rocky-gravelly streambeds; along creeks; rocky creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy, sandy and clayey washes; drainages; depressions; swales; banks of washes, drainages and lakes; edges of washes; sandy-loamy terraces; bottomlands; floodplains; mesquite bosques; ditches; along sandy and silty riparian areas; waste places, and disturbed areas growing in dry bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, sandy loam, sandy-clayey loam and loam ground; sandy clay and clay ground, and sandy-silty and silty ground, occurring from 2,600 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Sanvitalia aberti* is native to southwest-central and southern North America. *5, 6, 15, 43 (072009), 44 (041612), 46 (Page 898), 63 (041612 - color presentation), 77, **85** (041612 - color presentation), 115 (color presentation), 124 (041612 - no record of species or genus), 127, 140 (Page 286)*

Senecio douglasii var. *monoensis* (see *Senecio flaccidus* var. *monoensis*)

***Senecio flaccidus* C.F. Lessing var. *monoensis* (E.L. Greene) B.L. Turner & T.M. Barkley: Smooth Threadleaf Ragwort**

SYNONYMY: *Senecio douglasii* A.P. de Candolle var. *monoensis* (E.L. Greene) W.L. Jepson; *Senecio monoensis* E.L. Greene. COMMON NAMES: Bush Groundsel; Bush Ragwort; Bush Senecio; Comb Butterweed; Felty Groundsel; Creek Senecio; Groundsel (a name also applied to other species and to the genus *Senecio*); Mono Groundsel (a name applied to other species); Mono Ragwort (a name also applied to other species); Mono Senicio; Sand Wash Butterweed; Sand Wash Groundsel; Sand-wash Butterweed; Sand-wash Groundsel; Sandwash Senecio; Shrubby Butterweed; Shrubby Ragwort; Smooth Threadleaf; Smooth Threadleaf Ragwort; Thread-leaf Groundsel; Thread-leaf Ragwort; Thread-leaved Ragwort; Threadleaf Butterleaf; Threadleaf Groundsel; Threadleaf Ragwort; Wash Groundsel. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 1 to 4 feet in height); the hairless foliage may be green, dark green or yellow-green; the disk florets may be orange-yellow or yellow; the ray florets are yellow; flowering generally takes place between late January and late November. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; plateaus; cliffs; canyons; rocky canyon bottoms; foothills; bouldery and rocky hills; rocky hillsides; bedrock, bouldery-rocky, rocky, rocky-sandy-loamy, rocky-silty, cindery, gravelly, gravelly-loamy, gravelly-clayey and sandy slopes; gravelly alluvial fans; bajadas; rocky and shaley outcrops; amongst boulders and rocks; banks; sandy plains; gravelly and sandy flats; basins; valley floors; along gravelly, gravelly-loamy and sandy roadsides; rocky and rocky-gravelly arroyos; bottoms of arroyos; silty draws; bottoms of draws; deep shaded ravines; springs; along rivulets; along streams; streambeds; along creeks; sandy creekbeds; riverbeds; along and in rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; within drainages; clayey depressions; borders of washes; edges of washes; benches; sandy bottomlands; sandy floodplains; bouldery, gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-gravelly loam, rocky-sandy loam, gravelly loam, sandy loam and clayey loam ground; gravelly clay and clay ground, and rocky silty, gravelly-sandy silty and silty ground, occurring from sea level to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant is reported to be a nectar source for many butterflies. *Senecio flaccidus* var. *monoensis* is native to southwest-central and southern North America. *5, 6, 13 (Pages 349-350), 15 (recorded as *Senecio douglasii* DC. var. *monoensis* (Greene) Jepson), **16**, 28 (color photograph 426 labeled Sand Wash Groundsel [*Senecio douglasii* var. *douglasii* (*Senecio monoensis*)] Page 289), 43 (062409), 44 (060811), 46 (recorded as *Senecio monoensis* Greene, Page 947), 63 (041612 - color presentation), 77 (recorded as *Senecio douglasii* DC. var. *monoensis* (Greene) Jepson), 80 (The Threadleaf Groundsel, Woolly Groundsel, Senecio (*Senecio longilobus* and others) are listed as Major Poisonous Range Plants. Poisoning by Threadleaf Groundsel has been attributed to the presence of a number of alkaloids. "These alkaloids belong to a single group - the pyrrolizidine alkaloids. Upon hydrolysis, these break into a nitrogen-containing fraction and a mono- or di-carboxylic necic acid. The nitrogen oxides are hepatotoxic, causing liver lesions that are attributed to senecio poisoning. ... Cattle and horses are equally sensitive to senecio poisoning; sheep and goats are less susceptible. ... Also, the consumption of small amounts of the plant over a period of a month or more will have a cumulative effect. ... When possible, livestock should be kept from areas heavily infested with Threadleaf Groundsel, particularly when the range is excessively dry." See text for additional information.), **85** (060811 - color presentation), 115 (color presentation), 124 (060811 - no record of variety or species; genus record), 140 (Page 286)*

Senecio lemmoni (see footnote 46 under *Senecio flaccidus* var. *flaccidus*)

***Senecio lemmonii* A. Gray: Lemmon's Ragwort**

COMMON NAMES: Groundsel (a name also applied to the genus *Senecio*); Lemmon Butterweed; Lemmon Groundsel; Lemmon Ragwort; Lemmon's Butterweed; Lemmon's Ragwort. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 4 inches to 5 feet in height); the stems are reddish; the foliage is purple beneath and green above; the disk florets

are golden-yellow, orange-yellow or yellow, the ray florets may be buttery-yellow, green-yellow or yellow, flowering generally takes place between early February and mid-May (additional records: one for early January, one for mid-January, one for early February, one for early June, one for late June, two for mid-November and four for late November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky peaks; rocky mountainsides; mesas; canyon rims; rocky cliffs; rocky cliff faces; bases of cliffs; along rocky canyons; crevices in boulders and rocks; buttes; rocky ridges; foothills; rolling hills; rocky, shaley, gravelly and gravelly-silty hillsides; bouldery, bouldery-rocky and rocky slopes; bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders and rocks; valley floors; along arroyos; draws; around seeps; along streams; rocky streambeds; along creeks; along and in rocky, rocky-sandy, gravelly and sandy washes; banks of streams and washes; borders of washes, and riparian areas growing in dry bouldery, rocky, rocky-sandy, shaley, gravelly and sandy ground; gravelly loam ground; clay ground, and gravelly silty ground, occurring from 300 to 4,700 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Senecio lemmonii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (121509), 44 (041612 - no record of species; genus record), 46 (recorded as *Senecio lemmoni* Gray, Page 949), 58, 63 (041612), 77, **85** (041712 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill), 115 (color presentation), 124 (041612 - no record of species; genus record), 140 (Page 286)*

Senecio monoensis (see *Senecio flaccidus* var. *monoensis*)

Solidago arizonica (see *Solidago velutina*)

Solidago canadensis var. *arizonica* (see *Solidago velutina*)

Solidago sparsiflora (see *Solidago velutina*)

***Solidago velutina* A.P. de Candolle: Threenerve Goldenrod**

SYNONYMY: *Solidago arizonica* (A. Gray) E.O. Wooton & P.C. Standley; *Solidago canadensis* C. Linnaeus var. *arizonica* A. Gray; *Solidago sparsiflora* A. Gray. COMMON NAMES: Arizona Goldenrod; California Goldenrod; Few-flowered Goldenrod; Sparse Goldenrod; Three Nerved Goldenrod; Three-nerve Goldenrod; Threenerve Goldenrod; Velvet Goldenrod; Velvety Foothills Goldenrod; Velvety Goldenrod. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (ascending and/or erect stems 6 inches to 5 feet in height); the older stems may be reddish and woody; the foliage may be gray-green, green or dark green; the flower heads may be golden or yellow; flowering generally takes place between early June and late November (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; clayey mesas; gravelly plateaus; along mesa rims; rocky cliffs; hanging gardens; bouldery bases of cliffs; along rocky canyons; canyon walls; canyonsides; along rocky-clayey, stony and sandy canyon bottoms; gorges; rocky scree slopes; talus slopes; crevices in rocks; pockets of soil in rocks and talus fields; buttes; hogbacks; rocky ledges; along rocky ridges; ridgetops; clearcuts; rocky clearings and openings in forests; bouldery, stony and sandy meadows; gravelly hills; rocky hillsides; escarpments; bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, rocky-loamy, shaley, shaley-clayey, gravelly, gravelly-loamy, gravelly-silty-loamy, sandy, sandy-loamy, sandy-clayey, clayey-loamy, loamy and clayey slopes; rocky outcrops; amongst rocks; along and around bases of rocks; debris fans; sandy and sandy-clayey banks; plains; rocky, rocky-loamy, shaley-clayey, gravelly and clayey flats; uplands; stony-loamy and cobbly-loamy hollows; rocky valley floors; valley bottoms; roadbeds; shaley roadcuts; along gravelly, sandy and sandy-silty roadsides; arroyos; bottoms of arroyos; bouldery and rocky draws; stony gulches; rocky and stony ravines; bottoms of ravines; seeps; springs; in sand along streams; along and in rocky, rocky-sandy, gravelly and gravelly-loamy streambeds; along rocky-sandy creeks; creekbeds; along rivers; along riverbeds; along and in bouldery-sandy, rocky, cobbly and sandy washes; along drainages; in rocky and rocky-cindery drainage ways; around ponds; boggy areas; ciénegas; along (rocky, cobblestone, gravelly-sandy and sandy) banks of arroyos, streams and creeks; borders of washes; along edges of lakes; margins of streams; shorelines of lakes; gravel and sand bars; rocky-sandy and sandy beaches; sandy benches; bouldery-sandy and stony terraces; rocky bottomlands; floodplains; lowlands; rocky-gravelly-sandy, sandy, sandy-loamy and clayey-loamy riparian areas; waste places; recently burned areas in forests, and disturbed areas growing in wet, moist and dry rimrock; bouldery, bouldery-sandy, rocky, rocky-cindery, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, cobbly loam, gravelly loam, gravelly-silty loam, sandy loam, clayey loam, silty loam, humus loam and loam ground; rocky-clay, sandy clay and clay ground, and rocky silty, sandy silty and silty ground, occurring from 1,200 to 11,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Solidago velutina* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 475 [photograph of *Solidago canadensis*]), 43 (121609), 44 (041712), 46 (*Solidago sparsiflora* Gray), 58, 63 (041712), 80 (Species of the genus *Solidago* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Forced use of these unpalatable perennial forbs may result in abortion and death of livestock. Apparently plants are not toxic until after flowering."), **85** (041812 - color presentation), 86 (color photograph of *Solidago canadensis*), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Solidago canadensis* L. var. *arizonica* Gray), 101 (color photograph of *Solidago canadensis*), 124 (041712), 127, 140 (Page 286)*

***Sonchus asper* (C. Linnaeus) J. Hill: Spiny Sowthistle**

SYNONYMY: *Sonchus asper* (C. Linnaeus) J. Hill subsp. *asper* (C. Linnaeus) J. Hill. COMMON NAMES: Achicoria [Chicoria] Dulce ("Sweet Chickory", Spanish: Arizona, Texas, Sonora)[140]; 'Azee' Hókánii Łibáhígíí <azee'xokhánii'łipáhikíih> (Athapascan: Navajo)[140]; Annual Sow-thistle (a name also applied to other species); Cardo Lechero ("Milky Thistle", Spanish: Spain)[140]; Cerraja ("a saw", Spanish: Chihuahua, Durango)[140]; Chinita (Spanish: Arizona, Sonora)[140]; Činaka <china-ri> (Uto-Aztecan: Tarahumara)[140]; Ho'idkam 'I:vaki ("Spiny Greens", Uto-Aztecan: Hiá Ceḍ O'odham); Ho'idkam 'I:vakĭ ("Eaten Greens", Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Hoi'idkham 'I:waki (Spanish); Kee Tá Ha (Yuman: Mohave)[140]; Laiteron Rude (French); Letchiterna ("Soft and Milky", Spanish: Spain)[140]; Lyonsheart; Ma:xškáłʸ [Ma:škáłʸ] (Yuman: Cocopa)[140]; Mu'tcigĭp [Mo'tcigĭp, Mu'tcigi, Mo'tcigi] (Uto-Aztecan: Shoshoni)[140]; Perennial Sowthistle (a name also applied to other species); Prickly [Spiny] Sow Thistle (English)[140]; Prickly Sow-thistle; Prickly Sowthistle; Prickly-leaved Sow Thistle; Raue Gänsedistel (German); Rough Milk Thistle; Rough Sow Thistle; Rough Sow-thistle; Rough Sowthistle; S-ho'idag Shaipag <shaipuk> (Uto-Aztecan: Tohono O'odham)[140]; S-ho'idkam Iivagi ("Spiny Eaten Greens", Uto-Aztecan: Akimel O'odham)[140]; Serralha-comum (Portuguese: Brazil); Shá'inałał <sáʔinałał> (Athapascan: Navajo)[140]; Si'imel Iivagi ("Lactating Eaten Greens", Uto-Aztecan: Akimel O'odham)[140]; Sharp Fringe Sow-thistle; Sharp-fringe Sow-thistle; Sharp-fringed Sow Thistle; Sharp-fringed Sow-thistle; Sow Thistle (a name also applied to other species and the genus *Sonchus*); Sow-thistle (a name also applied to other species and the genus *Sonchus*); Sowthistle (a name also applied to other species and the genus *Sonchus*); Spiny Leaved Sow Thistle; Spiny Sow Thistle; Spiny Sow-thistle; Spiny Sowthistle; Spiny-leaf Sow Thistle; Spiny-leaf Sow-thistle; Spiny-leaf Sowthistle; Spiney-leaf Sow Thistle; Spiney-leaved Sow Thistle; Spiny-leaved Sow Thistle; Spiny-leaved Sow-thistle; Spiny-leaved Sowthistle; Spinyleaf Sow Thistle; Spinyleaf Sow-thistle; Spinyleaf Sowthistle; Spinyleaved Sow Thistle; Svimmolke (Swedish). DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 7 feet in height); the leaves may be green, purplish and/or purple-green; the flower heads are yellow; flowering generally takes place between late January and mid-October (additional records: one for early January and one for mid-November; flowering year round has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; plateaus; hanging gardens; rocky and sandy canyons; rocky canyonsides; bouldery-gravelly-sandy and sandy canyon bottoms; talus slopes; crevices in rocks; gravelly-sandy bluffs; ridges; meadows; hills; rocky hillsides; rocky, rocky-clayey-loamy and sandy slopes; bajadas; amongst rocks; volcanic plugs; banks; plains; flats; valleys; along railroad right-of-ways; roadsides; bottoms of arroyos; draws; bottoms of draws; gulches; ravines; around and on muddy seeps; in sand around springs; sandy spring-seeps; along streams; sandy streambeds; along sandy creeks; creekbeds; along gravelly-sandy rivers; riverbeds; along and in stony-gravelly, gravelly-sandy and sandy washes; sandy-loamy and clayey-loamy drainages; drainage ways; waterholes; lakebeds; ciénegas; marshes; depressions; (sandy and sandy-silty) banks of springs, streams, creeks, rivers and washes; (sandy) edges of streams, ponds, lakes and freshwater and saltwater marshes; margins of washes, drainages, poolbeds, lakes and marshes; shores of lakes; along sand bars; sandy beaches; sandy benches; terraces; bottomlands; floodplains; along fencelines; margins of stock tanks; along canals; along gravelly-clayey canal banks; sandy channels; along ditches; along ditch banks; bouldery-sandy, rocky and sandy riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery-gravelly-sandy, bouldery-sandy, rocky, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, sandy loam, sandy-silty loam, clayey loam, silty loam and loam ground; rocky clay, gravelly clay and clay ground, sandy silty and silty ground, occurring from sea level to 8,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication. *Sonchus asper* may be native to northern, middle, eastern and southern Europe; Asia, and Africa and coastal islands in the Indian Ocean; however, the exact native range is obscure. *5, 6, 15, 28 (note), 43 (121709), 44 (060811 - color photograph), 46 (Page 965), 30, 58, 63 (041812 - color presentation), 68, 77, 80 (Species of the genus *Sonchus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Species of this genus (*Sonchus*) have been reported to accumulate dangerous levels of nitrates."), **85** (041812 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (color photograph), 115 (color presentation), 124 (060811), 127, 140 (Pages 83-84 & 286)*

Sonchus asper subsp. *asper* (see *Sonchus asper*)

***Sonchus oleraceus* C. Linnaeus: Common Sowthistle**

COMMON NAMES: Achicoria (Hispanic); Achicoria Dulce (Hispanic); Annual Common Sowthistle; Annual Sow Thistle (a name also applied to other species); Annual Sow-thistle (a name also applied to other species); Annual Sowthistle (a name also applied to other species); Borraja (Hispanic); Borrajilla (Hispanic); Cardo (Hispanic); Cerraja (Spanish); Chicalotillo (Hispanic); Chicoria (Hispanic); Chicoria (Purépecha); Chicória-brava (Portuguese: Brazil); Colewort; Common Annual Sow Thistle; Common Annual Sow-thistle; Common Annual Sowthistle; Common Milk Thistle; Common Sow Thistle (a name also applied to other species); Common Sow-thistle (a name also applied to other species); Common Sowthistle (a name also applied to other species); Dashel; Diente de León (Hispanic); Endivia (Hispanic); Gänsedistel (German); Grespino Commune (Hispanic); Hare's Colewort (a name also applied to other species); Hare's Lettuce (a name also applied to other species, old English name); Hare's Palace (a name also applied to other species, old English name); Hare's Thistle (a name also applied to other species); Hare's-colewort (a name also applied to other species); Hare's-lettuce (a name also applied to other species, old English name); Hare's-palace (a name also applied to other species, old English name); Hare's-thistle (a name also applied to other species); Hierba del Golpe (Hispanic); Huai Hehevo ("Mule Deer's Eyelashes", Uto-Aztecan: Akimel O'odham); Hwai Hoehoevo ("Deer Lashes", Pima); Kaalivalvatti (Hispanic); Kålmolke (Swedish); Kohl-gänsedistel (German); Ku Ju Cai (transcribed Chinese); Laiteron (a name also applied to other species, French); Lechuguilla (Hispanic); Matalí Morado (Hispanic); Milk Thistle

(misapplied; a name applied to another species and the genus *Silybum*); Milk Weed (misapplied; a name applied to other species); Milk-thistle (misapplied; a name applied to another species and the genus *Silybum*); Milk-weed (misapplied; a name applied to other species, the genus *Asclepias* and to the family Asclepiadaceae); Milkweed (misapplied; a name applied to other species, the genus *Asclepias* and to the family Asclepiadaceae); Milky Dickles; Mikly Tassel (a name also applied to other species); Milky-dickles; Milky-tassel (a name also applied to other species); Milky-tassels (a name also applied to other species); Mitihuaraca (Hispanic); Muela de Caballo (Hispanic); Pualele; Saudistel (German); Serralha-lisa (Portuguese: Brazil); Smooth Sowthistle (a name also applied to other species); Sow Thistle (a name also applied to other species and the genus *Sonchus*); Sow-dindle (a name also applied to other species); Sow-dingle; Sow-thistle (a name also applied to other species and the genus *Sonchus*); Sowthistle (a name also applied to other species and the genus *Sonchus*); St. Mary's Seed; St. Mary's-seed; Swinies (a name also applied to other species); Tlamatsalin (Michoacán); Tskutsuk Chekamiti (Purépecha). DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 8 feet in height); the stems may be reddish or reddish-pink with a white sap; the leaves are green above and pale green below; the disk florets are yellow; the ray florets are cream or yellow; flowering generally takes place between mid-January and mid-October (additional records: one for early November and one for mid-November; flowering year round has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; rocky mountainsides; cliff faces; along rocky canyons; along bouldery-gravelly-sandy, rocky and clayey canyon bottoms; chasms; bluffs; ridgetops; meadows; foothills; rocky hillsides; rocky, rocky-clayey, gravelly-loamy and sandy slopes; sandy loamy bajadas; bedrock and rocky outcrops; amongst rocks; sand dunes; blow-sand deposits; prairies; sandy plains; sandy and clayey uplands; muddy, gravelly, sandy and clayey flats; basins; valley floors; clayey coastal cliffs; coastal flats; along roadsides; two-tracks; within draws; seeps; along sandy streams; streambeds; along creeks; along and in creekbeds; along rivers; rocky riverbeds; along and in gravelly and sandy washes; within clayey and silty drainages; within rocky-silty drainage ways; lakebeds; saltwater marshes; depressions; along (cobbly and gravelly) banks of creeks and rivers; borders of washes; (sandy) edges of rivers, washes, ponds and lagoons; margins of rivers; (muddy, sandy and clayey) shores of creeks and rivers; sand bars; sandy beaches; terraces; loamy bottomlands; sandy floodplains; stock tanks; along canals; along clayey banks, edges and walls of canals; sandy channels; along and in silty ditches; ditch banks and edges; muddy, cobbly and gravelly-sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; rocky clay, silty clay and clay ground; rocky silty and silty ground, and sandy humusy ground occurring from sea level to 8,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, fodder and as a drug or medication. *Sonchus oleraceus* is native to northern, eastern, middle and southern Europe; Asia, and northern Africa. *5, 6, 15, **16**, 28 (color photograph 454), 30, 43 (121709), 44 (061111 - color photograph), 46 (Page 965), **56**, **57**, 63 (041812 - color presentation), 68, 77 (color photograph #23), 80 (Species of the genus *Sonchus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Species of this genus (*Sonchus*) have been reported to accumulate dangerous levels of nitrates."), **85** (041812 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (color photograph), 115 (color presentation), 124 (061111), 140 (Pages 84 & 286), **WTK** (May 27, 2010)*

***Stephanomeria exigua* T. Nuttall (subsp. *exigua* is the variety reported as occurring in Arizona): Small Wirelettuce**

SYNONYMY: (for subsp. *exigua*: *Stephanomeria exigua* T. Nuttall var. *pentachaeta* (D.C. Eaton) H.M. Hall). COMMON NAMES: Annual Mitra; Annual Wire Lettuce; Annual Wire-lettuce; Annual Wirelettuce; Mo'agûp (Uto-Aztecan: Shoshoni)[140]; Slender Rock-lettuce; Slender Stephanomeria; Slender Wreathplant; Small Skeletonplant; Small Stephanomeria; Small Wire Lettuce; Small Wreath Plant; Small Wire-lettuce; Small Wirelettuce; Small Wreath-plant; Small Wreathplant; White Plume Wire-lettuce; White-plume Milk-aster; White-plume Stephanomeria; White-plume Wire-lettuce; White-plume Wirelettuce; Whiteplume Wire-lettuce; Whiteplume Wirelettuce; Wire Lettuce (a name also applied to the genus *Stephanomeria*). DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (8 to 32 inches in height); the foliage is purple-gray; the flower heads may be pale blue, creamy-beige, cream-lavender-pink, pale lavender, lavender, pink, pink-lavender, pink-white, pale purple-blue, pale purple-lavender, rose, white or white-tan/pink; flowering generally takes place between late March and late November. HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; sandy plateaus; bases of cliffs; canyons; along rocky and sandy canyon bottoms; talus slopes; buttes; ridgetops; foothills; bouldery and sandy hills; sandy-loamy hillsides; bouldery, rocky, rocky-sandy, cobbly-gravelly, gravelly, gravelly-sandy, sandy, sandy-loamy, sandy-clayey and silty slopes; sandy bajadas; gravelly-sandy and sandy outwash fans; sand hills; sand dunes; plains; pebbly-sandy, gravelly-sandy, sandy, sandy-loamy and silty-clayey flats; sandy basin floors; sandy-clayey-loamy valley floors; along sandy roadbeds; along gravelly, gravelly-sandy and sandy roadsides; along shallow draws; within sandy gullies; sandy ravines; along creeks; sandy creekbeds; in sandy along rivers; along and in rocky, gravelly, gravelly-sandy and sandy washes; lakebeds; along banks of washes; sandy benches; terraces; floodplains; mesquite bosques; ditches; riparian areas; recently burned areas of chaparral, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-sandy, cobbly-gravelly, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; gravelly-clayey loam, sandy loam and sandy-clayey loam ground; silty-clayey ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant has a milky sap. *Stephanomeria exigua* is native to southwest-central and southern North America. *5, 6, 43 (121809), 44 (041812), 46

(Page 960), 58, 63 (041812 - color presentation), 85 (121809 - color presentation of dried material), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 124 (041812 - no record of species; genus record), 127, 140 (Page 85)*

Stephanomeria exigua var. *pentachaeta* (see *Stephanomeria exigua* subsp. *exigua*)

***Stephanomeria pauciflora* (J. Torrey) A. Nelson: Brownplume Wirelettuce**

SYNONYMY: *Stephanomeria pauciflora* (J. Torrey) A. Nelson var. *parishii* (W.L. Jepson) P.A. Munz; *Stephanomeria pauciflora* (J. Torrey) A. Nelson var. *pauciflora*. COMMON NAMES: Brown Plume Wire Lettuce; Brown Plume Wire-lettuce; Brown Plume Wirelettuce; Brown-plume Ptiloria; Brown-plume Wire-lettuce (English)[140]; Brownplume Wirelettuce; Brown-plumed Ptiloria; Desert Milk-aster; Desert Milkaster; Desert Straw (a name also applied to other species); Desert-straw (English: Arizona)[140]; Few Flower Wreath-plant; Few Flowered Wire Lettuce; Few-flower Desert-straw; Few-flower Wreath-plant; Few-flower Wire-lettuce; Few-flower Wreath-plant; Few-flowered Stephanomeria; Few-flowered Wire Lettuce; Few-flowered Wire-lettuce; Few-flowered Wirelettuce; Fewflower Wire-lettuce; Fewflower Wirelettuce; Hebe Imixáa ("Rootless Plant", Yuman: Seri)[140]; Jeeh Dootł'izh [Ts'oh, Ts'ósí] <jéʔdóy.is, ɜ^{v}eʔ doƛ'iš [coh, c'o's]> (Athapascan: Navajo)[140]; Parish's Wire-lettuce (*S.p.* var. *parishii*); Piinga <pí:nga> (Uto-Aztecan: Hopi)[140]; Pionilla ("Little Peonia" a name also applied to other species, Spanish: Mexico)[140]; Posapátx Camoz ("What Thinks It's a Sweet-bush", Hokan: Seri)[140]; Prairie Skeleton Plant; Prairie Skeleton-plant; Prairie Skeletonplant; Sanako'ogadɨbɨ (Uto-Aztecan: Paiute)[140]; Skeleton Plant; Skeleton-weed (a name also applied to the genus *Stephanomeria*); Skeleton-weed (English)[140]; Small-flowered Wirelettuce; Wire Lettuce (a name also applied to the genus *Stephanomeria*); Wire-lettuce (a name also applied to the genus *Stephanomeria*); Wirelettuce (a name also applied to the genus *Stephanomeria*). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 4 to 20 inches in height with some plants described as being up to 5 feet in height, plants up to 4 feet in width were reported; plants were observed and described as being 10 inches in height and 14 inches in width, plants were observed and described as being 20 inches in height and 28 inches in width); the foliage may be blue-green, gray-green, pale green or green; the flower heads may be bluish-white, cream, pale & dark gray, pale lavender, pale lavender-pink, lavender, lavender-pink, orange, pale pink, pink fading to tan-brown, pinkish, pink-lavender, pink-purple, pink-violet, pink-white, pale purple, purple, rose, pale red-lavender, tan, violet, white, dull white, off-white or white-pink; flowering generally takes between late February and late December (additional records: on for mid-January and one for early February). HABITAT: Within the range of this species it has been reported from mountains; cindery mountainsides; bases of mountains; clayey-loamy mesas; rock cliffs; rocky, sandy and sandy-loamy canyons; spurs; crevices in canyon walls; rocky, gravelly-sandy and sandy canyon bottoms; talus; crevices in rocks; sandy knolls; rocky ridges; bouldery ridgetops; rocky ridgelines; shortgrass meadows; tops of cinder cones; crater floors; rocky foothills; bouldery, rocky and clay hills; hilltops; rocky and gravelly hillsides; along bouldery, rocky, rocky-gravelly-loamy, cobbly, cobbly-sandy-clayey, cindery, gravelly, gravelly-loamy, sandy, sandy-silty, loamy and clayey slopes; gravelly bajadas; rocky outcrops; amongst rocks; stony mounds; sand hills; sand dunes; rocky-gravelly and sandy outwash fans; sandy prairies; stony, gravelly-sandy, sandy and clayey plains; rocky-sandy, gravelly, gravelly-loamy, sandy and sandy-silty flats; uplands; valley floors; gravelly valley bottoms; coastal sand dunes; coastal plains; coastal beaches; railroad right-of-ways; along gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-silty and silty roadsides; sandy and clayey-loamy arroyos; gravelly-silty and sandy draws; gulches; within ravines; seeps; around springs; seeping streams; along streams; streambeds; along creeks; sandy creekbeds; bouldery-cobbly-sandy and sandy riverbeds; along and in rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy washes; along rocky-sandy drainages; along drainage ways; around ponds; (gravelly) banks of rivers and washes; borders of washes; (sandy) edges of arroyos and washes; around fringes of playas; along margins of arroyos and washes; shores of rivers; gravel bars, rocky beaches; gravelly and sandy benches; rocky and sandy terraces; rocky-sandy bottomlands; floodplains; stock tanks; ditch banks; rocky-sandy, sandy and clayey-loamy riparian areas, and disturbed areas growing in moist, damp and dry desert pavement; bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy-clayey loam, sandy-clayey and clayey loam and loam ground; cobbly-sandy clay and clay ground, and gravelly silty, gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (candy) crop; it was also noted as having been used as a ceremonial item and as a drug or medication. This plant has a milky sap. Butterflies visit the flowers for their nectar. *Stephanomeria pauciflora* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 726), 43 (121909), 44 (061211), 46 (Page 960), **56**, **57**, 58, 63 (041912 - color presentation), 77 (color photograph #70), **85** (061211 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill), 115 (color presentation), 124 (061211), 127, 140 (Pages 84-86 & 286)*

Stephanomeria pauciflora var. *parishii* (see *Stephanomeria pauciflora*)

Stephanomeria pauciflora var. *pauciflora* (see *Stephanomeria pauciflora*)

***Stylocline gnaphaloides* T. Nuttall: Mountain Neststraw**

SYNONYMY: *Stylocline gnaphalioides* T. Nuttall. COMMON NAMES: Desert Nest Straw; Everlasting Nest Straw; Everlasting Nest-straw; Everlasting Neststraw; Everlasting Stylocline; Mountain Neststraw; New-straw Cotton-weed. DESCRIPTION: Terrestrial annual forb/herb (erect stems ½ to 8 inches in height); the woolly herbage is gray; the woolly flower heads may be greenish-white or white; flowering generally takes place between late February and late June (additional records: flowering beginning as early as January and ending as late as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; sandy mesas; plateaus; stony canyons; canyon bottoms; pockets of sand in rock; sandy knolls; bouldery and gravelly-silty-loamy ridgetops; foothills; bouldery, rocky and gravelly hills; clayey hilltop; hillsides; bouldery, rocky, rocky-loamy-clayey, cobbly-sandy-loamy, loamy, clayey and clayey-loamy slopes; clayey barrens; gravelly, sandy and clayey flats; basins; valley floors; sandy coastal bluffs; coastal plains; along roadsides; creeks; rivers; along rocky-silty and gravelly-sandy washes; drainages; pockets swales; sandy benches; sandy and clayey terraces; floodplains; gravelly-sandy-silty riparian areas, and recently burned areas of woodland, chaparral, scrub and desert, growing in dry bouldery, rocky, stony, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, sandy loam, gravelly-silty loam, clayey loam and loam ground; rocky clay, rocky-loamy clay and clay ground, and rocky silty, gravelly-sandy silty and silty ground, occurring from sea level to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Stylocline gnaphalioides* is native to southwest-central and southern North America and islands in the North Pacific Ocean. *5, 6, **16**, 43 (121909 - *Stylocline gnaphaloides* Nutt.), 44 (042012), 46 (Page 885), 63 (042012), 77, **85** (042012 - color presentation), 124 (042012 - no record of species or genus)*

***Stylocline micropoides* A. Gray: Woollyhead Neststraw**

COMMON NAMES: Desert Fanbract; Desert Nest Straw; Desert Nest-straw; Desert Neststraw; Woolly Head Neststraw; Woolly Neststraw; Woolly Stylocline; Woolly-head Cottonweed; Woolly-head Fanbract; Woolly-head Neststraw; Woolly-head Stylocline; Woollyhead Fanbract; Woollyhead Neststraw; Woollyhead Stylocline. DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 8 inches in height); the herbage is light grayish; the flower heads are white; flowering generally takes place between mid-February and mid-May (additional records: flowering ending as late as August has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; pebbly-sandy-silty mesas; rocky canyon rims; canyons; talus slopes; pockets of soil in cobbles; along ridges; rocky and clayey hills; hilltops; rocky hillsides; rocky, rocky-cobbly-sandy, rocky-gravelly, gravelly, gravelly-sandy, gravelly-clayey and sandy-loamy slopes; gravelly and sandy bajadas; gravelly pediments; amongst rocks; lava flows; lava fields; dunes; plains; rocky, gravelly, gravelly-sandy and sandy flats; along gravelly roadsides; arroyos; along draws; rocky gullies; along streams; along and in rocky, gravelly, gravelly-sandy and sandy washes; sandy drainage ways; depressions; (rocky) banks of arroyos and washes; (rocky-gravelly) edges of washes; margins of washes; (silty-clayey) shores of lakes; beaches; loamy bottomlands; floodplains; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; sandy loam and clayey loam ground; gravelly clay, silty clay and clay ground, and pebbly-sandy silty and sandy silty ground, occurring from 100 to 5,300 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Stylocline micropoides* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (121909), 44 (042012), 46 (Page 885), 63 (042012), 77, **85** (042012 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 124 (042012 - no record of species or genus)*

***Stylocline sonorensis* I.L. Wiggins: Sonoran Neststraw**

COMMON NAMES: Mesquite Nest Straw; Mesquite Nest-straw; Mesquite Neststraw; Sonoran Nest Straw; Sonoran Nest-straw; Sonoran Neststraw. DESCRIPTION: Terrestrial annual forb/herb (stems 1 to 6 inches in height); the herbage is grayish; flowering generally takes place between March and May (flowering records: one for mid-April and one for late April). HABITAT: Within the range of this species it has been reported from grassy hillsides; sandy plains; along bottoms of arroyos; along rivers, and sandy drainages growing in dry sandy ground, occurring from 1,300 to 4,600 in the grassland, desertscrub and wetland ecological formations. NOTE: *Stylocline sonorensis* is native to southwest-central and southern North America. *5, 6, 43 (121909), 44 (042012), 46 (no record of species), 63 (042012), 77, **85** (042012), 124 (042012 - no record of species or genus), 135*

***Symphyotrichum divaricatum* (T. Nuttall) G.L. Nesom: Southern Annual Saltmarsh Aster**

SYNONYMY: *Aster exilis* S. Elliott nom. dub.; *Aster subulatus* A. Michaux var. *ligulatus* L.H. Shinners. COMMON NAMES: Annual Saltmarsh Aster; Lawn American-aster; New Mexico Aster; Panicled Aster; Salt-marsh Aster; Saltmarsh Aster; Slender Aster; Slim Aster; Southern Annual Salt-marsh Aster; Southern Annual Saltmarsh Aster; White Wood Aster. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 14 to 79 inches in height); the disk florets may be green-yellow or yellow; the ray florets may be pale pink, pink, pink-white, pinkish-white, light purple, purple, purple-lavender or bright white fading to dark pink; flowering generally takes place between early August and mid-November (additional records: one for mid-February and one for late May). HABITAT: Within the range of this species it has been reported from mountains; along rocky canyons; canyon bottoms; gorges; hillsides; loamy slopes; sand dunes; prairies; sandy flats; valley floors; coastal plains; roadsides; arroyos; silty ravines; along seeps; around and in springs; in sand along streams; along rocky streambeds; along creeks; creekbeds; within washes; along silty-clayey drainages; in clay around and in ponds; cienegas; marshes; silty swales; along (muddy, clayey and silty) banks of arroyos, streams and rivers; (sandy) edges of rivers, riverbeds, ponds and lakes; margins of creeks; mudflats; sandy terraces; sandy-silty and silty floodplains; clayey stock tanks; along ditches; ditch banks; silty riparian areas and disturbed areas growing in muddy and wet, moist and damp rocky, gravelly and sandy ground; loamy ground; silty clay

and clay ground, and sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Symphyotrichum divaricatum* is native to south-central and southern North America. *5, 6, **16** (recorded as *Aster subulatus* Michx. var. *ligulatus* Shinners), 43 (121909), 44 (042112 - no listings under Common Names; genus record, color photograph), 46 (recorded as *Aster exilis* Ell., Page 873), 58 (recorded as *Aster subulatus* Michx. var. *ligulatus* Shinners), 63 (042112), **77** (recorded as *Aster subulatus* Michx. var. *ligulatus* Shinners), 80 (Species of the genus *Aster* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These annual and perennial forbs may act as secondary or facultative selenium absorbers, converters, and indicators and may become toxic to livestock."), **85** (042112 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain, recorded as *Aster exilis* Ell.), 124 (042112), 127*

***Symphyotrichum ericoides* (C. Linnaeus) G.L. Nesom var. *ericoides*: White Heath Aster**

SYNONYMY: *Aster hebecladus* A.P. de Candolle. COMMON NAMES: Button Aster; Dense-flower Aster; Dense-flower Wreath-aster; Dense-flowered Aster; Dense-flowered Wreath-aster; Dog Fennel; Dog-fennel; Dog's Fennel; Fall Flower; Fall-flower; Fallflower; Farewell Summer; Farewell-summer; Frost Aster; Frost Blow; Frost Weed; Frost-weed; Frost-weed Aster; Frostweed; Frostweed Aster; Heath Aster; Heath-like Aster; Many-flower Aster; Many-flowered Aster; Mare's Tail (a name also applied to other species); Mare's-tail (a name also applied to other species); Michaelmas Daisy; Scrub Bush; Scrub-bush; Steel Weed; Steel-weed; Steelweed; White Aster (a name also applied to other species); White Heath Aster (a name also applied to other species); White Heath-aster; White Prairie Aster (a name also applied to other species); White Wreath Aster; White Wreath-aster; White Rosemary; White-rosemary; Wreath Aster. DESCRIPTION: Terrestrial perennial forb/herb (decumbent, ascending and/or erect stems 1 to 3 feet in height and 12 to 18 inches in width); the disk florets are yellow; the ray florets are white; flowering generally takes place between early August and early October (additional records: flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; canyon rims; canyon walls; canyon bottoms; glades; rocky-loamy, gravelly-clayey, clayey-loamy and loamy slopes; lava flows; dunes; prairies; plains; uplands; valley floors; railroad right-of-ways; along roadsides; bottoms of draws; within drainages; boggy areas; (loamy) banks of creeks; shores; ditches; riparian areas, and disturbed areas growing in moist or dry gravelly and sandy ground; rocky loam, clayey loam and loam ground, and gravelly clay and sandy clay ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Symphyotrichum ericoides* var. *ericoides* is native to central and southern North America. *43 (122009), 44 (050612 - no record of variety or species; genus record), 46 (no record of species), 63 (050612 - color presentation), 85 (050612 - color presentation of dried material), **89** (*Aster hebecladus* DC. was reported as being a perennial herb located on the Santa Cruz Flood-plain, identification of this species is questionable, *Aster hebecladus* DC is a synonym applied to *Symphyotrichum ericoides* (L.) G.L. Nesom var. *ericoides*), 124 (050612), 136, 137 (recorded as *Aster hebecladus* A.P. de Candolle as being a synonym of *Symphyotrichum ericoides* (Linnaeus) Nesom var. *ericoides*)*

***Symphyotrichum falcatum* (J. Lindley) G.L. Nesom var. *commutatum* (J. Torrey & A. Gray) G.L. Nesom: White Prairie Aster**

SYNONYMY: *Aster commutatus* (J. Torrey & A. Gray) A. Gray var. *crassulus* (P.A. Rydberg) S.F. Blake, *Aster falcatus* J. Lindley var. *crassulus* (P.A. Rydberg) A.J. Cronquist, *Symphyotrichum falcatum* (J. Lindley) G.L. Nesom var. *crassulum* (P.A. Rydberg) G.L. Nesom. COMMON NAMES: Cluster Aster; Prairie Daisy; White Aster (a name also applied to other species); White Heath Aster (a name also applied to other species); White Prairie Aster (a name also applied to other species); White Prairie Daisy. DESCRIPTION: Terrestrial perennial forb/herb (18 inches to 4 feet in height); the disk flowers are yellow; the ray flowers are white; flowering generally takes place between late June and mid-October (additional records: one for mid-April; flowering in November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; rocky canyons; rocky canyon bottoms; gravelly-sandy ridges; ridgetops; clearings in woodlands; stony, cobbly, sandy and clayey-loamy meadows; cinder cones; bases of cinder cones; hills; clayey hillsides; alluvial fans; bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey-loamy, loamy, clayey, clayey-loamy and silty-clayey-loamy slopes; rocky and gravelly banks; breaks; sandy and silty-loamy prairies; sandy and chalky plains; rocky, gravelly, gravelly-loamy, sandy, sandy-clayey, clayey and clayey-loamy flats; uplands; valley floors; along railroad right-of-ways; roadcuts; along gravelly, gravelly-sandy-clayey-loamy and gravelly-loamy roadsides; bottoms of arroyos; shaley draws; bottoms of draws; within gulches; gullies; ravines; bottoms of ravines; seeps; in springs; mucky-sandy edges of springs; streambeds; along creeks; along and in creekbeds; along rivers; riverbeds; sandy washes; clayey and clayey-loamy drainages; sandy cuts; swampy areas; depressions; swales; (gravelly-sandy) banks of streams, creeks and rivers; edges of sloughs; benches; cobbly-gravelly and gravelly terraces; clayey bottomlands; floodplains; fencerows; stock tanks; banks, edges and shores of reservoirs; along canals; along ditches; riparian areas, and disturbed areas growing in sandy muck and clayey-loamy muck, and wet, moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cobbly-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam, silty-clayey loam and loam ground; gravelly clay, sandy clay, loamy clay and clay ground, and chalky ground, occurring from 700 to 9,900 feet in elevation in the forest, woodland, scrub, grassland and wetland ecological formations. NOTE: *Symphyotrichum falcatum* var. *commutatum* is native to northern, central and southern North America. *5, 6, 43 (122009), 44 (050612 - no record of variety or species; genus record), 46 (recorded as *Aster commutatus* (Torr. & Gray) Gray

var. *crassulus* (Rydb.) Blake, Page 871), 48 (genus), 58, 63 (050612), 80 (Species of the genus *Aster* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These annual and perennial forbs may act as secondary or facultative selenium absorbers, converters, and indicators and may become toxic to livestock."), 85 (050612 - color presentation), **89** (*Aster hebecladus* DC. was reported as being a perennial herb located on the Santa Cruz Flood-plain, identification of this species is questionable, *Aster hebecladus* DC is a synonym applied to *Symphyotrichum ericoides* (L.) G.L. Nesom var. *ericoides*), 124 (050612), 136, 137 (recorded as *Aster hebecladus* A.P. de Candolle as being a synonym of *Symphyotrichum ericoides* (Linnaeus) Nesom var. *ericoides*)*

Symphyotrichum falcatum var. *crassulum* (see *Symphyotrichum falcatum* var. *commutatum*)

Tessaria sericea (see *Pluchea sericea*)

***Thymophylla acerosa* (A.P. de Candolle) J.L. Strother: Pricklyleaf Dogweed**

SYNONYMY: *Dyssodia acerosa* A.P. de Candolle. COMMON NAMES: Contra Hierba (Spanish); Contrayerba (Spanish); Fetid Marigold; Needleleaf Dogweed; Prick-leaf Dogweed; Prickleaf Dogweed; Prickleleaf Dogweed; Prickly Dogweed; Prickly Fetid Marigold; Pricklyleaf Dogweed; Scrubby Dogweed; Texas Dogweed. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 4 to 16 inches in height with a rounded shape; plants were observed and described as being 4 inches in height and 6 inches in width, one plant was observed and described as being 1 foot in height and width, one plant was observed and described as being 12 inches in height and 28 inches in width); the stems may be gray or pinkish-brown; the leaves may be bright green, dark green or yellow-green; the disk florets may be pale yellow, yellow or yellow-orange; the ray florets may be lemon-yellow, orange-yellow or yellow; flowering generally takes place between late February and early November (additional record: one for early December and one for mid-December; flowering throughout the year, but mostly in the summer through fall, has been reported). HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; along canyon rims; rocky canyons; canyon bottoms; rocky talus slopes; crevices in rock; bluffs; buttes; clayey knolls; rocky and rocky-sandy ledges; along bedrock, rocky and sandy ridges; ridgetops; sandy foothills; rocky, rocky-sandy, gravelly-clayey-loamy and sandy-clayey hills; hilltops; rocky and gravelly hillsides; rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-clayey, sandy, clayey-loamy and silty-clayey slopes; bajadas; rocky outcrops; lava flows; sand hills; stony banks; breaks; prairies; grassy flats; esplanades; sandy-loamy valley floors; gravelly-loamy, gravelly-clayey and sandy roadsides; arroyos; rocky and sandy draws; within ravines; along rivers; along washes; drainage ways; borders of washes; (rocky-sandy) shorelines of lakes; terraces; fencelines, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, rocky-sandy, shaley, stony, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam and clayey loam ground, and gravelly clay, sandy clay, silty clay and clay ground, occurring from 900 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reportedly sweet-scented. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and to add flavor to tobacco. *Thymophylla acerosa* is native to southwest-central and southern North America. *5, 6. 13 (recorded as *Dyssodia acerosa* DC.), 15 (*Dyssodia acerosa* DC.), 28 (recorded as *Dyssodia acerosa*, color photograph 401), 43 (122009), 44 (050612 - no record of species; genus record), 46 (recorded as *Dyssodia acerosa* DC., Page 933), 63 (050612 - color presentation), **77** (recorded as *Dyssodia acerosa* DC.), **85** (050612 - color presentation), 86 (note under *Dyssodia pentachaeta*), 124 (050612), 127*

***Thymophylla concinna* (A. Gray) J.L. Strother: Sonoran Pricklyleaf**

SYNONYMY: *Dyssodia concinna* (A. Gray) B.L. Robinson. COMMON NAMES: Dogweed; Fetid Marigold; Manzanilla de Coyote; Sonoran Pricklyleaf. DESCRIPTION: Terrestrial annual forb/herb (spreading ascending and/or erect stems 2 to 5 inches in height); the disk florets are pale yellow or yellow; the ray florets may be white or pale yellow; flowering generally takes place between late February and mid-April (additional records: flowering ending as late as May has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bases of mountains; mesas; rocky hills; hilltops; rocky hillsides; bases of hills; rocky and gravelly slopes; alluvial fans; gravelly bajadas; terraces; plains; sandy and silty flats; valleys; rocky-sandy roadsides; sandy washes; terraces; floodplains, and disturbed areas growing in dry desert pavement; rocky, rocky-sandy, gravelly and sandy ground, and silty ground, occurring from 100 to 2,800 feet in elevation in the desertscrub ecological formation. NOTES: This small plant may be an attractive component of a restored native habitat. *Thymophylla concinna* is native to southwest-central and southern North America. *5, 6, 43 (122109), 44 (050612 - no record of species; genus record), 46 (recorded as *Dyssodia concinna* (Gray) Robins., Page 933), 63 (050612), **77** (recorded as *Dyssodia concinna* (Gray) Rob.), **85** (050612 - color presentation), 124 (050612 - no record of species or genus)*

***Thymophylla pentachaeta* (A.P. de Candolle) J.K. Small var. *pentachaeta*: Fiveneedle Pricklyleaf**

SYNONYMY: *Dyssodia pentachaeta* (A.P. de Candolle) B.L Robinson. COMMON NAMES: Common Dogweed; Dogweed; Five-needle Fetid Marigold; Five-needle Pricklyleaf; Fiveneedle Pricklyleaf; Golden Dogweed; Golden Dyssodia; Parralena; Parvialena; Scale Glandbush. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (spreading and/or erect stems 4 inches to 2 feet in height); the foliage has been desribed as being grayish to green to dark green; the disk florets are yellow; the ray florets may be orange-yellow or yellow; flowering generally takes place between mid-March and mid-December (additional records: two for mid-January, one for mid-February and one for late February). HABITAT: Within the range of this

species it has been reported from mountains; rocky-sandy and gravelly mesas; rims of canyons; canyons; rocky canyon bottoms; gorges; gravelly bases of cliffs; crevices in boulders; sandy bluffs; shelving sandstone; bouldery-rocky-sandy and rocky ledges; ridges; ridgetops; foothills; rocky and rocky-gravelly hills; cobbly hilltops; rocky and gravelly hillsides; rocky and rocky-sandy slopes; rocky alluvial fans; bajadas; rock outcrops; rocky and gravelly plains; rocky and gravelly flats; basins, rocky valley floors; along rocky, cindery, gravelly-sandy, sandy and sandy-loamy roadsides; rocky gullies; along creeks; along washes; sandy drainages; clayey swales; banks of rivers; edges of washes; beaches; benches; floodplains; riparian areas; waste places and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly; cindery, gravelly, gravelly-sandy and sandy ground; sandy loam ground; sandy-silty clay, silty clay, chalky clay and clay ground, and sandy silty ground, occurring from 100 to 6,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is a larval food plant of the Dainty Sulfur (*Nathalis iole*). *Thymophylla pentachaeta* var. *pentachaeta* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Dyssodia pentachaeta* (DC.) Robins.), 18, 28 (recorded as *Dyssodia pentachaeta*, color photograph 402), 43 (122209), 44 (050612 - no record of variety or species; genus record), 46 (recorded as *Dyssodia pentachaeta* (DC.) Robins., Page 933), 58 (recorded as *Dyssodia pentachaeta* (DC.) Robins.), 63 (050612 - this variety has not been mapped as being present in Arizona), 77 (recorded as *Dyssodia pentachaeta* (DC.) Rob., color photograph #16), 82, **85** (050612 - color presentation), 86 (recorded as *Dyssodia pentachaeta*, color photograph), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Hymenatherum hartwegii* Gray), 115 (color presentation of species), 124 (050612 - no record of variety, species or genus), 140 (Page 286)*

Trixis californica A. Kellogg: American Threefold

SYNONYMY: *Trixis californica* A. Kellogg var. *californica*. COMMON NAMES: American Threefold; American [California] Trixis (English)[140]; Arizona Green Plant; Cachano (Spanish: New Mexico, Chiricahua, Coahuila)[140]; California Threefold; California Trixis; Cocazn-ootizx ("Rattlesnake's Foreskin", Hokan: Seri)[140]; Hebai Sa'igar <j'bai sa'igar> (Athapascan: Mountain Pima)[140]; Hierba de Aire ("Air Herb", Spanish: Sonora)[140]; Hierba de Pasmo ("Herb for Pasmo", Spanish: Sonora)[140]; Ruina ("Ruin", Spanish: Sonora)[140]; Santa Lucia (Spanish); Trixis (a name also applied to the genus *Trixis*). DESCRIPTION: Terrestrial perennial (leaves are cold and drought deciduous) subshrub or shrub (10 inches to 6 feet in height); the stems are gray, the leaves are green, dark green or yellow-green; the disk flowers may be yellow; the ray flowers are white or yellow; flowering generally takes place between mid-January and late December; the seeds have straw-colored bristles. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; rocky mesas; rocky cliffs; cliff faces; bases of cliffs; along rocky canyons; canyon walls; canyon bottoms; rocky gorges; talus slopes; crevices in rocks; gravelly and sandy knolls; rocky ledges; bouldery and rocky ridges; bouldery ridgetops; bouldery and rocky foothills; rocky hills; rocky hilltops; rocky and gravelly hillsides; bedrock, bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy-clayey, gravelly and loamy slopes; alluvial fans; sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders; sandy boulder fields; shady coves; plains; sandy and sandy-clayey-loamy flats; valley floors; along gravelly roadsides; within sandy arroyos; bottoms of arroyos; draws; bottoms of rocky gullies; within ravines; around springs; around seeping streams; along creeks; creekbeds; riverbeds; along and in bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, stony, gravelly, pebbly and sandy washes; within rocky-bedrock drainage ways; rocky bowls; along banks of arroyos, streams, creeks, rivers, washes and drainages; borders of washes; (rocky) edges of arroyos and washes; sandy beaches; floodplains; riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy, pebbly and sandy ground; sandy-clayey loam and loam ground, and rocky-sandy clay ground often in the shade of rocks and larger shrubs and trees, occurring from sea level to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may live to be 40 years of age. This plant is occasionally browsed by Mule Deer (*Odocoileus hemionus*). *Trixis californica* is native to southwest-central and southern North America. *5, 6, 13 (Page 356), 15, **16**, 28 (color photograph 472), 43 (122309), 44 (061411 - color presentation), 46 (Page 958), 58, 63 (050612 - color presentation), 77, **85** (050712 - color presentation), 86 (color photograph), **89** (reported as being a half-shrub located on Tumamoc Hill), 91 (Pages 391-392), 106 (122309 - color presentation), 115 (color presentation), 124 (061211 - no record of species or genus), 140 (Pages 86-87 & 286), **WTK** (October 28, 2009)*

Trixis californica var. *californica* (see *Trixis californica*)

Uropappus lindleyi (see *Microseris lindleyi*)

Uropappus linearifolius (see *Microseris lindleyi*)

Verbesina encelioides (A.J. Cavanilles) G. Bentham & J.D. Hooker f. ex A. Gray (subsp. *exauriculata* (B.L. Robinson & J.M. Greenman) J.R. Coleman is the subspecies reported as occurring in Arizona): Golden Crownbeard

SYNONYMY: (for *V.e.* subsp. *exauriculata*: *Verbesina encelioides* (A.J. Cavanilles) G. Bentham & J.D. Hooker f. ex A. Gray var. *exauriculata* B.L. Robinson & J.M. Greenman). COMMON NAMES: American Dogweed; Butter Daisy; Butter-daisy; Cow Pasture Daisy; Cow Pen Daisy; Cow-pasture Daisy; Cow-pen Daisy; Cowpen Crownbeard; Cowpen Daisy; Crown Beard Daisy; Crown-beard (a name also applied to the genus *Verbesina*); Crown-beard Daisy; Crownbeard (a name also applied

to the genus *Verbesina*); Crownbeard Daisy; Dog-weed (a name also applied to other species); Dogweed (a name also applied to other species); Girasolillo; Golden Crown Beard; Golden Crown-beard; Golden Crownbeard; Hierba de la Bruja; Skunk Daisy Skunk-daisy; Sore-eye; South African Daisy; Wild Sunflower; Yellow Top; Yellow-top; Yellow-top Daisy. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 6½ feet in height; plants were observed and recorded as being 8 inches in height and 12 inches in width); the foliage may be bluish-green, gray, gray-green, green, silvery or silvery-green; the disk florets may be gold, deep orange, green-orange, orange-yellow or yellow; the ray florets may be gold, deep orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between early March and mid-December (additional records: two for late January and one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky, rocky-gravelly and sandy mesas; rocky and sandy canyons; rocky, gravelly and sandy canyon bottoms; talus slopes; bouldery knobs; sandy ridges; sandy ridgetops; openings in woodlands; sandy meadows; crater floors; foothills; stony and clayey hills; hilltops; rocky-sandy hillsides; sandy escarpments; bouldery, rocky, cindery, sandy, sandy-loamy, sandy-clayey-loamy, loamy, clayey-loamy, silty-loamy and silty-clayey slopes; gravelly alluvial fans; gravelly bajadas; rocky outcrops; sand dunes; sandy hummocks; banks; steppes; sandy-loamy, silty and silty-loamy prairies; plains; rocky-gravelly, cindery, gravelly, gravelly-sandy-loamy, gravelly-clayey, sandy, sandy-clayey-loamy, loamy, clayey-loamy, clayey and silty flats; uplands; basin bottoms; valley floors; valley bottoms; sandy coastal dunes; sandy roadbeds; along bouldery, bouldery-gravelly, rocky, cindery, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy and sandy-clayey-loamy roadsides; arroyos; along and in gravelly draws; sandy streambeds; along creeks; gravelly creekbeds; along gravelly-sandy rivers; along and in sandy, sandy-loamy and silty riverbeds; along and in rocky-sandy, stony, gravelly-sandy, sandy and clayey washes; along sandy drainages; within drainage ways; around ponds and lakes; playas; boggy areas; loamy ciénegas; depressions; sandy swales; (sandy and silty) banks of rivers; along (rocky and gravelly-sandy) edges of washes and swales; around margins of playas; marshy areas; shorelines of lakes; along sandy beaches; terraces; sandy bottomlands; gravelly and sandy floodplains; lowlands; mesquite bosques; around stock tanks; dry beds of stock tanks; dry beds of reservoirs; along and in ditches; ditch banks; sandy riparian areas; clayey-loamy waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant has a rank odor. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop (*V.e.* subsp. *exauriculata*); it was also noted as having been used as a drug or medication, insecticide (*V.e.* subsp. *exauriculata*), protection (*V.e.* subsp. *exauriculata*), ceremonial items (*V.e.* subsp. *exauriculata*) and as a commodity used in personal hygiene (*V.e.* subsp. *exauriculata*). *Verbesina encelioides* is native to south-central and southern North America and coastal islands in the Caribbean Sea, and western and southern South America. *5, 6, **16**, 28 (color photograph 438), 43 (062409), 44 (050712), 46 (Page 907), **56**, **57**, 58, 63 (050712 - color presentation), 68 (*Verbesina encelioides* var. *exauriculata* is reported to be an exotic and native to the Old World; however, no other source used reported it as being an exotic.), 77, 80 (This plant is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. This annual forb has been reported to accumulate toxic levels of nitrate.), **85** (050812 - color presentation), 86 (color photograph), **89** (reported from the Santa Cruz Flood-plain), 115 (color presentation), 124 (050712), 127*

Verbesina encelioides var. *exauriculata* (see *Verbesina encelioides* subsp. *exauriculata*)

Xanthisma spinulosum (see *Machaeranthera pinnatifida*)

Xanthisma spinulosum var. *gooddingii* (see footnote 140 under *Machaeranthera pinnatifida*)

Xanthium canadense (see *Xanthium strumarium* var. *canadense*)

Xanthium commune (see *Xanthium strumarium* var. *canadense*)

Xanthium saccharatum (see *Xanthium strumarium* var. *canadense*)

***Xanthium strumarium* C. Linnaeus (var. *canadense* (P. Miller) J. Torrey & A. Gray is the variety reported as occurring in Arizona): Rough Cocklebur**

SYNONYMY: (for *X.s.* var. *canadense*: *Xanthium californicum* E.L. Greene; *Xanthium canadense* P. Miller; *Xanthium commune* N.L. Britton; *Xanthium saccharatum* C.F. Wallroth). COMMON NAMES: Abrojo ("Bur", Spanish: Arizona to Texas, Tabasco)[140]; 'Ałta'neets'éhii <'alxa'niits'éhiih, ta'neets'éhii> (Athapascan: Navajo)[140]; American Cocklebur (var. *canadense* and *glabratum*); Atsiáŋwádova (Uto-Aztecan)[140]; Atsiogopapa (Uto-Aztecan: Northern Paiute)[140]; Bachapo'or (Uto-Aztecan: Mountain Pima)[140]; Beach Clotbur (var. *canadense*); Beach Cocklebur (var. *canadense*); Broad Bur-weed; Broad Burweed; Broad Cocklebur; Bur Thistle Burdock; Burr Thistle; Bur Weed; Bur-weed (a name also applied to var. *canadense* and other species); Burweed (a name also applied to var. *canadense*, other species and the genus *Xanthium*); Button-bur (var. *canadense*); Buttonbur (English)[140]; Cadio (var. *canadense*); Cadillo ("Bur", Spanish: Arizona, New Mexico, Sonora)[140]; Cadillos (Hispanic); California Bur (a name also applied to var. *canadense* and other species); California Burr (var. *canadense*); California-bur (as *X.*

orientale); Californian Burr (var. *canadense*); Canada Cocklebur (var. *canadense*); Canada Cockleburr (var. *canadense*); Canadian Canadian Bur (a name also applied to var. *canadense*); Cang Er (transcribed Chinese); Cocklebur (var. *canadense*); Carrapicho-de-carneiro (Portuguese: Brazil); Carrapicho-grande (Portuguese: Brazil); Chayotillo (Hispanic); Clot-bur (a name also applied to var. *canadense* and to other species); Clotbur (a name also applied to var. *canadense*, other species and the genus *Xanthium*); Clotbur [Clothbur] ("Ball-bur", English: England, Texas)[140]; Clote-bur (a name also applied to the genus *Xanthium*); Clott Bur (a name also applied to other species); Clott-bur (a name also applied to other species); Cocklebur (a name also applied to var. *canadense*, other species and the genus *Xanthium*); Cockleburr; Common Clotbur; Common Cockle Bur; Common Cockle-bur (var. *canadense*); Common Cockle-burr; Common [Spiny] Cocklebur (a name also applied to other species (English)[140]; Common Cocklebur (var. *canadense*); Common Cuckelbur; Common Cucklebur; Cözazni Caacöl ("Large Sandbur", Hokan: Seri)[140]; Cucklebur (a name also applied to var. *canadense* and the genus *Xanthium*); Cuckle Bur (var. *canadense*); Cuckold Burs; Dike-but; Ditch Bur; Ditch-bur; Ditchbur (English)[140]; Gewöhnliche Spitzklette (German); Glandular Clot-bur (var. *canadense*); Glandulart Clotbur (var. *canadense*); Glandular Cocklebur (var. *canadense*); Great Clotbur (var. *canadense*); Great Cocklebur (a name also applied to var. *canadense* and other species); Gullfrö (Swedish); Heartleaf Cocklebur; Hedge-hog Bur-weed; Hedge-hog-bur-weed (var. *canadense*); Hedgehog Burweed (var. *canadense*); Hedgehog-burweed; Huichapole <güichapol, güichapori, guachapore, guacaporo, huichaori, huachapore> (Spanish: California, Sonora to Puebla)[140]; Italian Cocklebur (var. *canadense*); Izee Inlwozh <izee inkozee> (Athapascan: Western Apache)[140]; Kámuknívų (Uto-Aztecan: Ute)[140]; Kmn^{y}a (Yuman: Cocopah)[140]; Kankerroos (Afrikaans); Kropfklette (German); Kwĭ'tcĕmbogop ("Bison Fruit", Uto-Aztecan: Shoshoni)[140]; Lampourde (French); Lampourde Glouteron (French); Large Cockle Bur; Large Cockle-bur; Large Cockle-burr; Large Cocklebur; Large-leaf Cocklebur; Lesser Burdock (var. *canadense*); Lesser Clot-bur; Lesser Clotbur; Louse-bur; Louse-burr; Lousebur; Mo'kĭachipa (Language Isolate: Zuni)[140]; Mo'kiyatchipba ("Round Stickers", Zuni); Mokoksh (Chumash: Ineseño Chumash)[140]; Noogoora-bur (as *X. pungens*); ŋwaejoka (Kiowa Tanoan: Tewa)[140]; O-namomi (Japanese Rōmaji); Paatso <pá:taco, pa:tcótco> (Uto-Aztecan: Hopi)[140]; Pennsylvania Clotbur (var. *canadense*); Petit Glouteron (French); Qum Nah (Yuman: Paipai)[140]; Rough Cockle-bur; Rough Cocklebur; Rough Cockle-burr; Rough Cockleburr; Sea Burdock; Sea-burdock; Sea Cocklebur (var. *canadense*); Sea Cucklebur (var. *canadense*); Sheep-bur (a name also applied to other species); Sheepbur (a name also applied to other species); Sheepbur (English)[140]; Sheepburr (a name also applied to other species); Sho'moy <shomoy> (Chumash: Barbareño Chumash)[140]; Siberian Cocklebur (as *X. sibericum*); Small Burdock (var. *canadense*); Small Cocklebur (var. *canadense*); Spitzklette (German); Strumarium; Ta'neets'éhii Ntsxaaz <ʾdtani-c'ehí ɳca·gí> (Athapascan: Navajo)[140]; Vaiwa <vaiva, váiva> (Uto-Aztecan: Akimel O'odham, Hiá Ceḍ O'odham)[140]; Waiwel <vaivul> (Uto-Aztecan: Tohono O'odham)[140]; Wisapole (Yuman: Paipai)[140]. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 6½ feet in height; plants were observed and described as being 2 to 3 feet in height and 3 to 4 feet in width); the foliage is green, yellowish-green or yellow; the flower heads may be green, greenish-yellow or yellow-green; flowering generally takes place between early May and early November (additional record: one for early January, one for mid-February, one for early April and one for early December); the fruits are green, green-yellow or yellow-green with yellow spines turning to brown prickly burs. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; bases of cliffs; rocky canyons; rock walls of canyons; along sandy canyon bottoms; gorges; shaley bluffs; sandy knolls; clearings in woodlands; meadows; foothills; clayey hills; rocky hillsides; sandy-loamy and clayey slopes; bajadas; sand dunes; benches; shaley breaks; clayey prairies; plains; mud, gravelly, sandy, clayey and silty flats; uplands; basins; sandy and clayey valley floors; valley bottoms; in coastal saltwater marshes; railroad right-of-ways; abandoned roadbeds; sandy roadcuts; along rocky, shaley, gravelly-loamy, sandy, sandy-loamy, sandy-clayey and loamy roadsides; along rocky-sandy arroyos; gravelly and sandy bottoms of arroyos; within rocky, shaley-silty and silty draws; clayey bottoms of draws; gulches; gullies; rocky and sandy ravines; shaley bottoms of ravines; seeps; springs; along streams; along and in rocky and sandy streambeds; along creeks; along and in gravelly-sandy and sandy creekbeds; along rivers; along and in rocky, sandy, sandy-clayey and clayey riverbeds; along and in rocky, rocky-gravelly, gravelly and sandy washes; along and in clayey drainages; sandy-clayey drainage ways; around waterholes; vernal pools; in clayey-loamy poolbeds; around ponds; pondbeds; lakebeds; playas; sandy bogs; sandy areas around and in marshes; swamps; dried mud puddles; depressions; clayey-loamy swales; along (shaley, sandy, sandy-silty, clayey and silty) banks of springs, streams, creeks, creekbeds, rivers, riverbeds and washes; (sandy) edges of seeps, streams, clayey creeks, rivers, ponds, lakes, marshes and lagoons; (muddy) margins of streams, rivers, ponds and lakes; (rocky-sandy, sandy, sandy-loamy, sandy-clayey and clayey) shorelines of creeks, rivers, ponds and lakes; muddy areas of drawdown; rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-clayey, sandy-silty and silty sand bars; gravelly-sandy and sandy beaches; cobbly-sandy and sandy benches; sandy terraces; sandy-loamy, loamy and clayey bottomlands; along stony, gravelly-sandy, gravelly-silty-clayey, sandy, sandy-silty and clayey floodplains; lowlands; sandy fencerows; stock ponds; dry beds of stock tanks; around and in sandy-silty, loamy, loamy-clayey, clayey and clayey-loamy reservoirs; sandy-clayey dry beds of reservoirs; along rocky, sandy and loamy-clayey banks and shores of reservoirs; around and in stock tanks; dams; levees; canals; canal banks; along sandy and loamy ditches; along ditch banks; along bouldery-cobbly-sandy, gravelly and sandy riparian areas; sandy waste places, and disturbed areas growing in mucky, muddy and wet, moist, damp and dry (most often vernally or seasonally wet) bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; gravelly-clayey, gravelly-silty clay, sandy clay, loamy clay and clay ground, and shaley silty, sandy silty and silty ground, occurring from sea level to 8,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Exotic? *Xanthium commune* Britton was listed under Miscellaneous Introduced Species as a Long-lived Annual by J.J. Thornber in the "Vegetation Groups of the Desert Laboratory Domain. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food (*X.s.* var. *canadense*), as cooking tools (*X.s.* var. *canadense*), paint (seed powder used as a blue paint for the mask dancers

(*X.s*. var. *canadense*)) and as a drug or medication. USDA Forest Service Fire Effects Information System reports that "Common Cocklebur seeds and cotyledon leaves are poisonous to all classes of livestock. Beyond the cotyledon stage, plants are not poisonous." Elk (*Cervus elaphus*) browse the plants and Mourning Doves (*Zenaida macroura*) feed on the seeds. *Xanthium strumarium* is native to eastern, middle and southern Europe including islands in the Mediterranean Sea; Asia and islands in the North Pacific Ocean; northwestern, central and southern North America, and northern South America. *5, 6, 15, 28 (color photograph 810) 30, 43 (062509), 44 (061411 - color presentation), 46 (recorded as *Xanthium saccharatum* Wallr., "The seeds and seedlings contain a glucoside, xanthostrumarin, that is poisonous to livestock, especially to swine and poultry." If ingested, the spiny burs may cause the death of young animals by irritating or clogging the intestinal tract.), **56**, **57**, 63 (050912 - color presentation), 68, **77**, 80 (This species (*Xanthium saccharatum*) is listed as a Major Poisonous Range Plant. "Although the toxic principle in cocklebur has been attributed to a glycoside isolated from seeds, the poisonous principle in *Xanthium strumarium* has been identified as hydroquinone. ... The seeds, enclosed in prickly burs, contain the toxic substance, but are rarely ever eaten. Upon germination, the toxic principle is distributed to the seedling and remains through the cotyledon stage. The concentration of the toxic substance drops rapidly as the first true leaves develop. ... Because cocklebur is an annual and a prolific seed producer, every effort should be made to prevent its producing seed." See text for additional information.), **85** (0050912 - color presentation), 101 (color photograph), 115 (color presentation), 124 (012211), 127, 140 (Pages 87-88 & 286)*

***Xanthium strumarium* C. Linnaeus var. *canadense* (P. Miller) J. Torrey & A. Gray: Canada Cocklebur**

SYNONYMY: *Xanthium californicum* E.L. Greene; *Xanthium canadense* P. Miller; *Xanthium commune* N.L. Britton; *Xanthium saccharatum* C.F. Wallroth. COMMON NAMES: ("Bur" a name also applied to the species and other species, Spanish: Arizona, New Mexico, Texas, Tabasco); American Cocklebur; Beach Clotbur; Beach Cocklebur; Bur-weed (a name also applied to other species); Burweed (a name also applied to other species and the genus *Xanthium*); Button-bur; Cadio; Cadillo ("Bur" a name also applied to the species, Spanish: Arizona, New Mexico, Sonora); Cadillos (Hispanic); California Bur (a name also applied to var. *canadense*, the species and other species); California Burr; Californian Burr; Canadian Bur; Canada Cocklebur (a name also applied to the species); Canada Cockleburr; Canadian Cocklebur; Chayotillo (Hispanic); Clot-bur (a name also applied to other species); Clotbur (a name also applied to other species and the genus *Xanthium*); Cocklebur (a name also applied to the species, other species and to the genus *Xanthium*); Cockleburr (a name also applied to the species, other species and to the genus *Xanthium*; Common Cockle-bur; Common Cocklebur; Cuckle Bur; Cucklebur; Glandular Clot-bur; Glandular Clotbur; Glandular Cocklebur; Great Clotbur (a name also applied to other species); Great Cocklebur; Hedge-hog-bur-weed; Hedgehog Burweed; Italian Cocklebur; Lesser Burdock; Pennsylvania Clotbur; Sea-burdock; Sea Cocklebur; Sea Cucklebur; Sheep-bur (a name also applied to other species); Sheepbur (a name also applied to other species); Small Burdock; Small Cocklebur. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 6½ feet in height; plants were observed and described as being 10 inches in height and 14 inches in width, plants were observed and described as being 2 to 3 feet in height and 3 to 4 feet in width); the foliage may be green, yellowish-green or yellow; the flower heads may be green or greenish-yellow; flowering generally takes place between early May and early November (additional record: one for early December); the fruits may be green, green-yellow or yellow-green with yellow spines turning to brown prickly burs. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; rock walls of canyons; along sandy canyon bottoms; gorges; bases of cliffs; meadows; cobbly-sandy-clayey slopes; sand dunes; prairies; rocky plains; clayey flats; uplands; valleys; railroad right-of-ways; along rocky, gravelly-loamy, sandy and sandy-loamy roadsides; clayey arroyos; gulches; seeps; springs; along streams; along and in sandy streambeds; along creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-gravelly, gravelly and sandy washes; sandy-clayey drainage ways; around waterholes; around ponds; lakebeds; bogs; muddy and sandy areas around and in marshes; depressions; swales; along (sandy and silty-loamy) banks of streams, creeks, rivers and washes; (sandy) edges of seeps, streams and washes; along (clayey-loamy) margins of rivers, ponds and lakes; shores of lakes; areas of drawdown; gravel bars; sandy beaches; sandy terraces; loamy bottomlands; sandy floodplains; stock tanks; dry beds of stock tanks; canals; along sandy ditches; along ditch banks; bouldery-cobbly-sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist or dry (most often vernally or seasonally wet) bouldery-cobbly-sandy, rocky, rocky-gravelly, gravelly and sandy ground; gravelly loam, sandy loam, clayey loam, silty loam and loam ground; cobbly-sandy clay, sandy clay and clay round, and sandy silty ground, occurring from 100 to 8,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Exotic? *Xanthium commune* Britton was listed under Miscellaneous Introduced Species as a Long-lived Annual by J.J. Thornber in the Vegetation Groups of the Desert Laboratory Domain. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as cooking tools, paint (seed powder used as a blue paint for the mask dancers) and as a drug or medication. USDA Forest Service Fire Effects Information System reports that "Common Cocklebur seeds and cotyledon leaves are poisonous to all classes of livestock. Beyond the cotyledon stage, plants are not poisonous." Elk (*Cervus elaphus*) browse the plants and Mourning Doves (*Zenaida macroura*) feed on the seeds. *Xanthium strumarium* var. *canadense* is native to central and southern North America and South America. *5, 6, 15, 28 (species, color photograph 810) 30, 43 (050812), 44 (050812 - no listing under Common Names; genus listing, color picture), 46 (recorded as *Xanthium saccharatum* Wallr., "The seeds and seedlings contain a glucoside, xanthostrumarin, that is poisonous to livestock, especially to swine and poultry." If ingested, the spiny burs may cause the death of young animals by irritating or clogging the intestinal tract.), 58, 63 (050912), 68, 80 (This species (*Xanthium saccharatum*) is listed as a Major Poisonous Range Plant. "Although the toxic principle in cocklebur has been attributed to a glycoside isolated from seeds, the poisonous principle in *Xanthium strumarium* has been identified as hydroquinone. ... The seeds, enclosed in prickly burs, contain the toxic substance, but are rarely ever eaten. Upon germination, the toxic principle is distributed to the seedling and remains through the cotyledon stage. The concentration of the toxic substance

drops rapidly as the first true leaves develop. ... Because cocklebur is an annual and a prolific seed producer, every effort should be made to prevent its producing seed." See text for additional information.), 85 (050912 - *Xanthium strumarium* C. Linnaeus var. *canadense* (P. Miller) J. Torrey & A. Gray is now considered a synonym of *Xanthium strumarium* C. Linnaeus, color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb, recorded as *Xanthium commune* Britton), 101 (color photograph of species), 101 (color photograph of species), 115 (color presentation of species), 124 (050812), 127, **WTK** (October 28, 2009)

Zinnia acerosa (A.P. de Candolle) A. Gray: Desert Zinnia

SYNONYMY: *Zinnia pumila* A. Gray. COMMON NAMES: Cmajíic Ihásaquim ("What Women Brush Their Hair With", Hokan: Seri)[140]; Desert Zinnia; Desert [White] Zinnia (English)[140]; Hierba del Burro (Spanish); Mojépe Ihásaquim Cmaam ("Female Saguaro Hairbrush", Hokan: Seri)[140]; Saapom Ipémt ("What Purple Prickly-pear is Rubbed With", Hokan: Seri)[140]; Spinyleaf Zinnia; White Zinnia; Wild Zinnia; Zinia (a name also applied to other species, Spanish); Zinia del Desierto ("Desert Zinnia", Spanish: Sonora)[140]. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 3 to 20 inches in height and up to 2 feet in width with a flat or rounded crown); the stems may be gray or greenish; the leaves may be gray or gray-green; the disk florets may be green-yellow, yellow or yellow-orange; the ray florets may be cream, cream-white, white, white-cream, pale yellow, yellow or yellow-white; flowering generally takes place between early March and early November (additional records: three for early December). HABITAT: Within the range of this species it has been reported from mountains; sandy and sandy-loamy mesas; sandy-loamy plateaus; canyons; canyon bottoms; crevices in bedrock; along rocky and stony ridges; rocky ridgetops; foothills; rocky hills; rocky and gravelly hillsides; bedrock, bedrock, bouldery, rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy and loamy slopes; rocky, gravelly, gravelly-sandy, sandy and clayey bajadas; rocky outcrops; stony and sand hills; sand dunes; plains; rocky-gravelly-sandy, rocky-sandy, gravelly and gravelly-sandy-clayey flats; rocky valley floors; gravelly-silty and gravelly-silty-loamy valley bottoms; along gravelly-sandy-clayey-loamy roadsides; arroyos; sandy bottoms of arroyos; washes; sandy drainages; along ponds; (gravelly-sandy) banks of washes; edges of swales; sandy benches; terraces; floodplains; lowlands; riparian areas; waste places, and disturbed areas growing in damp and dry desert pavement; bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-silty loam, sandy loam and loam ground; gravelly-sandy clay and clay ground, gravelly silty ground, and chalky ground, occurring from 1,500 to 6,300 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Zinnia acerosa* is native to southwest-central and southern North America. *5, 6, 13 (Page 297), 15, **16**, 18, 28 (color photograph 257), 43 (062609 - *Zinnia acerosa* A. Gray), 44 (050912 - no record of species or genus), 46 (recorded as *Zinnia pumila* Gray, Page 897), 48 (genus), 58, 63 (050912 - color presentation), 77 (color photograph #71), **85** (050912 - color presentation), 115 (color presentation), 124 (050912 - no record of species; genus record), 127, 140 (Pages 88-90 & 286), **WTK** (October 28, 2009)*

Zinnia grandiflora T. Nuttall: Rocky Mountain Zinnia

COMMON NAMES: Desert Zinnia; Little Golden Zinnia; Great Plains Zinnia; Paper Daisy; Plains Zinnia; Prairie Zinnia; Rocky Mountain Zinnia; Texas Zinnia; Wild Zinnia; Zacate Pastor, Zinia (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 2 to 12 inches in height with a flat or rounded crown; plants were observed and described as being 2 inches in height and 8 inches in width, plants were observed and described as being 4¼ inches in height and 3 inches in width, plants were observed and described as being 8 inches in height and width); the stems are greenish; the leaves may be grayish-green or greenish; the disk florets may be brown, greenish, orange, orange-red, orange-yellow, reddish, reddish-brown, yellow or yellow-orange; the ray florets may be golden-yellow, orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between late April and late October. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky and sandy-silty mesas; canyon rims; along cliffs; rocky canyons; canyon floors; bluffs; sandy knolls; shaley tops of knolls; stony-sandy and gravelly-sandy ridges; ridgetops; openings in woodlands; clayey-loamy meadows; foothills; rocky hills; hilltops; rocky, rocky-loamy and gravelly-sandy hillsides; sandy bases of escarpments; bouldery, rocky-sandy hillocks; bouldery, rocky, rocky-stony, rocky-loamy, shaley, stony, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and clayey-loamy slopes; bajadas; rocky outcrops; rocky benches; rocky steppes; sandy prairies; sandy and clayey-loamy plains; rocky fields; gravelly, gravelly-loamy and sandy flats; basins; sandy valley floors; along sandy railroad right-of-ways; along rocky, stony, gravelly-sandy-clayey-loamy, gravelly-loamy, sandy, sandy, loamy, clayey-loamy and silty-loamy roadsides; within sandy arroyos; sandy bottoms of arroyos; draws; gravelly streambeds; along creeks; creekbeds; washes; rocky-sandy drainages; along drainage ways; sandy depressions; banks of arroyos, rivers and washes; shores of lakes; benches; alluvial terraces; sandy bottomlands; floodplains; lowlands; along and in ditches; rocky-sandy riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, rocky-stony, rocky-sandy, stony, shaley, shaley-sandy, stony, stony-sandy, cindery, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and silty loam ground; gravelly clay and sandy clay ground, and rocky silty, sandy silty and silty ground, occurring from 1,900 to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers of this plant were reported to have been used by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye or paint crop; it was also noted as having been used as a drug or medication. *Zinnia grandiflora* is native to southwest-central and southern North America. *5, 6, 18, 28 (color

photograph 445), 43 (062609), 44 (050912 - no record of species or genus), 46 (Page 897), 48 (genus), 63 (050912 - color presentation), 85 (122609 - color presentation), 86 (color photograph), **89** (reported as being a dwarf shrub located on the Mesa-like Mountain Slopes), 124 (050912), 127*

Zinnia pumila (see *Zinnia acerosa*)

Bignoniaceae: The Trumpet-creeper Family

***Chilopsis linearis* (A.J. Cavanilles) R. Sweet: Desert Willow**

COMMON NAMES: Bow Willow; Catalpa Willow (Texas); Desert Catalpa; Desert Willow (a name also applied to other species); Desert-willow (a name also applied to the genus *Chilopsis*); Desertwillow (a name also applied to the genus *Chilopsis*); False-willow (a name also applied to other species); Flor de Mimbre (a name also applied to other species); Flowering Willow; Flowering-willow; Jano (Spanish); Janos (Spanish); Mimbres (Spanish); Ökentrumpet (Swedish); Texas Desert Willow; Willow-leaved Catalpa; Willowleaf Catalpa. DESCRIPTION: Terrestrial perennial (cold-deciduous) shrub or tree (5 to 33 feet in height; plants were observed and described as being 10 to 13 feet in height with spreading crowns to 33 feet in width, one plant was observed and described as being 15 feet in height with a crown 20 feet in width, plants were observed and described as being 18 feet in height with crowns 20 feet in width, plants were observed and described as being 22 feet in height with crowns 25 feet in width); the bark is dark brown or dark gray-brown; the light green leaves may be straight (subsp. *linearis* and roughly to 12 inches in length and 3/8 inch in width) or curved (subsp. *arcuata* and roughly 3 to 5½ in length and 1/8 to 1/4 inch in width); the flowers may be light lavender, lavender, lavender-white, pale pink, pink, pink-lavender, pink-lavender-magenta with a white throat, pinkish-white, purple, purple-white, purple with yellow markings, reddish-purple, rose, violet, white, whitish, white with a pink tint or white with pink or purple lines; flowering generally takes place between mid-April and mid-October (additional records: two for late March, two for late October and one for mid-December); the seeds are dispersed from slender pods (4 to 12 inches in length). HABITAT: Within the range of this species it has been reported from mountains; mudstone mesas; bases of cliffs; rocky and sandy canyons; rocky canyon bottoms; rocky and sandy talus slopes; ledges; foothills; talus hills; gravelly-sandy hillsides; rocky, gravelly, gravelly-sandy, sandy, sandy-loamy and loamy slopes; sandy bajadas; amongst rocks; sand dunes; plains; sandy and sandy-loamy flats; silty valley floors; along gravelly, gravelly-sandy and gravelly-sandy-clayey-loamy roadsides; along and in gravelly-sandy, sandy and clayey-loamy arroyos; bottoms of arroyos; gulches; ravines; along sandy springs; along streams; rocky and gravelly-sandy streambeds; in sandy soil along creeks; along and in sandy creekbeds; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; rocky and sandy-loamy drainages; drainage ways; sandy and silty depressions; along (rocky, rocky-sandy, gravelly-sandy and sandy) banks of streams, creeks, washes and water courses; borders of washes; edges of washes; along margins of washes; sand bars; bottomlands; sandy floodplains; mesquite bosques; along canals; sandy and clayey-loamy riparian areas and disturbed areas growing in dry bouldery-cobbly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam soils; rocky-gravelly loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground, and silty ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers may be fragrant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop. The Desert Willow may be useful in controlling erosion. The bee, *Bombus sonorus*, is a pollinator, and hummingbirds are attracted to the flowers and feed on the nectar. *Chilopsis linearis* is native to south-central and southern North America. *5, 6, 13 Pages 214-215), 15, 18, 26 (color photographs), 28 (color photograph 55), 43 (062609 - *Chilopsis linearis* Sweet), 44 (061411), 46 (Page 794), 48, 52 (color photograph), 53, 63 (050912 - color presentation), 74, **77**, **85** (051012 - color presentation), 86 (color photograph), 91 (Pages 160-163), 115 (color presentation), 124 (061211), 127*

***Chilopsis linearis* (A.J. Cavanilles) R. Sweet subsp. *arcuata* (F.R. Fosberg) J.S. Henrickson: Desert Willow**

SYNONYMY: *Chilopsis linearis* (A.J. Cavanilles) R. Sweet var. *arcuata* F.R. Fosberg. COMMON NAMES: Bow Willow (a name also applied to the species); Catalpa Willow (a name also applied to the species, Texas); Desert Catalpa (a name also applied to the species); Desert Willow (a name also applied to the species and to other species); Desert-willow (a name also applied to the species and the genus *Chilopsis*); Desertwillow (a name also applied to the species and the genus *Chilopsis*); False-willow (a name also applied to the species and to other species); Flor de Mimbre (a name also applied to the species and to other species); Flowering Willow (a name also applied to the species); Flowering-willow (a name also applied to the species); Jano (a name also applied to the species, Spanish); Mimbres (a name also applied to the species, Spanish); Texas Desert Willow (a name also applied to the species); Western Desert Willow; Western Desert-willow; Western Desertwillow; Willow-leaved Catalpa (a name also applied to the species); Willowleaf Catalpa (a name also applied to the species). DESCRIPTION: Terrestrial perennial (cold deciduous) shrub or tree (5 to 33 feet in height; one plant was observed and described as being 13 feet in height with a crown 13 feet in width); the leaves are curved and roughly 3 to 5½ in length and 1/8 to 1/4 inch in width; the flowers may be pale pink, pink, purple, violet with yellow markings, white, white with maroon-purple or yellow & magenta lines or whitish tinged with lavender and yellow; flowering generally takes place between mid-April and early October (additional record: one for late October); the seeds are dispersed from slender pods (4 to 12 inches in length). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; foothills; bedrock, rocky, rocky-sandy, gravelly-sandy and sandy-silty-loamy slopes; sandy bajadas; amongst rocks; breaks; plains; flats; valley floors; along sandy-loamy roadsides; arroyos; draws; along

streams; along sandy streambeds; along rocky creeks, along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; (sandy) banks of water courses; margins of washes; sand bars; floodplains, and riparian areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and rocky-gravelly loam, sandy loam and sandy-silty loam ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Chilopsis linearis*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop. The Desert Willow may be useful in controlling erosion. The bee, *Bombus sonorus*, is a pollinator, and hummingbirds are attracted to the flowers and feed on the nectar. *Chilopsis linearis* subsp. *arcuata* is native to south-central and southern North America. *5, 6, 13 (Page 215, color photograph: Plate P.2., Page 402; "The desert willows have been used widely as ornamentals. They are prized for their graceful habit and large, attractive, sweet-scented flowers."), 18 (species), 26 (species, color photographs of species), 28 (species, color photograph 55), 43 (062609), 44 (061411 - color photograph), 46 (Page 794), 48 (species), 52 (species, color photograph of species), 53, 58, 63 (050912 - color presentation), 74 (species), 85 (051012 - color presentation of dried material), 86 (species, color photograph of species), 91 (species, Pages 160-163), 115 (color presentation of species), 124 (061211 - no record of subspecies; species record), 127 (species), **WTK** (October 28, 2009)*

Chilopsis linearis var. *arcuata* (see *Chilopsis linearis* subsp. *arcuata*)

Boraginaceae: The Borage Family

Amsinckia echinata (see *Amsinckia menziesii* var. *intermedia*)

Amsinckia intermedia (see *Amsinckia menziesii* var. *intermedia*)

Amsinckia intermedia var. *echinata* (see *Amsinckia menziesii* var. *intermedia*)

***Amsinckia menziesii* (J.G. Lehmann) A. Nelson & J.F. Macbride var. *intermedia* (F.E. von Fischer & C.A. Meyer) F.R. Ganders: Common Fiddleneck**

SYNONYMY: *Amsinckia echinata* A. Gray; *Amsinckia intermedia* F.E. von Fischer & C.A. Meyer; *Amsinckia intermedia* F.E. von Fischer & C.A. Meyer var. *echinata* (A. Gray) I.L. Wiggins. COMMON NAMES: Cedkam (a name also applied to other species, Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Cetkom <chetkom> (Uto-Aztecan: Tohono O'odham)[140]; Chedkoadag <tci-itkatak, djeh-t-ka-tak> (Uto-Aztecan: Akimel O'odham)[140]; Coast Buckthorn; Coast Fiddleneck (a name also applied to other species); Common Fiddleneck; Common Rancher's Fireweed; Common Rancher's-fireweed; Common Ranchers Fireweed; Devil's Lettuce (English)[140]; Fiddle Neck (a name also applied to the genus *Amsinckia*); Fiddleneck (a name also applied to the genus *Amsinckia* and to the family Boraginaceae); [Fireweed] Fiddleneck (English)[140]; Finger Weed; Fireweed Fiddleneck; Intermediate Fiddleneck; Intermediate Rancher's Fireweed; Kacú:l N^{y}mpał^{y} (Yuman: Cocopa)[140]; Kuniroûmp (Uto-Aztecan: Shoshoni)[140]; Kurttukeltalemmikki; Menzies Fiddleneck; Orange-flowered Menzies Fiddleneck; Orange-flowered Menzies's Fiddleneck; Orange-flowered Menzies' Fiddleneck; Ranchers Fireweed; Sacate Gordo; Sacoto Gordo; Tarweed (a name also applied to other species and the genus *Amsinckia*); Yellow Burnweed; Yellow Burweed; Yellow Burrweed (a name also applied to other species); Yellow Forget Me Not (a name also applied to other species); Yellow Tarweed (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 inches to 4 feet in height); the flowers are golden-yellow, orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between late January and late May (additional records: one for mid-June, one for late June, one for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; bases of cliffs; silty canyons; rocky canyon bottoms; sandy-clayey pockets in rocks; hogbacks; clayey ridges; ridgetops; meadows; foothills; rocky and silty hills; clayey hilltops; bouldery, rocky and rocky-sandy hillsides; bouldery, rocky, rocky-loamy-clayey, shaley-clayey-loamy, cobbly-sandy-loamy, gravelly-sandy, gravelly-loamy and clayey slopes; rocky-sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; boulderfields; along boulders; sand dunes; sand sheets; blow-sand deposits; gravelly, gravelly-sandy, sandy, sandy-clayey and clayey flats; sandy uplands; basins; rocky valley floors; coastal terraces; along roadsides; along arroyos; along bottoms of arroyos; draws; seeps; in clay around springs; along streams; along creeks; along creekbeds; along rivers; riverbeds; along and in rocky-sandy, gravelly-sandy, sandy and sandy-loamy washes; within sandy drainages; sandy drainage ways; around ponds; marshes; clayey-loamy depressions; swales; (sandy) banks of streams and lakes; edges of washes; margins of washes; mudflats; benches; rocky and gravelly and sandy terraces; loamy bottomlands; silty floodplains; silty impoundments; edges of stock tanks; edges of ditches; riparian areas; recently burned areas of oak woodland and chaparral, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, rocky-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; shaley-clayey loam, cobbly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky-loamy clay, sandy clay and clay ground, and gravelly-silty and silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Amsinckia menziesii* var. *intermedia* is native to west-central and southern North America. *5, 6, 15 (reported as *Amsinckia intermedia* Fisch. & Mey.), **16** (reported as *Amsinckia intermedia* Fisch. & Mey.), 28 (reported as *Amsinckia intermedia*, color photograph 380), 43 (052412 - no record for *Amsinckia menziesii* var. *intermedia*), 44 (061511), 46 (reported as *Amsinckia intermedia* Fisch. & Meyer, Page 723), 58 (reported as *Amsinckia intermedia* Fisch. & Meyer), 63 (051012 - color presentation), 68 ("The mature

seeds have been demonstrated to cause hepatic cirrhosis, known as "hard liver disease" of cattle and swine, and the "walking disease" of horses. Sheep are either immune or highly resistant to the poison. The disease is common in the Pacific Northwest, but not in Arizona. This plant also may cause nitrate poisoning."), 77 (reported as *Amsinckia intermedia* F. & M., color photograph labeled *Amsinckia intermedia* #7), 80 (This plant (*Amsinckia intermedia* and others) is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Cattle, horses and swine may be poisoned by an unknown liver toxin from eating large amounts of the seeds of this desert annual. Also plants may cause nitrate poisoning."), **85** (061511 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Amsinckia intermedia* F. & M.), 101, 115 (color presentation), 124 (061511), 140 (Pages 91-92 & 287- recorded as *Amsinckia menziesii* (Lehmann) A. Nelson & J.F. Macbride var. *intermedia* (Fischer & C.A. Meyer) Ganders [*Amsinckia intermedia* C.F. Fischer & C.A. Meyer])*

***Amsinckia tessellata* A. Gray (var. *tesselata* is the variety reported as occurring in Arizona): Bristly Fiddleneck**

COMMON NAMES: Bristly Fiddle-neck; Bristly Fiddleneck; Cedkam (a name also applied to other species, Uto-Aztecan: Hiá Ceḍ O'odham); Checker Fiddle-neck; Checker Fiddleneck; Checkered Fiddleneck; Cobblestone Fiddleneck; Devil's Fiddleneck; Devil's Lettuce; Devil's-lettuce; Fiddleneck (a name also applied to other species, the genus *Amsinckia* and to the family Boraginaceae); Tessellate Fiddle Neck; Tessellate Fiddle-neck; Tessellate Fiddleneck; Tiva'nɨbɨ (Uto-Aztecan: Kawaiisu)[140]; Tso'hamp [Tso'nap] (Uto-Aztecan: Shoshoni)[140]; Tu'karûmp (Uto-Aztecan: Ute)[140]; Western Fiddleneck. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 4 feet height); the foliage is green; the flowers may be golden, golden-yellow, orange, orange-yellow, yellow, dark yellow or yellow-orange; flowering generally takes place between early January and late June (additional records: one for early September, one for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; clayey mountaintops; mountainsides; pebbly-sandy-silty and sandy-clayey-loamy mesas; stony bases of cliffs; rocky, rocky-silty, gravelly and sandy canyons; gravelly, gravelly-sandy and sandy canyon bottoms; talus slopes; rocky knolls; ledges; rocky and sandy ridges; gravelly-sandy and sandy ridgetops; meadows; foothills; bouldery, rocky, rocky-stony, loamy and clayey hills; rocky, rocky-sandy-loamy, shaley and clayey hillsides; rocky, stony, cobbly-sandy, cobbly-loamy, gravelly, sandy, sandy-loamy and sandy-clayey-loamy slopes; alluvial fans; gravelly and silty bajadas; rocky outcrops; gravelly bases of rock outcrops; amongst boulders and rocks; around rocks; sand dunes; sloping sand sheets; sandy edges of dunes; plains; gravelly, pebbly-sandy-silty and sandy flats; valley floors; valley bottoms; along rocky, rocky-sandy, rocky-silty, gravelly, gravelly-sandy, sandy and loamy roadsides; arroyos; gullies; sandy bottoms of ravines; seeps; clay soil along creeks; along and in rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; within gravelly and sandy drainages; along and in drainage ways; depressions; silty lakebeds; banks of arroyos and rivers; sandy edges of washes and lakes; along margins of washes; silty-clayey shores of lakes and lakebeds; beaches; gravelly and sandy benches; terraces; mesquite bosques; margins of stock tanks; riparian areas; waste places, and disturbed areas growing in moist, damp and dry desert pavement; bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-stony, rocky-sandy, shaley, stony, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; bouldery-gravelly-sandy-clayey loam, rocky-sandy loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam, sandy-silty loam and loam ground; rocky clay, sandy clay, silty clay and clay ground, and rocky-silty, gravelly silty and pebbly-sandy silty ground, occurring from 100 to 8,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Amsinckia tessellata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (122709), 44 (061611 - color photograph), 46 (Page 723), 63 (051012 - color presentation), 77, 80 (The plant *Amsinckia intermedia* and others are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Cattle, horses and swine may be poisoned by an unknown liver toxin from eating large amounts of the seeds of this desert annual. Also plants may cause nitrate poisoning."), **85** (051012 - color presentation of dried material), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 124 (061611 - no record of species; genus record), 127, 140 (Page 91)*

Coldenia canescens (see *Tiquilia canescens* var. *canescens*)

***Cryptantha angustifolia* (J. Torrey) E.L. Greene: Panamint Cryptantha**

COMMON NAMES: Bristlelobe Cryptantha; Cat's-eye Panamint; Creosote-bush Cat's-eye; Desert Cryptantha (a name also applied to other species); Forget-me-not (a name also applied to the family Boraginaceae); Hehe Ksatx (Seri); Narrow-leaf Cryptantha; Narrow-leaf Forget-me-not; Narrow-leaf Nievitas; Narrow-leaf Pick-me-not; Narrow-leaf Popcorn Flower; Narrow-leaf Popcorn-flower; Narrow-leaf Popcornflower; Narrow-leaved Cryptantha; Narrow-leaved Forget-me-not; Narrow-leaved Nievitas; Narrow-leaved Popcorn Flower; Narrow-leaved Popcorn-flower; Narrow-leaved Popcornflower; Narrowleaf Cryptanth; Narrowleaf Cryptantha; Narrowleaf Nievitas; Narrowleaf Pick-me-not; Nievitas (Spanish); Panamint Catseye (a name also applied to other species); Panamint Cryptantha (a name also applied to other species); Peluda (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb (stems 2 to 12 inches in height); the foliage may be gray-green, grayish or greenish; the flowers may be white, whitish or white with a yellow throat; flowering generally takes place between early January and mid-July (additional record: one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy-silty mesas; rocky canyons; bouldery and sandy canyon bottoms; scree; talus slopes; sandy and clayey ridges; sandy cinder cones; foothills; rocky, gravelly and sandy hills; bouldery-sandy and rocky hillsides; rocky, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy slopes;

rocky and gravelly alluvial fans; gravelly and gravelly-sandy bajadas; gravelly-sandy pediments; about and in rocky outcrops; sandy lava flows; sandy lava fields; sand hills; sand dunes; sandy hummocks; blow-sand deposits; gravelly-sandy-loamy and sandy plains; gravelly, gravelly-sandy, sandy and silty flats; basins; gravelly and sandy valley floors; sandy coastal plains; sandy coastal flats; hilly beach gravels; sandy coastal flats; along sandy, sandy-loamy and loamy roadsides; arroyos; sandy draws; in gravel along streams; along gravelly-sandy creeks; sandy riverbeds; along and in bouldery, rocky-sandy, stony-sandy, cobbly-gravelly-sandy, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy washes; in drainages; drainage ways; sandy-silty bottoms of playas; sandy and silty depressions; along (muddy, gravelly-sandy and sandy) banks of arroyos, rivers and washes; (sandy) edges of washes, lakes and playas; margins of washes; mudflats; gravel and sand bars; shelves; gravelly-sandy-silty terraces; sandy bottomland; floodplains; canal banks; riparian areas, and disturbed areas growing in muddy, and moist and dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam; gravelly-sandy-clayey loam, sandy loam and loam ground; clay ground, and gravelly-sandy silty, sandy-silty and silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: One record included the observation that the taproot contained a purplish dye. *Cryptantha angustifolia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 229), 43 (122709 - *Cryptantha angustifolia* Greene), 44 (061611), 46 (Page 719), 58, 63 (051112 - color presentation), **77**, **85** (061611 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Cryptanthe angustifolia* (Torr.) Greene), 124 (061611 - no record of species; genus record), 140 (Page 287)*

***Cryptantha barbigera* (A. Gray) E.L. Greene: Bearded Cryptantha**

COMMON NAMES: Bearded Cat's Eye; Bearded Cat's-eye; Bearded Catseye; Bearded Cryptanth; Bearded Cryptantha; Bearded Forget-me-not; Bearded Nievitas; Narrowleaf Nievitas (a name also applied to other species, Spanish); Peluda (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb (stems 4 to 16 inches in height; one plant was observed and described as being 4 inches in height and 20 inches in length, one plant was observed and described as being 5 inches in height and 12 inches in width, one plant was observed and described as being 12 inches in height and 10 inches in width); the foliage is deep green; the flowers may be cream, white or white with a yellow throat; flowering generally takes place between mid-January and mid-June (additional records: two for late November and one for late December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rim rock; cliffs; bases of cliffs; rocky canyons; bases of canyon walls; along rocky and sandy canyon bottoms; rocky spurs; scree; bouldery talus slopes; rocky ledges; ridges; ridgetops; sandy meadows; crater floors; gravelly, gravelly-sandy and sandy foothills; bouldery, rocky and rocky-gravelly hills; rocky hillsides; bedrock, bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, stony-sandy, cobbly-gravelly-sandy, cindery, gravelly, gravelly-loamy, sandy, sandy-loamy, clayey and clayey-loamy slopes; bases of slopes; rocky alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sand hills; sand dunes; sandy edges of dunes; blow-sand deposits; plains; rocky-gravelly, cindery, gravelly, sandy and clayey-loamy flats; basins; sandy valley floors; railroad right-of-ways; along gravelly, sandy and clayey roadsides; arroyos; bottoms of arroyos; draws; within rocky gullies; ravines; springs; along streams; rocky-sandy and gravelly streambeds; beside creeks; creekbeds; along rivers; sandy riverbeds; along and in bedrock, bouldery, bouldery-gravelly, rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-sandy, sandy and silty washes; along gravelly drainages; sandy bottoms of waterholes; marshes; banks of rivers; (rocky) edges of arroyos and washes; margins of washes; mudflats; sandy benches; shelves; gravelly terraces; loamy bottomlands; sandy floodplains; riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-rocky-sandy, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; bouldery-sandy-clayey loam, gravelly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: One record included an observation that the taproot contained a purplish dye. *Cryptantha barbigera* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (122809 - *Cryptantha barbigera* Greene), 44 (061611), 46 (Page 721), 58, 63 (051112 - color presentation), 77, **85** (051112 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Cryptanthe barbigera* (Gray) Greene), 124 (061611 - no record of species; genus record), 140 (Page 287)*

***Cryptantha micrantha* (J. Torrey) I.M. Johnston (var. *micrantha* is the variety reported as occurring in Arizona,): Redroot Cryptantha**

SYNONYMY: (for var. *micrantha: Eremocarya micrantha* (J. Torrey) E.L. Greene). COMMON NAMES: Desertnut Hiddenflower; Dwarf Cryptantha (a name also applied to other species); Dye Cryptantha; Nievitas (a name also applied to other species, Spanish); Peluda (a name also applied to other species, Spanish); Purple Root Pick-me-not; Purple-root Cryptantha; Purple-root Cryptantha; Purple-root Pick-me-not; Purple-rooted Cryptantha; Purple-rooted Forget-me-not; Purple-rooted Nievitas; Purpleroot Cryptantha; Purpleroot Nievitas; Purpleroot Pick-me-not; Red Root Cat's Eye; Red Root Cat's-eye; Red Root Cryptantha; Red-root Cryptantha; Redroot Cat's-eye; Redroot Catseye; Redroot Cryptantha. DESCRIPTION: Terrestrial annual forb/herb (spreading ascending and/or erect stems 1 to 4 inches in height); the foliage is gray-green or yellow-green; the flowers are white; flowering generally takes place between early March and late June (additional records: three for mid-February and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; cliffs; rocky-sandy plateaus; canyons; bouldery and sandy canyon bottoms; sandy ledges; ridgetops; sandy meadows; sandy and loamy foothills; sandy hills; rocky hillsides; bouldery, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy and sandy-loany slopes; rocky-sandy and sandy alluvial fans; gravelly bajadas; bouldery and rocky outcrops; along boulders; sand hills; sand

dunes; sandy edges of dunes; sand fields; sand sheets; blow-sand deposits; sandy plains; sandy flats; basins; sandy valley floors; along roadbeds; along rocky-gravelly, gravelly and sandy roadsides; along and in sandy arroyos; bottoms of arroyos; along draws; gulches; sandy seeps; along and in sandy creeks; creekbeds; gravelly-sandy and sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; along drainages; drainage ways; sandy depressions; swales; (gravelly, gravelly-sandy and sandy) banks of rivers and washes; (sandy) wash-side berms; along edges of washes; gravel and gravelly-sand bars; sandy benches; sandy bottomlands; sandy and silty floodplains; sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and loam ground; sandy clay and clay ground, and silty ground, occurring from 100 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Records included observations that the taproot contained a red, reddish-purple or purple dye. *Cryptantha micrantha* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (122909 - *Cryptantha micrantha* I.M. Johnst.; *Eremocarya micrantha* Greene), 44 (051212), 46 (Page 719), 58, 63 (051212 - color presentation), **77**, **85** (051212 - color presentation), 124 (051112 - no record of species; genus record), 140 (Page 287)*

Cryptantha micrantha (J. Torrey) I.M. Johnston var. *micrantha*: Redroot Cryptantha

SYNONYMY: *Eremocarya micrantha* (J. Torrey) E.L. Greene. COMMON NAMES: Dwarf Cryptantha (a name also applied to the species and to other species); Nievitas (a name also applied to the species and to other species, Spanish); Peluda (a name also applied to the species and to other species, Spanish); Typical Desertnut Hiddenflower; Typical Dye Cryptantha; Typical Purple Root Pick-me-not; Typical Purple-root Cryptantha; Typical Purple-root Cryptantha; Typical Purple-root Pick-me-not; Typical Purple-rooted Cryptantha; Typical Purple-rooted Forget-me-not; Typical Purple-rooted Nievitas; Typical Purpleroot Cryptantha; Typical Purpleroot Nievitas; Typical Purpleroot Pick-me-not; Typical Red Root Cat's Eye; Typical Red Root Cat's-eye; Typical Red Root Cryptantha; Typical Red-root Cryptantha; Typical Redroot Cat's-eye; Typical Redroot Catseye; Typical Redroot Cryptantha. DESCRIPTION: Terrestrial annual forb/herb (spreading ascending and/or erect stems 1 to 4 inches in height); the foliage is gray-green or yellow-green; the flowers are white; flowering generally takes place between early March and late June (additional records: two for mid-February and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; canyon bottoms; sandy meadows; loamy foothills; hillsides; gravelly, gravelly-sandy, gravelly-sandy-loamy and sandy slopes; gravelly bajadas; sand hills; sand dunes; sand fields; sand sheets; blow-sand deposits; sandy plains; sandy flats; basins; valley floors; gravelly and sandy roadsides; along draws; gulches; along and in sandy creeks; creekbeds; gravelly-sandy riverbeds; along and in gravelly-sandy and sandy washes; drainage ways; swales; gravelly and sandy banks of rivers; gravel bars; sandy benches; sandy bottomlands; sandy and silty floodplains; sandy riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground, and silty ground, occurring from 300 to 5,600 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: Records included observations that the taproot contained a red, reddish-purple or purple dye. *Cryptantha micrantha* var. *micrantha* is native to southwest-central and southern North America. *5, 6, 43 (122909 - *Cryptantha micrantha* I.M. Johnst.; *Eremocarya micrantha* Greene), 44 (051212), 46 (species, Page 719), 63 (051212), 85 (051212), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Eremocarya micrantha* (Torr.) Greene), 124 (051112 - no record of variety or species; genus record)*

Cryptantha nevadensis A. Nelson & P.B. Kennedy: Nevada Cryptantha

COMMON NAMES: Nevada Cat's Eye; Nevada Cat's-eye; Nevada Catseye; Nevada Cryptanth; Nevada Cryptantha; Nevada Forget-me-not; Nevada Nievitas; Nievitas (a name also applied to other species, Spanish); Peluda (a name also applied to other species, Spanish); Wild Forget-me-not. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 inches to 2 feet in height); the flowers are white; flowering generally takes place between late February and early July (additional record: one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mesas; rocky canyons; sandy canyon bottoms; talus slopes; mud-stone knolls; ledges; rocky ridges; rocky meadows; foothills; rocky, cobbly-gravelly-loamy, gravelly, gravelly-sandy and sandy hills; rocky, rocky-cobbly and clayey hillsides; bouldery, bouldery-gravelly, rocky, rocky-gravelly, cobbly, cobbly-gravelly-sandy, cobbly-sandy-loamy, gravelly, gravelly-loamy and sandy slopes; sandy bajadas; bouldery, rocky and clayey outcrops; along and amongst boulders and rocks; sand hills; rocky, rocky-sandy, gravelly and sandy outwash fans; gravelly, sandy, sandy-loamy and sandy-clayey flats; rocky-gravelly-sandy and gravelly valley floors; along gravelly roadsides; within gravelly-loamy arroyos; gulches; within bouldery-rocky and rocky-gravelly gullies; seeps; rocky streambeds; along rivers; along and in gravelly, gravelly-sandy and sandy washes; within sandy drainages; drainage ways; lakebeds; playas; (gravelly and sandy) banks of creeks, rivers and washes; (rocky-gravelly) edges of washes; (cobbly-gravelly) margins of washes; benches; gravelly terraces; floodplains; gravelly, gravelly-sandy and sandy riparian areas; recently burned areas in woodlands, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony-sandy, cobbly, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, cobbly-sandy loam, gravelly loam and sandy loam ground; sandy clay and clay ground, and silty ground, occurring from 700 to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cryptantha nevadensis* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (122909), 44 (051212 - color picture), 46 (Page 721), 58, 63 (051212), 77, **85** (051212 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Cryptanthe intermedia*), 124 (051212 - no record of species; genus record)*

***Cryptantha pterocarya* (J. Torrey) E.L. Greene: Wingnut Cryptantha**

COMMON NAMES: Nievitas (a name also applied to other species, Spanish); Peluda (a name also applied to other species, Spanish); Wing Nut Cat's Eye; Wing Nut Cryptanth; Wing Nut Cryptantha; Wing-fruited Forget-me-not; Wing-nut Cat's-eye; Wing-nut Cryptanth; Wing-nut Cryptantha; Wing-nut Forget-me-not; Wing-seed Forget-me-not; Winged Pick-me-not; Winged-nut Cryptantha; Winged-nut Forget-me-not; Winged-seed Cryptantha; Wingnut Cat's-eye; Wingnut Catseye; Wingnut Cryptanth; Wingnut Cryptantha; Wingnut Nievitas; Wingseed Forget Me Not; Wingseed Forget-me-not. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 to 20 inches in height); the foliage may be pale grayish, dark green or yellow-green; the flowers may be cream, bright white or white (sometimes with a pink tinge) with a yellow throat; flowering generally takes place between early January and late June (additional records: one for late July and one for late November); the winged fruits are green. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; rocky and rocky-sandy mountainsides; pebbly-sandy-silty and silty mesas; rocky plateaus; canyon rims; cliffs; rocky and sandy bases of cliffs and rock faces; sandy-clayey canyons; along canyon walls; along rocky-sandy, gravelly, gravelly-sandy and sandy canyon bottoms; talus slopes; protected clefts in boulders; sandy crevices in rocks; bluffs; rocky ledges; rocky-silty ridges; rocky ridgetops; sandy cinder cones; foothills; bouldery, rocky and sandy-clayey-loamy hills; hilltops; rocky, rocky-stony, stony, sandy and loamy hillsides; escarpments; bouldery, rocky, rocky-stony, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy, gravelly-clayey, sandy and clayey slopes; gravelly-sandy and sandy alluvial fans; gravelly-sandy bajadas; cobbly pediments; rocky outcrops; amongst boulders and rocks; boulderfields; sandy lava flows; sand hills; sand dunes; sandy edges of sand hills and dunes; sand hummocks; sand sheets; blow-sand deposits; gravelly and silty outwash fans; alcoves; gravelly banks; benches; gravelly breaks; sandy plains; rocky, gravelly, sandy and sandy-clayey flats; valley floors; along rocky, gravelly, sandy and sandy-silty roadsides; rocky arroyos; along gravelly and sandy draws; gulches; rocky gullies; along springs; beside streams; along creeks; along rivers; sandy riverbeds; along and in rocky, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within drainage ways; (gravelly-sandy) banks of washes; (gravelly and sandy) edges of washes; (rocky-gravelly-sandy and cobbly-gravelly) margins of washes; gravelly-sand bars; sandy beaches; gravelly benches; shelves; sandy margins of reservoirs; gravelly-sandy and sandy riparian areas; recently burned areas in woodlands, chaparral and desertscrub, and disturbed areas growing in moist and dry cryptogamic; rimrock and desert pavements, and bouldery, bouldery-rocky, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-stony, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, stony-sandy, cobbly, cobbly-gravelly, cobbly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, sandy-clayey loam, silty loam and loam ground; gravelly-sandy clay, sandy clay, silty clay and clay ground, and rocky silty, pebbly-sandy silty, sandy silty and silty ground, occurring from 500 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cryptantha pterocarya* is native to southwest-central and southern North America. *5, 6, **16**, 43 (122909 - *Cryptantha pterocarya* Greene), 44 (051212 - color photograph), 46 (Page 720), 58, 63 (051212 - color presentation), 77, **85** (051312 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Cryptanthe pterocarya* (Gray) Greene), 115 (color presentation), 124 (051212 - no record of species; genus record), 140 (Page 287)*

***Cryptantha pterocarya* (J. Torrey) E.L. Greene var. *cycloptera* (E.L. Greene) J.F. Macbride: Wingnut Cryptantha**

COMMON NAMES: Nievitas (a name also applied to the species and other species, Spanish); Peluda (a name also applied to the species and other species, Spanish); Tucson Cryptantha; Wingnut Cat's-eye (a name also applied to the species); Wingnut Cryptantha (a name also applied to the species); Wingnut Nievitas (a name also applied to the species). DESCRIPTION: Terrestrial annual forb/herb (erect stems 6 to 14 inches in height); the foliage may be dark green or yellow-green; the flowers are bright white; flowering generally takes place between mid-January and early June (additional record: one for mid-June); the winged fruits are green. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; sandy canyons; canyon walls; rocky and sandy canyon bottoms; talus slopes; sandy foothills; rocky and gravelly-sandy hills; hilltops; rocky hillsides; bouldery-gravelly, rocky, gravelly and sandy slopes; rocky and sandy alluvial fans; gravelly and sandy bajadas; amongst boulders and rocks; rocky-sandy coves; sand dunes; sandy edges of dunes; sand hummocks; blow-sand deposits; rocky, gravelly and sandy flats; basins; bowls; valley floors; rocky roadsides; within rocky and clayey arroyos; along draws; beside streams; along creeks; along and in rocky-sandy, gravelly and sandy washes; sandy beaches; rocky benches; terraces; riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy-clayey loam and gravelly-sandy loam ground, and gravelly-sandy silty ground, occurring from 800 to 6,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cryptantha pterocarya* var. *cycloptera* is native to southwest-central and southern North America. *5, 6, 15, 43 (122909 - *Cryptantha pterocarya* var. *cycloptera* J.F. Macbride), 44 (051212), 46 (Page 720), 63 (051212), **85** (051312), 115 (color presentation of species), 124 (051212 - no record of variety or species; genus record)*

***Cryptantha pterocarya* var. *pterocarya* (J. Torrey) E.L. Greene: Wingnut Cryptantha**

COMMON NAMES: Nievitas (a name also applied to the species and other species, Spanish); Peluda (a name also applied to the species and other species, Spanish); Typical Wing Nut Cat's Eye; Typical Wing Nut Cryptanth; Typical Wing Nut Cryptantha; Typical Wing-fruited Forget-me-not; Typical Wing-nut Cat's-eye; Typical Wing-nut Cryptanth; Typical Wing-nut Cryptantha; Typical Wing-nut Forget-me-not; Typical Wing-seed Forget-me-not; Typical Winged Pick-me-not; Typical Winged-nut Cryptantha; Typical Winged-nut Forget-me-not; Typical Winged-seed Cryptantha; Typical Wingnut Cat's-eye; Typical

Wingnut Catseye; Typical Wingnut Cryptanth; Typical Wingnut Cryptantha; Typical Wingnut Nievitas; Typical Wingseed Forget Me Not; Typical Wingseed Forget-me-not. DESCRIPTION: Terrestrial annual forb/herb (erect stems to 8 inches in height); the flowers may be cream or white; flowering generally takes place between early March and early June (additional records: one for mid-February, one for late June and one for early July). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky plateaus; rock cliffs; rocky and sandy bases of cliffs; canyons; along canyon walls; gravelly and gravelly-sandy canyon bottoms; talus; sandy crevices in rocks; pockets of sand in rocks; bouldery bluffs; rocky-silty ridges; ridgetops; foothills; bouldery and rocky hills; hillsides; bouldery, bouldery-clayey, rocky, rocky-stony, rocky-sandy, stony, cindery, gravelly, gravelly-sandy, gravelly-clayey, sandy and clayey slopes; gravelly-sandy bajadas; sandy alluvial fans; cindery bases of rock outcrops; sand hills; sand dunes; sandy edges of sand hills and dunes; blow-sand deposits; clefts among boulders; gravelly and silty outwash fans; benches; breaks; sandy plains; gravelly, gravelly-pebbly-sandy-clayey and sandy flats; gravelly and sandy roadsides; within draws; along and in gravelly-sandy and sandy washes; (gravelly-sandy) banks of washes; gravelly-sand bars, and sandy riparian areas growing in moist and dry rimrock pavement; cryptogamic, and bouldery, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-stony, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; bouldery clay, gravelly clay, gravelly-pebbly-sandy clay and clay ground, and rocky silty and silty ground, occurring from 900 to 7,400 feet in elevation in the woodland, scrub and desertscrub ecological formations. NOTE: *Cryptantha pterocarya* var. *pterocarya* is native to southwest-central North America. *5, 6, 16, 43 (051312 - no record of variety; species, *Cryptantha pterocarya* Greene), 44 (051312), 46 (Page 720), 58, 63 (051312), 77, **85** (051312), 115 (color presentation of species), 124 (051212 - no record of variety or species; genus record)*

Cryptanthe angustifolia (see footnote 89 under *Cryptantha angustifolia*)

Cryptanthe barbigera (see footnote 89 under *Cryptantha barbigera*)

Cryptanthe intermedia (see footnote 89 under *Cryptantha nevadensis*)

Cryptanthe pterocarya (see footnote 89 under *Cryptantha pterocarya*)

Eremocarya micrantha (see *Cryptantha micrantha* var. *micrantha*)

Eremocarya micrantha (see *Cryptantha micrantha* var. *micrantha*)

***Harpagonella palmeri* A. Gray: Palmer's Grapplinghook**

COMMON NAMES: Arizona Harpagonella (*H.p.* var. *arizonica*); Arizona Grapplinghook (*H.p.* var. *arizonica*); Grappling Hook (a name also applied to the genus *Harpagonella*); Palmer Grappling Hook; Palmer Grappling-hook; Palmer Grapplinghook; Palmer's Grappling Hook; Palmer's Grappling-hook; Palmer's Grapplinghook. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 1 to 12 inches in height); the foliage is gray-green; the flowers are white; flowering generally takes place between mid-January and early June. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; bases of cliffs; canyons; sandy-loamy canyon bottoms; gravelly knolls; ledges; clayey ridges; clayey ridgetops; clayey patches in chaparral; clayey openings in scrub and grasslands; foothills; rocky, rocky-clayey, stony-clayey, cobbly-clayey and clayey hills; rocky and clayey hillsides; clayey escarpments; bouldery, rocky, rocky-loamy-clayey, stony-clayey, cobbly-clayey, gravelly and clayey slopes; gravelly bajadas; amongst rocks; clayey lenses; stony, gravelly and clayey flats; uplands; clayey valley floors; sea bluffs; coastal plains; along gravelly roadsides; along streams; creeks; creekbeds; along riverbeds; washes; drainage ways; clayey depressions; clayey benches; cobbly-clayey terraces, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, stony and gravelly ground; rocky loam, sandy loam and loam ground, and rocky-loamy clay, rocky clay, stony clay, cobbly clay and clay ground, occurring from sea level to 4,700 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Harpagonella palmeri* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (123009), 44 (051312 - color picture), 46 (Page 711), 63 (051312 - color presentation), 77, **85** (051312 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill), 124 (051312 - no record of species or genus)*

***Harpagonella palmeri* A. Gray var. *arizonica* I.M. Johnston: Arizona Grapplinghook**

COMMON NAMES: Arizona Harpagonella; Arizona Grapplinghook; Grappling Hook (a name also applied to the species and genus *Harpagonella*); Palmer Grapplinghook (a name also applied to the species); Palmer's Grappling-hook (a name also applied to the species); Palmer's Grapplinghook (a name also applied to the species). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 1 to 12 inches in height); the flowers are white; based on the flowering record for the species, based on few records located, flowering generally takes place between late January and late April (flowering records: one for late January and one for late April). HABITAT: Within the range of this species it has been reported from mountains; canyon bottoms; rocky and gravelly slopes; fields; flats; along roadbeds; washes, and gravelly benches growing in dry rocky and gravelly ground, occurring from 2,200 to 4,700 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTE: *Harpagonella palmeri* var. *arizonica* is native to southwest-central and southern North America. *5, 6, 43 (123009), 44 (051312 - no record of variety; species and genus records), **46** (Page 711), 58, 63 (051312), 85 (051312 - color presentation of dry material), 124 (051312 - no record of variety, species or genus)*

***Lappula occidentalis* (S. Watson) E.L. Greene: Flatspine Stickseed**

COMMON NAMES: Beggar's Tick (a name also applied to other species); Bluebur; Crowned Stickseed (var. *cupulata*); Cup-seed Stickseed (var. *cupulata*); Cupped Redowski Stickseed (var. *cupulata*); Cupped Redowski's Stickseed (var. *cupulata*); Cupseed Stickseed (var. *cupulata*); Cupped Stickseed (var. *cupulata*); Desert Stickseed (var. *occidentalis*); Flat Spine Sheepburr (var. *occidentalis*); Flat-spine Sheepbur (var. *occidentalis*); Flat-spine Sheepburr (var. *occidentalis*); Flat-spine Stickseed (var. *occidentalis*); Flat-spine Stickweed (var. *occidentalis*); Flatspine Sheep-burr (var. *occidentalis*); Flatspine Stickseed (var. *occidentalis* and var. *cupulata*); Flatspine Stickweed (var. *occidentalis*); Hairy Stick Seed (var. *occidentalis*); Hairy Stickseed (var. *occidentalis*); Hairy Sticktight (var. *occidentalis*); Redowski Stickseed (var. *occidentalis*); Redowski Stickweed (var. *occidentalis*); Redowski's Stickseed (var. *occidentalis*); Redowski's Stickweed (var. *occidentalis*); Spiny Sheepbur; Stick-seed (a name also applied to other species); Stickseed (a name also applied to other species and to the genus *Lappula*); Western Blue Bur (a name also applied to the genus *Lappula*); Western Blue-bur (a name also applied to the genus *Lappula*); Western Bluebur (a name also applied to the genus *Lappula*); Western Beggar's Lice (a name also applied to the genus *Lappula*); Western Beggar's-lice (a name also applied to the genus *Lappula*); Western Stickseed (a name also applied to other species); Western Sticktight; Western Stickweed (var. *occidentalis*); White Stickseed (var. *occidentalis*). DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 4 to 32 inches in height); the foliage may be gray-green, grayish-green or dark green; the flowers may be pale blue, pale blue-white, blue, light pink, light purple, purple, sky blue, white, white-bluish-pinkish, whitish or yellow; flowering generally takes place between mid-January and late September (additional records: four for mid-October). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mountainsides; gravelly-clayey mountain flanks; gravelly, gravelly-sandy, sandy and sandy-loamy mesas; rocky-sandy plateaus; palisades; cliffs; bouldery and silty bases of cliffs; along rocky, shaley, gravelly-loamy and sandy canyons; gravelly-sandy and sandy canyon bottoms; bouldery-gravelly-sandy and sandy gorges; talus; sandy bluffs; rocky, rocky-gravelly-clayey, gravelly, gravelly-sandy and gravelly-silty-loamy buttes; bedrock knolls; rocky and rocky-gravelly-silty ledges; rocky, rocky-shaley, shaley, shaley-gravelly, sandy and sandy-clayey ridges; rocky, sandy and loamy ridgetops; gravelly-clayey edges of ridgetops; rocky clearings in forests and woodlands; around and in rocky, stony, gravelly-sandy, sandy, loamy-clayey, silty-clayey and humusy meadows; foothills; rocky, rocky-sandy-silty, shaley, stony-clayey, cobbly-clayey, gravelly, gravelly-sandy, sandy and sandy-loamy hills; cindery (scoria) hilltops; rocky, rocky-gravelly-sandy, rocky-sandy, rocky-loamy, gravelly-sandy and sandy hillsides; escarpments; along bouldery, bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-stony, rocky-gravelly, rocky-sandy, rocky-sandy-clayey-loamy, rocky-silty-clayey, shaley, shaley-silty, stony, stony-sandy, cobbly-loamy, cindery, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, loamy-clayey, clayey, clayey-loamy, silty, silty-loamy and silty-clayey slopes; sandy bajadas; rocky outcrops; gravelly-sandy bases of outcrops; amongst boulders and rocks; sandy bases of rocks; alcoves; sheltered rock coves; sandy lava flows; lava fields; sand bluffs; sandy dunes; blow-sand deposits; rocky outwash; gravelly, gravelly-sandy and loamy-clayey banks; gravelly benches; breaks; sandy and sandy-clayey barrens; steppes; gravelly-sandy and silty-loamy prairies; stony, sandy and clayey-loamy plains; bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-loamy, sandy-clayey, loamy and clayey flats; rocky, rocky-sandy and sandy uplands; basins; basin bottoms; loamy valley floors; along railroad right-of-ways; railroad beds; in gravelly-sandy roadbeds; along rocky, rocky-sandy, shaley, gravelly, gravelly-loamy and sandy roadsides; rocky and sandy arroyos; sandy-silty bottoms of arroyos; rocky, stony and sandy draws; bottoms of draws; gulches; rocky gullies; within ravines; springs; in clay along streams; sandy streambeds; along creeks; clayey creekbeds; in sand along rivers; sandy and clayey riverbeds; along and in rocky, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; within gravelly, sandy and clayey drainages; within gravelly drainage ways; in rocks around ponds; around lakes; boggy areas; clayey depressions; clayey swales; sumps; along (shaley, gravelly, sandy, clayey and silty-clayey) banks of arroyos, draws, streams, creeks, rivers, washes and drainages; (sandy-loamy) edges of gulches, lakebeds and swales; margins of rivers; shores of lakes; mudflats; gravel bars; sandy beaches; rocky and sandy benches; rocky terraces; cobbly-loamy, sandy and loamy bottomlands; rocky-sandy-clayey, sandy and clayey floodplains; sandy deltas; mesquite bosques; along fencelines; beaver ponds; edges of stock tanks; canal banks; within ditches; gravelly-sandy, gravelly-sandy-loamy and sandy riparian areas; clayey-loamy waste places, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-shaley, rocky-stony, rocky-gravelly, rocky-sandy, rocky-gravelly-sandy, rocky-pebbly, shaley, shaley-gravelly, stony, stony-sandy, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly-sandy-clayey loam, rocky-sandy-clayey loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam and loam ground; rocky clay, rocky-gravelly clay, rocky-sandy clay, rocky-silty clay, stony clay, cobbly clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground; rocky-gravelly-silty, rocky-sandy silty, shaley silty, gravelly-sandy silty, sandy silty and silty ground; humusy ground, and gravelly-sandy chalky ground, occurring from 300 to 10,500 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder (*L.o*. var. *occidentalis*) crop; it was also noted as having been used as a drug or medication. *Lappula occidentalis* is native to northwestern, northern, west-central and southern North America. *5, 6, 43 (010110), 44 (051412 - no records listed under Common Names for species; genus record, records listed under *Lappula redowskii*), 46 (*Lappula texana* (Scheele) Britton, Page 712; *Lappula texana* (Scheele) Britton var. *coronata* (Greene) Nels. & Macbr., Page 712, and *Lappula redowskii* (Hornem.) Greene, Page 713), **56**, **57**, 63 (051412 - color presentation), **85** (051512 - color presentation), 101 (color photograph), 115 (color presentation), 124 (051312), 127*

***Lappula occidentalis* (S. Watson) E.L. Greene var. *cupulata* (A. Gray) H.H. Higgins: Flatspine Stickseed**

SYNONYMY: *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *cupulata* (A. Gray) M.E. Jones; *Lappula texana* (G.H. Scheele) N.L. Britton; *Lappula texana* (G.H. Scheele) N.L. Britton var. *coronata* (E.L. Greene) A. Nelson & J.F. Macbride. COMMON NAMES: Bluebur (a name also applied to the species); Crowned Stickseed Cup-seed Stickseed; Cupseed Stickseed; Cupped Stickseed; Flat-spine Stickseed (a name also applied to var. *occidentalis* and the species); Flatspine Stickseed (a name also applied to var. *occidentalis* and the species); Hairy Stick Seed (a name also applied to var. *occidentalis*); Hairy Stickseed (a name also applied to var. *occidentalis*); Stick-seed (Stickseed is a name also applied to the species, other species and to the genus *Lappula*); Western Stickseed (a name also applied to the species and to other species); Western Sticktight (a name also applied to the species). DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 4 to 12 inches in height; one plant was observed and described as being 12 inches in height and 1 inch in width); the foliage is grayish-green; the flowers may be pale blue, blue, light purple, white or whitish; flowering generally takes place between mid-March and late July (additional records: one for mid-February, one for mid-August and one for late August). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy and sandy-loamy mesas; plateaus; palisades; silty bases of cliffs; shaley canyons; canyon bottoms; rocky ledges; shaley and sandy ridges; meadows; foothills; rocky-sandy-silty, shaley, stony-clayey, cobbly-clayey and sandy hills; sandy hillsides; rocky, stony, gravelly, sandy and sandy-loamy slopes; sandy bajadas; rocky outcrops; sandy lava flows; blow-sand deposits; gravelly banks; gravelly benches; prairies; stony and sandy plains; bouldery, gravelly, sandy, sandy-clayey and clayey flats; railroad right-of-ways; along gravelly and gravelly-loamy roadsides; arroyos; stony and sandy draws; rocky gullies; springs; in clay along streams; clayey creekbeds; along sandy washes; drainages; in gravelly drainage ways; around lakes; sumps; banks of rivers; edges of lakebeds; terraces; bottomlands; sandy floodplains; ditches; gravelly-sandy riparian areas; waste places, and disturbed areas growing in wet, moist and dry bouldery, rocky, shaley, stony, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground; stony clay, cobbly clay, sandy clay and clay ground, and rocky-sandy silty and silty ground, occurring from 300 to 8,600 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: this plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Lappula occidentalis* var. *cupulata* is native to west-central and southern North America. *5, 6, **16** (recorded as *Lappula redowskii* (Hornem.) Greene var. *cupulatum* (Gray) Jones), 43 (010110 - *Lappula occidentalis* Rydb. var. *cupulata* (Gray) Higgins, *Lappula redowskii* Greene var. *cupulata* (A. Gray) M.E. Jones), 44 (051412 - no records listed under Common Names for variety or species; genus record, records listed under *Lappula redowskii* var. *cupulata*), 46 (recorded as *Lappula texana* (Scheele) Britton, Page 712 and *Lappula texana* (Scheele) Britton var. *coronata* (Greene) Nels. & Macbr., Page 712), 63 (051412 - color presentation), **77** (recorded as *Lappula texana* (Scheele) Britt.), **85** (051512 - color preesentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Lappula texana* (Scheelle) Greene), 101 (color photograph of species), 115 (color presentation of species), 124 (051312), 127*

***Lappula occidentalis* var. *occidentalis* (S. Watson) E.L. Greene: Flatspine Stickseed**

SYNONYMY: *Lappula redowski* auct. non (J.W. Hornemann) E.L. Greene; *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *desertorum* (E.L. Greene) I.M. Johnston; *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *occidentalis* (S. Watson) P.A. Rydberg; *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *redowskii*. COMMON NAMES: Beggar's Tick (a name also applied to the species and other species); Bluebur (a name also applied to the species); Desert Stickseed; Flat Spine Sheepburr; Flat-spine Sheepbur; Flat-spine Sheepburr; Flat-spine Stickseed; Flat-spine Stickweed; Flatspine Sheep-burr; Flatspine Stickseed (a name also applied to var. *cupulata* and the species); Flatspine Stickweed; Hairy Stick Seed; Hairy Stickseed; Hairy Sticktight; Redowski Stickseed; Redowski Stickweed; Redowski's Stickseed; Redowski's Stickweed; Small Beggar's-lice (Kansas); Spiny Sheepbur (a name also applied to the species); Stickseed (a name also applied to the genus *Lappula*); Stick-tight (a name also applied to the species, other species and to the genus *Lappula*); Sticktight (a name also applied to other species and the genus *Lappula*); Western Blue Bur; Western Blue-bur; Western Bluebur; Western Beggar's Lice; Western Beggar's-lice; Western Stickseed (a name also applied to the species and to other species); Western Sticktight; Western Stickweed; White Stickseed. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 4 to 32 inches in height); the foliage is gray-green; the flowers may be pale blue, pale blue-white, blue, light pink, purple, sky blue, white or yellow; flowering generally takes place between mid-February and mid-September (additional records: five for mid-January and four for mid-October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; gravelly, gravelly-sandy and sandy mesas; plateaus; cliffs; bouldery bases of cliffs; along rocky, gravelly-loamy and sandy canyons; sandy canyon bottoms; bouldery-gravelly-sandy gorges; talus; sandy bluffs; rocky, rocky-gravelly-clayey, gravelly, gravelly-sandy and gravelly-silty-loamy buttes; bedrock knolls; rocky-gravelly-silty ledges; rocky, rocky-shaley, shaley-gravelly, gravelly, sandy and sandy-clayey ridges; rocky, sandy and loamy ridgetops; gravelly-clayey edges of ridgetops; rocky clearings in forests and woodlands; around and in rocky, stony, gravelly-sandy, sandy, loamy-clayey, silty-clayey and humusy meadows; foothills; rocky, gravelly, gravelly-sandy, sandy and sandy-loamy hills; cindery (scoria) hilltops; rocky, rocky-sandy and rocky-loamy hillsides; along bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-sandy, rocky-silty-clayey, shaley, shaley-silty, stony, stony-sandy, cobbly-loamy, cindery, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, loamy-clayey, clayey, clayey-loamy, silty, silty-loamy and silty-clayey slopes; bajadas; rocky outcrops; gravelly-sandy bases of outcrops; amongst boulders and rocks; sandy bases of rocks; clayey rock beds; alcoves; sheltered rock coves; lava flows; lava fields; sand bluffs; sandy dunes; rocky outwash; gravelly-sandy and loamy-clayey banks; breaks; steppes; gravelly-sandy and silty-loamy prairies; plains; rocky, gravelly, gravelly-sandy, sandy, sandy-loamy,

sandy-clayey, loamy and clayey flats; rocky, rocky-sandy and sandy uplands; basins; basin bottoms; loamy valley floors; along railroad right-of-ways; railroad beds; gravelly-sandy roadbeds; along rocky, rocky-sandy, gravelly, gravelly-loamy and sandy roadsides; rocky and sandy arroyos; bottoms of arroyos; rocky draws; bottoms of draws; gulches; within ravines; springs; sandy streambeds; along creeks; creekbeds; in sand along rivers; sandy and clayey riverbeds; along and in rocky, gravelly, gravelly-sandy-silty and sandy washes; within gravelly, sandy and clayey drainages; in rocks around ponds; boggy areas; depressions; clayey swales; along (shaley, sandy and silty-clayey) banks of arroyos, draws, streams, creeks, rivers and drainages; (sandy-loamy) edges of gulches and swales; mudflats; gravel bars; beaches; sandy benches; cobbly-loamy, sandy and loamy bottomlands; rocky-sandy-clayey, sandy and clayey floodplains; along fencelines; edges of stock tanks; canal banks; within ditches; gravelly-sandy-loamy and sandy riparian areas; clayey-loamy waste places, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly-sandy-clayey loam, rocky-sandy-clayey loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam and loam ground; rocky clay, rocky-gravelly clay, rocky-sandy clay, rocky-silty clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground; rocky-gravelly silty, shaley silty, gravelly-sandy silty and silty ground; humusy ground, and gravelly-sandy chalky ground, occurring from 700 to 10,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder crop; it was also noted as having been used as a drug or medication. *Lappula occidentalis* var. *occidentalis* is native to northwestern, northern, west-central and southern North America. *5, 6, 15 (recorded as *Lappula redowskii* (Hornem.) Greene var. *redowskii*), **16** (recorded as *Lappula redowskii* (Hornem.) Greene var. *redowskii*), 43 (010110 - *Lappula redowskii* Greene var. *desertorum* (Greene) I.M. Johnst., *Lappula redowskii* (Hornem.) Greene var. *occidentalis* Á. Löve & D. Löve), 44 (051412 - no records listed under Common Names for variety or species; genus record, records listed under *Lappula redowskii* and *Lappula redowskii* var. *redowskii*, color picture), 46 (recorded as *Lappula redowskii* (Hornem.) Greene, Page 713), 58 (recorded as *Lappula redowskii* (Hornem.) Greene), 63 (051412 - color presentation), 77 (recorded as *Lappula redowskii* (Hornem.) Greene), **85** (051512 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Lappula redowskii* (Hornem.) Greene var. *occidentalis* (Wats.) Ryd.), 101 (color photograph), 115 (color presentation of species), 124 (051312), 127*

Lappula redowskii (see *Lappula occidentalis* var. *occidentalis*)

Lappula redowskii var. *cupulata* (see *Lappula occidentalis* var. *cupulata*)

Lappula redowskii var. *desertorum* (see *Lappula occidentalis* var. *occidentalis*)

Lappula redowskii var. *occidentalis* (see *Lappula occidentalis* var. *occidentalis*)

Lappula redowskii var. *redowskii* (see *Lappula occidentalis* var. *occidentalis*)

Lappula texana (see *Lappula occidentalis* var. *cupulata*)

Lappula texana var. *coronata* (see *Lappula occidentalis* var. *cupulata*)

***Pectocarya heterocarpa* (I.M. Johnston) I.M. Johnston: Chuckwalla Combseed**

SYNONYMY: *Pectocarya penicillata* (W.J. Hooker & G.A. Arnott) A.P. de Candolle var. *heterocarpa* I.M. Johnston. COMMON NAMES: Chuckwalla Combbur; Chuckwalla Combseed; Chuckwalla Pectocarya; Hairyleaf Combbur (a name also applied to other species); Hairy-leaved Combbur (a name also applied to other species); Mixed-nut Comb-bur; Mixed-nut Combseed; Mixed-nut Pectocarya; Two-faced Pectocarya; Unequal Combseed. DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate stems 2 to 8 inches in height); the flowers may be pale lavender or white; flowering generally takes place between mid-February and early June (additional records: four for mid-January, one for late June and one for early November). HABITAT: Within the range of this species it has been reported from mountains; rocky and pebbly-sandy-silty mesas; hanging gardens; rims of canyons; rocky canyons; talus; crevices in rocks; along ridges; openings in Joshua-tree woodlands and creosote-bush scrub; foothills; rocky hills; rocky hillsides; rocky, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy slopes; rocky and gravelly-sandy alluvial fans; rocky, gravelly and gravelly-sandy bajadas; amongst boulders; sand dunes; sandy edges of dunes; blow-sand deposits; rocky, gravelly, gravelly-sandy and sandy flats; rocky upland; sandy valley floors; sandy roadsides; draws; creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; sandy-silty, clayey and silty depressions; (gravelly-sandy and sandy) banks of washes; (sandy and silty-clayey) edges of lakebeds; margins of washes; shorelines; gravel, gravelly-sand and sand bars; sandy beaches; rocky benches; floodplains; at stock tanks; canal walls; riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, rocky, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-silty loam, gravelly-sandy loam, gravelly-clayey-silty loam and sandy-clayey loam ground; clay ground, and gravelly-sandy silty, pebbly-sandy silty, sandy silty and silty ground, occurring from sea level to 4,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectocarya heterocarpa* is

native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (051512 - *Pectocarya penicillata* var. *heterocarpa* I.M. Johnst.), 44 (051512), 46 (Page 712), 58, 63 (051512 - color presentation), **77**, **85** (051512 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Pectocarya penicillata* (H. & A.) A. DC.), 124 (051512 - no record of species or genus), 140 (Page 287)*

Pectocarya linearis (see footnote 89 under *Pectocarya platycarpa*)

Pectocarya linearis var. *platycarpa* (see *Pectocarya platycarpa*)

Pectocarya penicillata (see footnote 89 under *Pectocarya heterocarpa*)

Pectocarya penicillata var. *heterocarpa* (see *Pectocarya heterocarpa*)

***Pectocarya platycarpa* (P.A. Munz & I.M. Johnston) P.A. Munz & I.M. Johnston: Broadfruit Combseed**

SYNONYMY: *Pectocarya linearis* (H.R. López & J.A. Pavón) A.P. de Candolle var. *platycarpa* (P.A. Munz & I.M. Johnston) A.J. Cronquist. COMMON NAMES: Broad Fruit Combseed; Broad Nut Comb-bur; Broad-fruit Comb-seed; Broad-fruit Combseed; Broad-fruited Combseed; Broad-fruited Pectocarya; Broad-nut Comb-bur; Broad-nutted Comb Bur; Broad-nutted Comb-bur; Broad-nutted Combbur; Broad-wing Comb-bur; Broad-winged Pectocarya; Broadfruit Combseed; Broadnut Combbur; Broadnut Combseed; Flattened Combseed; Stickweed; Wide-toothed Pectocarya. DESCRIPTION: Terrestrial annual forb/herb (prostrate, ascending and/or erect stems 2 to 10 inches in height); the flowers are white; flowering generally takes place between early February and late May (additional record: one for late June). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; pebbly-sandy-silty mesas; canyons; sandy canyon bottoms; talus slopes; ledges; ridges; foothills; rocky, gravelly and sandy hills; sandy hillsides; rocky, rocky-gravelly-sandy, rocky-powdery, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy slopes; rocky alluvial fans; gravelly and gravelly-sandy bajadas; amongst boulders and rocks; rocky-sandy lava fields; sand dunes; sand sheets; blow-sand deposits; shelves; plains; rocky, gravelly, gravelly-sandy and sandy flats; rocky upland; gravelly and sandy valley floors; along gravelly roadsides; rocky-sandy runnels; along streams; along creeks; creekbeds; along rivers; along and in rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy washes; sandy drainages; silty depressions; (gravelly-sandy and sandy) banks of washes; (rocky and silty-clayey) edges of washes and lakebeds; margins of washes; mudflats; beaches; gravelly benches; shelves; terraces; sandy and loamy bottomlands; sandy and silty floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-cobbly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony-sandy, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and loam ground; stony-sandy clay and silty clay ground; pebbly-sandy silty and silty ground, and rocky powdery ground, occurring from sea level to 7,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectocarya platycarpa* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (051512 - *Pectocarya linearis* var. *platycarpa* (Munz & I.M. Johnst.) Cronquist 10210), 44 (051512), **46** (Page 712), 58, 63 (051512), 77, **85** (051512 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Pectocarya linearis* (Ruiz & Pav.) DC.), 124 (051512 - no record of species or genus)*

***Pectocarya recurvata* I.M. Johnston: Curvenut Combseed**

COMMON NAMES: Arch-nutted Comb Bur; Arch-nutted Comb-bur; Arch-nutted Combbur; Arched Bomb-bur (possibly a spelling error); Arched Comb-bur; Archnut Combbur; Bent Combseed; Combbur (a name also applied to the genus *Pectocarya*); Curve-nut Combseed; Curved Combseed; Curvenut Combseed; Curvenut Pectocarya; Desert Combbur; Recurve Combseed; Recurved Pectocarya. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 to 8¼ inches in height); the flowers are white (sometimes reported with a yellow throat); flowering generally takes place between mid-January and late May (additional record: one for late November). HABITAT: Within the range of this species it has been reported from mountains; clayey mountaintops; rocky mountainsides; rocky mesas; rocky canyons; sandy canyon bottoms; ledges; clayey ridgetops; rocky foothills; rocky hills; bouldery-rocky, rocky and gravelly hillsides; rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-gravelly-sandy, rocky-gravelly-loamy, stony, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy-loamy, gravelly, gravelly-sandy, sandy and clayey slopes; bouldery-gravelly and rocky-sandy alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sandy lava fields; dunes; plains; gravelly, sandy, sandy-clayey and clayey flats; valley bottoms; along sandy roadsides; arroyos; rocky gullies; sandy springs; along sandy streams; along creeks; along creekbeds; along and in bouldery-gravelly, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; rocky drainage ways; clayey depressions; (rocky-gravelly-sandy and gravelly) edges of rivers and washes; (rocky-gravelly-sandy) margins of washes; shores of lakes; gravelly and clayey benches; terraces; loamy bottomlands; sandy floodplains; mesquite woodlands; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, cobbly-silty loam, gravelly-clayey loam, silty loam and loam ground, and sandy clay and clay ground, occurring from sea level to 5,300 feet (one record at 9,000 feet) in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectocarya recurvata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (010210), 44 (061711), 46

(Page 712), 58, 63 (051512 - color presentation), 77, **85** (051512 - color presentation), 124 (061711 - no record of species or genus), 140 (Page 287)*

***Plagiobothrys arizonicus* (A. Gray) E.L. Greene ex A. Gray: Arizona Popcornflower**

COMMON NAMES: Arizona Popcorn Flower; Arizona Popcorn-flower; Arizona Popcornflower; Arizona Blood Weed; Arizona Blood-weed; Arizona Bloodweed; Blood Weed (a name also applied to other species); Blood-weed (a name also applied to other species); Bloodweed (a name also applied to other species); Lipstick Plant; Lipstick Weed; Pop Corn Flower; Popcorn Flower (a name that is also applied to other species, Popcorn-flower is a name applied to the genus *Plagiobothrys*); Stain Plant; Stain-plant; Stainplant. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 to 16 inches in height); the leaves are dark green with reddish veins; the flowers are white or white with a yellow throat; flowering generally takes place between mid-February and mid-June (additional records: one for late January, one for late June and one for early October). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky plateaus; rocky canyons; rocky, gravelly and sandy-loamy canyon bottoms; rocky bases of cliffs; knolls; gravelly ridges; rocky ridgetops; rocky-sandy meadows; rocky foothills; rocky, stony-loamy, gravelly, sandy and loamy hills; hilltops; rocky hillsides; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, rocky-loamy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, gravelly-silty, sandy, sandy-clayey, clayey-loamy and silty-clayey slopes; bases of slopes; gravelly-sandy and sandy alluvial fans; gravelly bajadas; bouldery and rocky outcrops; amongst boulders and rocks; steppes; sandy plains; gravelly berms; rocky-gravelly, gravelly, gravelly-sandy, sandy and sandy-loamy flats; basins; sandy-loamy valley floors; sandy-loamy valley bottoms; along bouldery and sandy roadsides; arroyos; along rocky-gravelly draws; ravines; around springs; rocky and sandy streambeds; along creeks; sandy creekbeds; along rivers; riverbeds; along and in bouldery, bouldery-rocky, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in gravelly drainages; within drainage ways; (gravelly-sandy and sandy) banks of springs, rivers and washes; gravelly-sand bars; benches; gravelly terraces; loamy bottomlands; sandy floodplains; sandy-silty edges of stock tanks (charcos); sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and silty ground, occurring from 1,100 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Records included observations that parts of this plant (roots, stems and leaf veins) contain a purple, red or reddish-purple sap. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial pigment or dye crop. *Plagiobothrys arizonicus* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (010210), 46 (Page 722), 58, 63 (051512), 77, 80 (*Plagiobothrys* sp. - Species of the genus *Plagiobothrys* have been listed as Rarely Poisonous and Suspected Poisonous Range Plants. “Members of this genus have been reported to accumulate toxic levels of nitrate.”), **85** (051512 - color presentation), **89** (recorded as being a winter annual herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (051512 - no record of species; genus record), 127, 140 (Page 287)*

***Plagiobothrys pringlei* E.L. Greene: Pringle’s Popcornflower**

COMMON NAMES: Popcorn Flower (a name also applied to the genus *Plagiobothrys*); Pringle Popcorn-flower; Pringle’s Popcorn-flower; Pringle’s Popcornflower. DESCRIPTION: Terrestrial annual forb/herb (prostrate or decumbent stems 4 to 16 inches in length); the flowers are white; flowering generally takes place between late February and mid-April (additional records: one for early February and one for mid-May). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; bluffs; sandy bases of buttes; ridges; foothills; rocky hillsides; rocky, gravelly and gravelly-loamy slopes; plains; muddy and sandy flats; valley floors; along rocky, gravelly and sandy roadsides; along streams; along sandy washes; benches; floodplains; lowlands, and disturbed areas growing in muddy and moist and dry rocky, gravelly and sandy ground and gravelly loam ground, occurring from 1,200 to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Plagiobothrys pringlei* is native to southwest-central and southern North America. *5, 6, 8, 15, **16**, 43 (010310), 44 (061711 - no record of species; genus record), 46 (Page 722), 58, 63 (051512), 77, 80 (*Plagiobothrys* sp. - Species of the genus *Plagiobothrys* have been listed as Rarely Poisonous and Suspected Poisonous Range Plants. “Members of this genus have been reported to accumulate toxic levels of nitrate.”), 85 (051512 - color presentation of dried material), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 124 (061711 - no record of species; genus record), 140 (Page 287)*

***Tiquilia canescens* (A.P. de Candolle) A.T. Richardson: Woody Crinklemat**

COMMON NAMES: Crinkle Mats (a name also applied to the genus *Tiquilia*); Gray Coldenia; Gray Tiquilia; Hierba de la Virgin; Oreja del Perro; Ratear Coldenia; Shrubby Coldenia; Woody Crinklemat; Woody Tiquilia; Woolly Crinklemat; Wooly Crinklemat. DESCRIPTION: Terrestrial perennial subshrub (4 to 8 inches in height; however, plants up to 2 feet in height were reported; plants were observed and recorded as being 4 inches in height and width); the leaves may be gray, grayish or gray-green; the flowers may be pale lavender, lavender, lavender-pink, lavender-whitish, light pink, pink, light pink-lavender, pale purple, purple, rose-lilac, violet or white with a yellow floral tube; flowering generally takes place between late March and mid-June (additional records: one for early March, two for early July, one for late July, two for early August, one for mid-August, one for early September, two for mid-September, one for late September and two for early October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of mountains; mesas; cliffs; escarpments; bouldery and rocky and gravelly canyons; canyon bottoms; gorges; rocky talus slopes; crevices in rocks; gravelly-sandy bluffs;

buttes; rocky ledges; along bedrock, rocky, gravelly and chalky ridges; ridgetops; openings in forests; rocky and gravelly-sandy hills; rocky hillsides; along bedrock, bouldery, rocky, rocky-gravelly, gravelly, gravelly-shaley and gravelly-sandy slopes; gravelly and gravelly-sandy bajadas; shaley and rocky outcrops; amongst boulders and rocks; sand dunes; gravelly-silty banks; benches; sandy plains; rocky, gravelly and sandy flats; valley floors; roadbeds; rocky-gravelly-loamy, gravelly and gravelly-loamy roadsides; arroyos; gullies; rocky ravines; along and in stony, gravelly, gravelly-sandy and sandy washes; rocky drainages; borders of washes; gravelly terraces; floodplains; along fence lines; sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, stony, shaley-gravelly, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam and gravelly-sandy loam ground; rocky clay, shaley clay and clay ground; gravelly silty ground, and chalky ground, occurring from 100 to 8,300 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Tiquilia canescens* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 611), 43 (010310), 44 (051512 - color picture of var. *canescens*), 46 (recorded as *Coldenia canescens* DC. including the typical plant and variety *pulchella* Johnst., Page 709), 63 (051512 - color presentation), 77, **85** (051612 - color presentation), 115 (color presentation), 124 (051512 - no record of species or genus), 140 (Page 287)*

***Tiquilia canescens* (A.P. de Candolle) A.T. Richardson var. *canescens*: Woody Crinklemat**

SYNONYMY: *Coldenia canescens* A.P. de Candolle. COMMON NAMES: Crinkle Mats (a name also applied to the species and the genus *Tiquilia*); Crinklemat (a name also applied to the genus *Tiquilia*); Gray Coldenia (a name also applied to the species); Hierba de la Virgin (a name also applied to the species, Spanish); Oreja del Perro (a name also applied to the species, Spanish); Shrubby Coldenia (a name also applied to the species); Typical Gray Tiquilia; Typical Ratear Coldenia; Typical Woody Crinklemat; Typical Woody Tiquilia; Typical Woolly Crinklemat; Typical Wooly Crinklemat. DESCRIPTION: Terrestrial perennial subshrub (4 to 8 inches in height; plants were observed and described as being 2 to 4 inches in height and 16 inches in width); the leaves may be gray or gray-green; the flowers may be lavender, lavender-pink, lavender-whitish, light pink-lavender, pink, purple or white with a yellow floral tube; flowering generally takes place between late March and late May (additional records: two for mid-February, one for mid-June, two for mid-July, two for late August, two for late September, two for early October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of mountains; mesas; canyons; ridges; ridgetops; foothills; hills; rocky and rocky-gravelly slopes; gravelly bajadas; stony plains; gravelly flats; rocky roadsides; arroyos; within gravelly and sandy washes; sandy riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-gravelly, stony, gravelly and sandy ground, occurring from 600 to 8,100 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Tiquilia canescens* var. *canescens* is native to southwest-central and southern North America. *5, 6, 28 (color photograph 611), 42, 43 (010310), 44 (051512 - color picture), 46 (*Coldenia canescens* DC., Page 709), 63 (051512), 85 (051612), **89** (reported as being a dwarf shrub located on the Mesa-like Mountain Slopes, recorded as *Coldenia canescens* DC.), 115 (color presentation of species), 124 (051512 - no record of variety, species or genus), **HR**, **WTK** (October 28, 2009)*

Brassicaceae (Cruciferae): The Mustard Family

Arabis eremophila (see *Arabis perennans*)

***Arabis perennans* S. Watson: Perennial Rockcress**

SYNONYMY: *Arabis eremophila* E.L. Greene; *Boechera perennans* (S. Watson) W.A. Weber. COMMON NAMES: Arábide (Spanish: Mexico)[140]; ‘Atsé ‘Áłts’óózí <[ʔosceʔ] y’osce ʔa.lc’ozgi> (“Slender First One”, Athapascan: Navajo)[140]; ‘Azee’ Naneeshtł’iizh <ʔazéʔ na’ne’sdizi> (Athapascan: Navajo)[140]; ‘Iiníziin Ch’ił <‘i’lyizin c’il> (Athapascan: Navajo)[140]; Perennial Rockcress; Qta’komav (Uto-Aztecan: Ute)[140]; Rock Cress (a name also applied to the genus *Arabis*); [Perennial] Rock Cress (English)[140]; Stiff-arm Rock Cress; Stiffarm Rock Cress. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (ascending and/or erect stems 4 to 40 inches in height; plants were observed and described as being 8 to 12 inches in height and 6 to 17 inches in width); the leaves are gray-green; the flowers may be pale blue-lavender, bluish-purple, cream, lavender, pink, pink-lavender, pinkish-purple, dull mauve, pale purple, purple, purple-magenta, purplish, purplish-pink, purplish-rose, reddish-violet, rose-magenta, violet-lavender, white & lavender or white-purple; flowering generally takes place between early February and early July (additional records: one for early January, one for mid-January, one for early August, two for late August, one for early October and one for early December). HABITAT: Within the range of this species it has been reported from mountains; along shaley mountaintops; rocky mountainsides; sandy mesas; sandy plateaus; rocky cliffs; rock faces; rock walls; along sandy bases of cliffs and rock walls; bouldery, rocky, rocky-sandy and sandy canyons; rocky and shaley-sandy canyon walls; bedrock, rocky, gravelly-sandy and sandy canyon bottoms; bouldery-cobbly-humusy and rocky talus slopes; crevices in boulders and rocks; bluffs; rocky knobs; summits of laccoliths; rocky ledges; rocky and sandy ridges; ridgetops; rocky openings in forests and woodlands; meadows; rocky-gravelly foothills; rocky, stony and clayey hills; bouldery and rocky hillsides; escarpments; sandy bases of escarpments; bedrock, bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, rocky-loamy, cobbly-sandy, cobbly-loamy, cindery, gravelly, gravelly-silty, sandy, sandy-loamy, loamy and clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders; lava flows; sand dunes; rocky mounds;

benchlands; flats; basins; along sandy valley floors; along roadbeds; along gravelly and sandy roadsides; two-tracks; rocky walls of arroyos; along and in draws; gulches; bouldery-sandy and rocky ravines; seeps; springs; along streams; bouldery and gravelly streambeds; along creeks; along rivers; along and in rocky, rocky-gravelly, gravelly and sandy washes; within drainages; bouldery-cobbly drainage ways; marshes; (rocky) banks of gullies, streams and washes; borders of washes; (rocky-loamy and gravelly) edges of arroyos, streams and washes; rocky beaches; benches; gravelly terraces; rocky and gravelly-sandy riparian areas, and disturbed areas growing in moist and dry cryptogamic; bouldery, bouldery-cobbly, bouldery-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, cobbly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; sandy clay and clay ground; gravelly silty and silty ground, and bouldery-cobbly humusy ground, occurring from 600 to 11,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Arabis perennans* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (010310), 44 (051612 - no records listed under Common Names for species; genus record, color photograph), 46 (Page 353), 58, 63 (051612 - color presentation), 77, **85** (051612 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill, recorded as *Arabis eremophila* Greene), 115 (color presentation), 124 (051612 - no record of species; genus record), 127, 140 (recorded as *Boechera perennans* (S. Watson) W.A. Weber, Page 92-93 & 287)*

Boechera perennans (see *Arabis perennans*)

***Brassica nigra* (C. Linnaeus) W.D. Koch: Black Mustard**

COMMON NAMES: Annual Black Mustard; Black Mustard (a name also applied to other species and the genus *Brassica*); Brauner Senf (German); Brown Mustard (a name also applied to other species); Cadlock (a name also applied to other species); Charlock (a name also applied to other species and the genus *Brassica*); Common Black Mustard; Common Mustard (a name also applied to other species); Hei Jie (transcribed Chinese); Kerlock; Kuro-garashi (Japanese Rōmaji); Khardal (Arabic); Mostarda-preta (Portuguese); Mostaza ("Mustard" a name applied to mustards, Spanish); Mostaza Negra (Spanish); Moutarde Noire (French); Red Mustard; Schwarz Senf (German); Schwarzer Senf (German); Scurvy; Scurvy Senvie; Scurvy Grass (a name also applied to other species); Scurvy-grass (a name also applied to other species); Senf-Kohl (German); Senore; Senors; Short-pod Mustard; Shortpod Mustard; Svartsenap (Swedish); Warlock (a name also applied to other species); Weedy Annual Black Mustard; Weedy Black Mustard; Wild Mustard (a name also applied to other species, Nebraska). DESCRIPTION: Terrestrial annual forb/herb (widely spreading stems 16 inches to 10 feet in height); the flowers may be golden yellow, pale yellow, yellow or deep yellow; flowering generally takes place between mid-February and mid-September (additional records: two for early January, one for late January, one for mid-October, one for mid-November and one for late December). HABITAT: Within the range of this species it has been reported from mountains; plateaus; clayey cliffs; canyons; canyon bottoms; bluffs; clayey ridgetops; clearings in woodlands; meadows; foothills; hills; hillsides; rocky, clayey-loamy and clayey slopes; clayey flats; valley bottoms; rolling coastal dunes; in roadbeds; along rocky-loamy roadsides; draws; springs; along streams; along rivers; riverbeds; sandy washes; edges of saltmarshes; (gravelly) shores of rivers; sand bars; clayey benches; deltas; clayey terraces; bottomlands; gravelly lowlands; along canals; along and in ditches; riparian areas; waste places, and disturbed areas growing in wet and dry rocky, gravelly and sandy ground; rocky loam and clayey loam ground, and clay ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as a spice, as a fuel and as a drug or medication. Geese reportedly feed on this plant. *Brassica nigra* is native to northern, central, eastern and southern Europe and coastal islands in the North Atlantic Ocean and Mediterranean Sea; western, central, eastern and southern Asia, and northern Africa; however, the exact native range is obscure. *5, 6, 15 (listed as an excluded species), 43 (010410), 44 (061811), 46 (Page 338), 63 (052112 - color presentation), 68, 77, 80 (The genus *Brassica* is listed as both a Rarely Poisonous and Suspected Poisonous Range Plant "Mustards, both native and escaped, may cause several diseases including goiter and gastroenteritis." and a Poisonous Cropland and Garden Plant "Cultivated mustards may cause numerous diseases including gastroenteritis, blindness, goiter, emphysema, redwater disease, nitrate poisoning, anemia, and photosensitization."), 85 (052112 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 101 (color photograph), 124 (061811), 127*

***Brassica tournefortii* A. Gouan: Asian Mustard**

COMMON NAMES: African Mustard (a name also applied to other species); Asian Mustard (a name also applied to other species); Desert Mustard (a name also applied to other species); Long Fruited Wild Turnip; Long-fruited Turnip; Long-fruited Wild Turnip; Mediterranean Mustard (a name also applied to other species); Mediterranean Turnip; Moroccan Mustard; Mostaza ("Mustard" a name applied to mustards, Spanish); Mostaza Africana; Mostaza del Desierto (Spanish); Mostaza del Sahara (Spanish); Mustard (a name applied to other species and the genus *Brassica*); Pale Cabbage; Prickly Turnip; Qarras (Arabic); Sahara Mustard; Saharan Mustard; Shiltam (Arabic); Tournefort Birdrape; Tournefort Mustard; Tournefort's Birdrape; Tournefort's Mustard; Turnip Weed (a name also applied to other species); Wild Turnip (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (stems 1 to 4 feet in height; one plant was observed and described as being 22 inches in height and 40 inches in width; plants were observed and described as being 24 to 30 inches in height and 18 inches in width at the base); the large and serrated green leaves form in a basal rosette clasping on the stem; the flowers may be green-

white, ivory, white, pale yellow, yellow or yellow-cream; flowering generally takes place between mid-January and late May (additional records: one for mid-November, three for early December and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; bases of cliffs; clayey canyons; bouldery and rocky canyon bottoms; bluffs; rocky and rocky-clayey ridgetops; rocky hills; bouldery hillsides; bouldery, rocky, gravelly-sandy, gravelly-sandy-loamy, pebbly-sandy and sandy slopes; alluvial fans; gravelly bajadas; amongst boulders; volcanic dikes and plugs; lava flows; sand hills; sand shelves; sand dunes; sand hummocks; blow-sand deposits; sand sheets; rocky-sandy outwash fans; gravelly-sandy-loamy and silty plains; gravelly-sandy, sandy and silty flats; sandy and silty valley floors; along rocky-clayey, gravelly, gravelly-sandy-loamy and sandy roadsides; sandy arroyos; gullies; about springs; creekbeds; along rivers; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along drainages; within sandy drainage ways; depressions; (gravelly-sandy) banks of rivers and washes; borders of washes; (sandy) edges of arroyos, rivers, washes and playas; (sandy) margins of washes and ponds; sandy beaches; benches; rocky strands; sandy terraces; loamy bottomlands; floodplains; sandy levees; canal banks; along ditches; recently burned areas of coastal sage scrub; bouldery-cobbly-sandy, gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-sandy, shaley, cindery-sandy, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; gravelly-sandy loam, sandy loam and loam ground; rocky clay and clay ground, and silty ground, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. Sahara Mustard is usually a very large and robust plant. This plant was first reported in Arizona in 1959. *Brassica tournefortii* is native to southern Europe; western, central and southern Asia, and northern Africa. *5, 6, 15, **16**, 22, 28, 43 (010410), 44 (052212), 46 (Supplement Page 1051), **56**, **57**, 63 (052212 - color presentation), 77, 80 (The genus *Brassica* is listed as both a Rarely Poisonous and Suspected Poisonous Range Plant "Mustards, both native and escaped, may cause several diseases including goiter and gastroenteritis." and a Poisonous Cropland and Garden Plant "Cultivated mustards may cause numerous diseases including gastroenteritis, blindness, goiter, emphysema, redwater disease, nitrate poisoning, anemia, and photosensitization."), **85** (052212 - color presentation), 115 (color presentation), 124 (061811 - no record of species; genus record), **WTK** (June 13, 2010)*

Capsella bursa-pastoris (C. Linnaeus) F.K. Medikus: Shepherd's Purse

COMMON NAMES: Blind-weed; Bolsa de Pastor (Spanish); Bolsa-de-Pastor (Portuguese); Bourse à Pasteur (French); Capsella (a name also applied to the genus *Capsella*); Capselle à Pasteur (French); Case Weed; Case-weed; Caseweed; Casse Weed; Casse-weed; Clappedepouch; Clapper's Pouch; Clapped-pouch; Clappedepouch; Cocowort; Common Shephardspurse; Common Shepherd's Purse; Common Shepherds Purse; Common Shepherd's-purse; Common Shepherds-purse; Common Shepherdspurse; English Shepherd's Bag; Erva-do-bom-pastor (Portuguese); Fat-hen; Gäsekresse (German); Hen-pepper; Hirtentaschel (German); Hirtentäschel (German); Hirtentäschlein (German); I'ckode'wadji'bik ("Fire Root", Chippewa); Kees Ar Rai (Arabic); Lady's Purse; Lady's-purse; Lomme (Swedish); Molette (French); Mother's Heart; Morther's-heart; Naeni (transcribed Korean); Nazuna (Japanese Rōmaji); Paniquesillo (Spanish); Pepper-and-shot; Pepper Grass; Pepper Plant; Pepper-grass; Pepper-plant; Pepper-weed; Pepperplant; Pepperweed; Permacety; Pick Pocket; Pick Purse; Pick Weed; Pick-pocket; Pick-purse; Pickpocket; Pickpurse; Poor Man's Pharmacettie; Poor Man's Pharmacetty; Poor-man's Pharmacetty; Poor-man's-pharmacetty; Qi (transcribed Chinese); Rattle Pouch; Rattle Pouches; Säckelkraut (German); Saint James' Weed; Shephardspurse; Shepherd's Bag; Shepherd's Pouch; Shepherd's Pounce; Shepherd's Purse (a name also applied to the genus *Capsella*); Shepherd's Script; Shepherd's Sprout; Shepherd's-bag; Shepherd's Heart; Shepherd's-pouch; Shepherd's-purse (a name also applied to the genus *Capsella*); Shepherd's-sprout; Shepherds-bag; Shepherds-pouch; Shepherds-purse (a name also applied to the genus *Capsella*); Shepherdspurse (a name also applied to the genus *Capsella*); Shovel Weed; Shovel-weed; Shovelweed; St. James Weed; St. James' Weed; Toothwort; Toy Wort; Toy-weed; Toy-wort; Toywort; Ward-seed; Wardseed; Whoreman's Permacety; Wind Flower; Wind-flower; Windflower; Witch's Pouches; Witches Pouches; Witches' Pouches; Witches-pouches; Witches'-pouches; Withces'-puches; Zurrón de Pastor (Spanish). DESCRIPTION: Terrestrial annual forb/herb (erect stems1 to 28 inches in height); the foliage is green; the flowers may be cream, lavender, pinkish-purple or white; flowering generally takes place year round from early January to late December. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; plateaus; cliffs; cliff faces; bases of cliffs; rocky canyons; canyon walls; bouldery and silty canyon bottoms; talus slopes; buttes; knobs; grassy knolls; sandy ridges; rocky-sandy-loamy and loamy ridgetops; clearings and openings in forests; rocky, loamy, clayey and silty-loamy meadows; rocky foothills; hilltops; silty hillsides; rocky, rocky-sandy-loam, rocky-loamy, shaley, shaley-gravelly, shaley-sandy, stony, gravelly, gravelly-loamy, sandy, sandy-loamy, loamy and clayey-loamy slopes; rocky outcrops; bases of rock outcrops; sandy lava flows; gravelly banks; breaks; steppes; sandy prairies; plains; sandy-loamy bedgrounds; grassy fields; rocky, rocky-loamy, gravelly, gravelly-loamy, sandy, loamy and clayey flats; uplands; hollows; clayey valley floors; silty-loamy valley bottoms; along railroad right-of-ways; along rocky-sandy, gravelly, sandy, sandy-loamy and loamy roadsides; within arroyos; draws; bottoms of draws; grassy gulches; ravines; mossy seeps; along streams; streambeds; along creeks; sandy sandy-loamy creekbeds; along rivers; along riverbeds; along and in rocky and gravelly-sandy drainages; drainage ways; soggy mossy areas; clayey-loamy depressions; bottoms of sinks; silty-loamy swales; along (gravelly-sandy) banks of streams, creeks, rivers, washes, ponds and lakes; borders of creeks; edges of ponds; (silty-loamy) margins of streams, creeks, rivers and swales); shores of rivers and lakes; muddy areas of drawdown; cobbly-sand, gravel and sand bars; mudflats; cobbly beaches; rocky benches; sandy and loamy bottomlands; rocky-sandy and sandy-silty floodplains; lowlands; mesquite bosques; along fencelines; peaty beds of drained beaver ponds; around stock ponds; banks of stock ponds; in dry stock tanks; along reservoirs; dry beds of reservoirs; along canals; canal banks; along ditches; ditch banks; gravelly-sandy and sandy riparian areas; loamy waste places; recently burned areas of chaparral, and

disturbed areas growing in muddy ground and wet, moist, damp and dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, shaley, shaley-gravelly, shaley-sandy, stony, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam and loam ground; silty clay and clay ground; sandy silty and silty ground, and rocky humusy, gravelly humusy and humusy ground, occurring from sea level to 10,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as a spice and as a drug or medication. *Capsella bursa-pastoris* is native to western and central Asia; Europe and islands in the North Atlantic Ocean and Mediterranean Sea, and northern Africa; however, its exact native range in Asia is obscure. *5, 6, 15, 43 (010410), 44 (052212), 46 (Page 344), 58, 63 (052212 - color presentation), 68, 77, **85** (052612 - color presentation), 86 (color photograph), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 101 (color photograph), 115 (color presentation), 124 (052212), 127*

Caulanthus lasiophyllus (see *Guillenia lasiophylla*)

Caulanthus lasiophyllus var. *lasiophyllus* (see footnote 15 under *Guillenia lasiophylla*)

Caulanthus lasiophyllus var. *utahensis* (see *Guillenia lasiophylla*)

Descurainia incisa (see *Descurainia incana* subsp. *incisa*)

Descurainia incana **(J.J. Bernhardi ex F.E. von Fischer & C.A. von Meyer) R.D. Dorn subsp. *incisa* (G. Engelmann) J.T. Kartesz & K.N. Gandhi: Mountain Tansymustard**

SYNONYMY: *Descurainia incisa* (G. Engelmann) N.L. Britton; *Descurainia richardsonii* O.E. Schultz subsp. *incisa* (G. Engelmann) L.E. Detling; *Sisymbrium incisum* G. Engelmann ex A. Gray. COMMON NAME: Cut Leaved Tansy Mustard; Cut-leaf Tansy-mustard; Cut-leaved Tansy Mustard; Cut-leaved Tansy-mustard; Cut-leaved Tansymustard; Mountain Tansy Mustard; Mountain Tansymustard; Tansy Mustard (a name also applied to the genus *Descurainia*). DESCRIPTION: Terrestrial biennial forb/herb (erect stems 1½ to 43 inches in height); the foliage is grayish-green; the flowers may be greenish-yellow or yellow; flowering generally takes place between mid-May and mid-September (additional records: one for late February and two for mid-April). HABITAT: Within the range of this species it has been reported from mountains; gravelly-loamy mountainsides; rocky bases of mountains; mesas; rocky plateaus; canyon rims; cliffs; cliff faces; bases of cliffs; sandy canyons; canyon walls; canyon bottoms; scree slopes; talus slopes; rock slides; crevices in rock; ledges; beneath rock ledges; along shaley and gravelly ridges; sandy-loamy ridgetops; clearings and openings in forests; bouldery-rocky and loamy meadows; foothills; rocky hills; rocky and sandy hillsides; rocky, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-silty and clayey-loamy slopes; bouldery, rocky and shaley outcrops; amongst boulders and rocks; boulder fields; rock piles; sand dunes; sandflats; ash beds; banks; prairies; cindery, sandy, sandy-clayey and silty flats; basins; sandy valley floors; along gravelly and sandy roadsides; two-tracks; arroyos; draws; along flumes; gulches; gullies; ravines; seeps; along streams; streambeds; along creeks; along creekbeds; along rivers; riverbeds; gravelly, sandy and clayey washes; bouldery-rocky-clayey drainages; around lakes; humusy bogs; marshy areas; banks of streams and rivers; along (rocky and rocky-sandy) edges of streams and lakes; (loamy) margins of streams and lakes; shores of lakes; muddy areas of drawdown; cobbly-sand bars; cobbly beaches; benches; terraces; sandy bottomlands; floodplains; along canals; shores of reservoirs; riparian areas, and disturbed areas growing in muddy ground and wet, moist, damp and dry cryptogamic soil; rimrock; sandy desert pavement; bouldery-rocky, bouldery-sandy, rocky, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; bouldery-rocky clay, sandy clay and clay ground; sandy silty and silty ground, and humusy ground, occurring from 1,100 to 11,700 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formation. NOTES: The species, *Descurainia incana*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (*D.i.* subsp. *incana*, *D.i.* subsp. *incisa*) and/or beverage (*D.i.* subsp. *incana*) crop; it was also noted as having been used as a drug or medication (*D.i.* subsp. *incisa*). *Descurainia incana* subsp. *incisa* is native to northern and west-central North America. *5, 6, 28 (color photograph of *Descurainia richardsonii* 322), 43 (010510), 44 (052712 - no listing under Common Names; records located under *Descurainia incisa*), 46 (recorded as *Descurainia richardsonii* (Sweet) O.E. Schultz subsp. *incisa* (Engelm.) Detling, Page 350), 63 (052712), 85 (052712 - color presentation of dried material), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain, recorded as *Sisymbrium incisum* Engelm.), 124 (052712 - no record of subspecies or species; genus record), 127*

Descurainia pinnata **(T. Walter) N.L. Britton: Western Tansymustard**

COMMON NAMES: Aasa <asa, a:sá, ʾasa> (Uto-Aztecan: Hopi)[140]; Aasam (Yaqui); Ai'yaho (Language Isolate: Zuni)[140]; Akav (Yuman: Mohave)[140]; Atsa' <acá> ("Red", Uto-Aztecan: Paiute)[140]; 'Atsé <ʾosceʾ> ("First One", Athapascan: Navajo)[140]; 'Akavɬ (Uto-Aztecan: Kawaiisu)[140]; Atsé 'Áłts' Óózí <ʾosceʾ 'a.lc'ozigi> ("Slender First One", Athapascan: Navajo)[140]; 'Atsé Ts'oh <ʾosceʾ coh> ("Big First One", Athapascan: Navajo)[140]; 'Awae (Kiowa Tanoan: Hano Tewa)[140]; Chooyn 'Azee' <co'in ʾazéʾ> (Athapascan: Navajo)[140]; Da:pk ("smooth/slippery", Uto-Aztecan: Tohono O'odham)[140]; ʾDṣi-la <asil, asily> (Uto-Aztecan: Cahuilla)[140]; Green Tansy Mustard; Green Tansy-mustard; Green Tansymustard; Hahck (Uto-Aztecan: Southern Paiute)[140]; Hasá <jasá> (Uto-Aztecan: Guarijío)[140]; Huy Aasum (Yaqui); Ívagi (Uto-Aztecan: Northern Tepehuan)[140];

Ka SiB (Yuman: Paipai)[140]; Kosen (Yuman: Cocopa)[140]; Kse.v Ilokwak (Yuman: Maricopa)[140]; Moutarde Tanaisie (French); Northern Tansy-mustard; Palmita (Spanish); Pamita [Palmita, Pamitón] (Spanish: Baja California, Sonora)[140]; Pamitón (Spanish); Pinnate Tansy Mustard; Pinnate Tansy-mustard; Pinnate Tansymustard; Shortfruit Tansymustard; Shuu'uvad <rú-u-what, show-ou-wat> (Uto-Aztecan: Akimel O'odham, Arizona)[140]; Sinapismo (Spanish)[140]; Sirolitutilli; Su'uvad (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Ṣu:waḍ <shu'awat> (Uto-Aztecan: Onavas Pima)[140]; Suavoli (Uto-Aztecan: Northern Tepehuan)[140]; Tansy Mustard (a name also applied to the genus *Descurainia*); [Pinnate, Western, Yellow] Tansy Mustard (English)[140]; Tansy-mustard (a name also applied to the genus *Descurainia*); Tansymustard (a name also applied to the genus *Descurainia*); Toloache (Mexico: Sonora); Western Tansy Mustard; Western Tansy-mustard; Western Tansymustard; Yellow Tansy Mustard; Yellow Tansy-mustard; Yellow Tansymustard. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (erect stems 3¼ to 40 inches in height); the foliage may be gray-green, greenish, purplish or reddish; the flowers may be cream, greenish-white, greenish-yellow, purplish, white, white tinged with mauve, whitish, dull yellow, pale yellow, yellow, yellow-green or yellowish-green; flowering generally takes place between mid-January and mid-September (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; along sandy bases of mountains; sandy mesas; plateaus; along sandy rims of canyons; rocky cliffs; sandy bases of cliffs; rocky and sandy canyons; sandy canyonsides; along bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and silty canyon bottoms; scree; bluffs; buttes; hogbacks; rocky ledges; rocky ridges; rocky ridgetops; rocky-sandy meadows; cinder cones; rocky tops of cinder cones; rims of craters foothills; bouldery and rocky hills; rocky hilltops; bouldery-sandy, rocky, rocky-stony, rocky-loamy, clayey, gravelly-sandy and silty-loamy hillsides; sandy bases of escarpments; bedrock, rocky, rocky-stony, rocky-cobbly, rocky-cobbly-sandy, rocky-sandy, cobbly-gravelly-sandy, cobbly-loamy, cindery, gravelly, gravelly-sandy, gravelly-loamy, gravelly-silty-loamy, sandy, sandy-loamy, sandy-clayey, loamy, clayey-loamy and silty-clayey slopes; rocky-sandy alluvial fans; gravelly-sandy bajadas; rocky outcrops; sandy bases of rock outcrops; amongst boulders and rocks; sheltered rocky coves; volcanic dikes and plugs; sand hills; sand dunes; sand sheets; blow-sand deposits; rocky outwash fans; banks; barrens; loamy steppes; sandy prairies; cobbly and sandy plains; gravelly, gravelly-sandy, gravelly-clayey-loamy, sandy, sandy-clayey, loamy and silty-loamy flats; basins; basin bottoms; shaley and sandy valley floors; gravelly-sandy valley bottoms; coastal plains; sandy coastal strands; along railroad right-of-way; along rocky, gravelly, gravelly-clayey, sandy and sandy-loamy roadsides; along sandy arroyos; draws; within sandy ravines; seeps; rocks areas around springs; along streams; along streambeds; in sand along creeks; along rivers; bouldery and bouldery-rocky-gravelly riverbeds; along and in bouldery, rocky, rocky-sandy, cobbly, cobbly-gravelly-sandy, gravelly, gravelly-sandy, sandy, sandy-loamy, sandy-clayey and clayey washes; within gravelly drainages; drainage ways; waterholes; depressions; banks of creeks and rivers; borders of washes; along edges of streams, creeks and washes; margins of marshy areas; (sandy) sides of rivers; shorelines of lakes; sand bars; beaches; sandy terraces; loamy bottomlands; clayey and silty floodplains; sandy lowlands; mesquite bosques; clayey catchments; in dry stock tanks; muddy and rocky shores of reservoirs; along canals; on top of and within ditches; sandy riparian areas; waste places; recently burned areas of woodland and desertscrub, and disturbed areas growing in mucky ground; muddy ground, and wet, moist, damp and dry desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-stony, rocky-cobbly, rocky-cobbly-sandy, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly, cobbly-gravelly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and silty ground, occurring from sea level to 11,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or spice crop; it was also noted as having been used as a preservative (*D.p.* subsp. *halictorum*), fertilizer (*D.p.* subsp. *halictorum*), paint for pottery decoration (flowers mixed with dark iron pigment, *D.p.* subsp. *pinnata*) and as a drug or medication. This plant is a larval food plant of the Desert Orangetip Butterfly (*Anthocharis cethura*) and is sometimes planted in butterfly gardens to attract Orangetip, Checkered White and White Cabbage Butterflies. Black-tailed Jack Rabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*) and Rocky Mountain Mule Deer (*Odocoileus hemionus hemionus*) feed on this plant, and the Ord's Kangaroo Rat (*Dipodomys ordii*), Spotted Ground Squirrel (*Spermophilus spilosoma*), Townsend Ground Squirrel (*Spermophilus townsendii*) and Northern Grasshopper Mice (*Onychomys leucogaster*) feed on the seeds. *Descurainia pinnata* is native to northern, central and southern North America. *5, 6, 15, **16**, 43 (010510), 44 (061811), 46 (Page 349), 63 (052712 - color presentation), 68, 77, 80 (This species is listed as a Secondary Poisonous Range Plant. "Symptoms of poisoning are similar to the "blind staggers" disease caused by selenium, but the principle is unknown. Large quantities of the plant must be eaten for a considerably long time before symptoms appear. Consumption of toxic amounts is most likely to occur during the blossoming period in the spring. Poisoned cattle become partially or completely blind and wander aimlessly about until exhausted, or stand pushing against some solid object for hours. Animals lose their ability to use their tongue in swallowing and cannot eat or drink. They eventually die if neglected. As a result a popular term for the disease is "paralyzed tongue". ... Analysis of plants in Arizona shows that tansy mustard also may accumulate toxic levels of nitrate. Poisoning may be prevented by deferring heavily infested pastures during the spring-growth period, or by providing more desirable forage to reduce mustard consumption." See text for additional information.), **85** (052712 - color presentation), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain, recorded as *Sisymbrium canescens* Nutt.), 101 (note), 124 (061811), 127, 140 (Pages 94-95 & 287)*

Descurainia richardsonii subsp. *incisa* (see *Descurainia incana* subsp. *incisa*)

***Draba cuneifolia* T. Nuttall ex J. Torrey & A. Gray: Wedgeleaf Draba**

COMMON NAMES: Desert Whitlow; Draba Primaveral ("Spring Draba", Spanish: Mexico)[140]; Gasa (Spanish: Mexico)[140]; Sanguinaria Menor ("Litltle Bloody One", Spanish: Mexico)[140]; Sonora Draba (for *D.c.* var. *sonorae*); Spring Whitlow-grass; Wedge Leaf Whitlow Grass; Wedge-leaf Draba (English)[140]; Wedge-leaf Whitlow-grass; Wedgeleaf Draba; Wedgeleaf Whitlow Grass; Wedgeleaf Whitlow-grass; Wedgeleaf Whitlowgrass; Wedgeleaf Whitlow-wort; Wedge-leaved Draba; Wedge-leaved Whitlow Grass; Wedge-leaved Whitlow-grass; Wedge-leaved Whitlowort; Whitlow Grass (a name also applied to the genus *Draba*); Whitlow-grass (a name also applied to the genus *Draba*); [Wedge-leaf] Whitlow-grass (English)[140]; Whitlow-wort (a name also applied to other species and the genus *Draba*). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1½ to 12 inches in height); the leaves are gray-green; the flowers are cream, white or yellow; flowering generally takes place between late December and late May (additional records: one for mid-July, one for mid-September, three for early December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; canyon rims; cliffs; soil pockets on shaded cliff walls; gravelly bases of cliffs; rocky canyons; canyonsides; rocky, rocky-sandy, sandy and loamy canyon bottoms; sandy talus slopes; sandy crevices in rocks; sandy pockets; buttes; knolls; rocky and stony ledges; ridges; rocky, gravelly, sandy and clayey hills; rocky, gravelly and sandy hillsides; along bedrock, bouldery-gravelly, rocky, rocky-sandy, rocky-clayey, rocky-clayey-loamy, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, clayey, clayey-loamy and silty-clayey slopes; alluvial fans; gravelly bajadas; bouldery and rocky outcrops; amongst boulders, rocks and stones; boulder fields; lava flows; along pebbly-silty and sandy outwash; terraces; rocky-sandy and pebbly plains; rocky, stony-gravelly-clayey, gravelly and sandy flats; along gravelly and sandy roadsides; along gravelly and sandy arroyos; seeps, springs; arroyos; sandy bottoms of arroyos; draws; gulches; seeps; in clay around springs; along streams; bouldery and sandy streambeds; along creeks; along creekbeds; along rivers; sandy riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and silty washes; along drainage ways; palm oases; gravelly-sandy bowls; (gravelly-sandy, sandy, sandy-silty and silty) banks of washes; borders of washes; edges of washes and drainages; along (sandy) shorelines of rivers; gravelly and silty sand bars; bouldery-sandy beaches; cobbly and gravelly benches; shelves; cobbly-sandy terraces; sandy and loamy bottomlands; floodplains; dry stock tanks; gravelly-sandy riparian areas; recently burned areas of woodland and wetland, and disturbed areas growing in wet, moist and dry cryptogamic soils; rimrock pavement; bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky clay, stony clay, stony-gravelly clay, silty clay and clay ground, pebbly silty and silty ground, occurring from sea level to 12,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Draba cuneifolia* is native to south-central and southern North America. *5, 6, **16**, 43 (010710), 44 (052812 - color presentation), 46 (Pages 347-348), 63 (052812 - color presentation), 77, **85** (022811 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Draba platycarpa* T. & G.), 115 (color presentation), 124 (052812), 140 (Pages 95-96 & 287 - recorded as *Draba cuneifolia* Nuttall ex Torrey & A. Gray [*Draba cuneifolia* Nuttall ex Torrey & A. Gray var. *integrifolia* S. Watson, *Draba cuneifolia* Nuttall ex Torrey & A. Gray var. *platycarpa* (Torrey & A. Gray) S. Watson, *Draba platycarpa* (Torrey & A. Gray])*

Draba cuneifolia T. Nuttall ex J. Torrey & A. Gray var. *integrifolia* S. Watson: Wedgeleaf Draba

COMMON NAMES: Draba Primaveral ("Spring Draba", Spanish: Mexico)[140]; Gasa (Spanish: Mexico)[140]; Sanguinaria Menor ("Litltle Bloody One", Spanish: Mexico)[140]; Wedge-leaf Draba (a name also applied to the species); Wedge-leaf Draba (English)[140]; Wedgeleaf Draba (a name also applied to the species); Wedgeleaf Whitlow Grass (a name also applied to the species); Wedgeleaf Whitlowgrass (a name also applied to the species); Whitlow Grass (a name also applied to the species and the genus *Draba*); Whitlow-grass (a name also applied to the species and the genus *Draba*); [Wedge-leaf] Whitlow-grass (English)[140]; Whitlow-wort (a name also applied to the species, other species and to the genus *Draba*). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1½ to 5 inches in height; one plant was observed and described as being 1¼ to 2¾ inches in height and 1¼ to 1½ inches in width was reported); the flowers are white; flowering generally takes place between mid-January and late April (additional records: one for mid-May, one for late May, one for early December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; cliffs; cliff walls; rocky canyons; rocky canyon bottoms; bases of cliffs; ledges; openings in chaparral; sandy hills; rocky-gravelly hillsides; rocky, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly and silty-clayey slopes; sandy bajadas; bouldery and rocky outcrops; amongst rocks; in the shade of rocks and shrubs; lava flows; rocky, gravelly, sandy and clayey flats; basins; sandy coastal flats; roadsides; along arroyos; draws; seeps; along streams; along creekbeds; along rivers; along and in rocky-sandy, gravelly-sandy and sandy washes; (gravelly-sandy, sandy and silty) banks of washes; bordsers of washes; edges of washes and drainages; bars; gravelly benches; loamy bottomlands; floodplains; riparian areas; recently burned areas in woodlands, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, gravelly-sandy loam and loam ground; silty clay ground, and silty ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Draba cuneifolia* var. *integrifolia* is native to southwest-central and southern North America. *5, 6, 15, 43 (010710), 44 (052812 - no listings under Common Names; species and genus records), 46 (Pages 347-348), 63 (052812 - color presentation), **85** (052912 - color presentation of dried material), 115 (color presentation of species), 124 (052812 - no record of variety; genus and species records), 140 (Pages 95, 96 & 287 - recorded as *Draba cuneifolia* Nuttall ex Torrey & A. Gray [*Draba cuneifolia* Nuttall ex Torrey & A. Gray var. *integrifolia* S. Watson, *Draba cuneifolia* Nuttall ex Torrey & A. Gray var. *platycarpa* (Torrey & A. Gray) S. Watson, *Draba platycarpa* (Torrey & A. Gray])*

***Draba cuneifolia* T. Nuttall ex J. Torrey & A. Gray var. *sonorae* (E.L. Greene) S.B. Parish: Sonora Draba**

SYNONYMY: *Draba sonorae* E.L. Greene. COMMON NAMES: Sonora Draba. DESCRIPTION: Terrestrial annual forb/herb (stems 1½ to 5 inches in height); the flowers are white; based on few flowering records located, flowering generally takes place between early January and mid-April. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; foothills; riverbeds; sandy-clayey washes, and bottomlands growing in dry rocky ground and sandy clay ground, occurring from 1,100 to 5,000 in the desertscrub and wetland ecological formations. NOTES: *Draba cuneifolia* var. *sonorae* is native to southwest-central and southern North America. *43 (010810 - *Draba cuneifolia* var. *sonorae* Parish), 44 (052812 - no listings under Common Names; species and genus records), 46 (*Draba sonorae* Greene is mentioned as being a synonym to *Draba cuneifolia* var. *integrifolia*, Page 348), 63 (052812), **85** (052812), 115 (color presentation of species), 124 (052912 - no record of variety; genus and species records)*

Draba platycarpa (see fotnote 89 under *Draba cuneifolia*)

Draba sonorae (see *Draba cuneifolia* var. *sonorae*)

***Dryopetalon runcinatum* A. Gray: Rockmustard**

COMMON NAMES: Dryopetalon (a name also applied to the genus *Dryopetalon*); Rock-mustard; Rockmustard. DESCRIPTION: Terrestrial biennial or perennial forb/herb (erect stems 8 to 32 inches in height); the foliage is dark green; the flowers are lavender, pink, pale violet, purplish, white or white with a purplish tinge; flowering generally takes place between early February and early June (additional records: one for early July and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rock cliffs; cliff faces; bases of cliffs; rocky canyons; bouldery canyon bottoms; talus slopes; crevices in and under boulders and rocks; rocky ledges; rims of craters; foothills; hills; hillsides; bouldery, bouldery-gravelly and rocky slopes; rocky outcrops; amongst boulders and rocks; coastal plains; along sandy roadsides; within rocky and sandy arroyos; rocky draws; springs; in rocks along streams; along and in rocky streambeds; along creeks; along rivers; along washes; within drainages; (rocky) banks of arroyos and creeks, and riparian areas growing in moist, damp and dry bouldery, bouldery-gravelly, rocky and sandy ground often in shaded areas, occurring from 100 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetlands ecological formations. NOTE: *Dryopetalon runcinatum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 155), 43 (010910), 44 (052912 - no record of species or genus), 46 (Page 339), 58, 63 (052912 - color presentation), 77 (color photograph #73), **85** (052912 - color presentation), 115 (color presentation), 124 (052912 - no record of species or genus), 140 (Pages 96 & 287)*

***Guillenia lasiophylla* (W.J. Hooker & G.A. Arnott) E.L. Greene: California Mustard**

SYNONYMY: *Caulanthus lasiophyllus* (W.J. Hooker & G.A. Arnott) E.B. Payson; *Caulanthus lasiophyllus* (W.J. Hooker & G.A. Arnott) E.B. Payson var. *utahensis* (P.A. Rydberg) E.B. Payson; *Thelypodium lasiophyllum* (W.J. Hooker & G.A. Arnott) E.L. Greene. COMMON NAMES: California Mustard; Californian Mustard; Coast Range Wild Cabbage; Coast Range Wild-cabbage; Coast Wild Cabbage; Common California Mustard; Cutleaf Thelypody (a name also applied to other species); Hairy-leaved Guillenia; Hairyleaf Caulanthus; Hairyleaf Wild Cabbage; Hairyleaf Wildcabbage; Shaggy Thelypod; Wild Cabbage (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (erect stems 3 to 63 inches in height, one record reported plants at 79 inches in height); the flowers are pale cream, pale cream-yellow, cream, creamy-white, pinkish (rarely), pinkish-brown, white, pale yellow, yellow, yellowish, yellow-cream or yellowish-white; flowering generally takes place between early January and late May (additional records: one for mid-June, one for early July and one for early August). HABITAT: Within the range of this species it has been reported from mountains; bouldery mountainsides; sandy-silty mesas; bases of cliffs; rocky and stony canyons; sandy canyon bottoms; talus slopes; crevices in rocks; ridges; rocky-sandy ridgetops; meadows and meadow-like openings in woodlands; foothills; bouldery, rocky and rocky-loamy hills; clayey hilltops; rocky, rocky-sandy-loamy and stony hillsides; bouldery-rocky rocky, rocky-sandy, stony, stony-sandy, cobbly-sandy, gravelly, gravelly-loamy, sandy, sandy-loamy and clayey slopes; gravelly and sandy alluvial fans; rocky-sandy, gravelly and gravelly-sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; lava fields; sand dunes; sand sheets; gravelly outwash fans; sandy banks; gravelly-sandy and sandy plains; cindery, gravelly, gravelly-sandy, sandy, clayey and silty flats; stony valley floors; valley bottoms; in talus at the foot of ocean bluffs; coastal plains; along rocky and rocky-sandy roadsides; gulches; within gullies; ravines; springs; along streams; along creeks; sandy creekbeds; clayey-loamy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-clayey, clayey and silty washes; along sandy drainages; depressions; along (gravelly, muddy-sandy and sandy) banks of arroyos and washes; (sandy) edges of washes; along (sandy) margins of washes; clayey benches; gravelly terraces; loamy bottomlands; floodplains; catchments; along ditches; gravelly-sandy riparian areas; recently burned areas of woodland and chaparral, and disturbed areas growing in muddy and moist and dry desert pavement; bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, stony-sandy, cobbly-gravelly-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey-silty loam, sandy loam, clayey loam, silty-clayey loam and loam ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 5,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Guillenia lasiophylla* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Caulanthus lasiophyllus* (Hook. & Arn.) Payson var. *lasiophyllus*), **16** (recorded as *Caulanthus lasiophyllus* (Hook. & Arn.) Payson), 43 (010910), 44 (062212 - no record of species or genus, records located under *Caulanthus lasiophyllus*, color photograph), 46 (recorded as *Thelypodium lasiophyllum* (Hook. & Arn.) Greene, Page 330), **56**, **57**, 63

(062212 - color presentation), 77 (recorded as *Caulanthus lasiophyllus* (H.&A.) Payson), 80 (*Thelypodium lasiophyllum* is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This annual mustard has been reported to accumulate toxic levels of nitrate."), **85** (062312 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Thelypodium lasiophyllum* (H. & A.) Greene), 115 (color presentation), 124 (062212 - no record of species or genus), 140 (recorded as *Caulanthus lasiophyllus* (Hooker & Arnott) Payson, Page 287)*

Lepidium C. Linnaeus: Pepperweed

COMMON NAMES: Bird-seed; Pepperweed; Canary-grass; Cress; Lepium; Pepper Grass; Pepper-grass; Peppergrass; Pepperweed; pepperwort. *43 (051710), 44 (062312), 46 (Pages 332-334), 63 (051610), 124 (062312), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain)*

Lepidium densiflorum H.A. Schrader: Common Pepperweed

COMMON NAMES: Baby-seed Pepperweed (*L.d. pubicarpum* - synonym); Babyseed Pepperweed (*L.d. pubicarpum* - synonym); Big-seed Pepper-weed (*L.d. macrocarpum* - synonym); Big-seed Pepperweed (*L.d. macrocarpum* - synonym); Bigseed Pepper-grass (*L.d. macrocarpum* - synonym); Bigseed Pepperweed (*L.d. macrocarpum* - synonym); Branch Pepperplant (*L.d. ramosum* - synonym); Common Pepperweed (a name also applied to other species, applied to: *Lepidium densiflorum*; *L.d. densiflorum* - synonym); Dense-flower Peppergrass; Dense-flowered Lepidium; Dense-flowered Peppergrass; Densecress; Denseflower Peppergrass; Denseflower Pepperweed; Green Flower Pepperweed; Green Flowered Pepperweed; Green-flower Pepperweed; Green-flowered Pepper-grass; Green-flowered Peppergrass; Green-flowered Pepperweed; Greenflower Pepperweed; Greenflower Pepperwort; Greenflowered Peppergrass; Many-flower Peppergrass; Many-flowered Peppergrass; Manyflower Peppergrass; Miner Pepperweed; Miner's Pepper; Miner's Pepperweed (*L.d. ramosum* - synonym); Miner's Pepperwort; Miners Pepper; Miners Pepperweed; Pepper Grass (a name also applied to other species); Pepper-grass (a name also applied to other species); Peppergrass (a name also applied to other species); Pepperweed (a name also applied to other species); Prairie Pepper Grass; Prairie Pepper-grass; Prairie Peppergrass; Prairie Pepper-weed; Prairie Pepperweed; Prairie Pepperwort; Prairie-pepperweed; Small Pepper Grass; Small Pepper-grass; Small Peppergrass (a name also applied to other species); Tall Pepperweed (*L.d. elongatum* - synonym); Wild Pepper-grass (a name also applied to other species); Wild Peppergrass (a name also applied to other species); Wild Tongue Grass (a name also applied to other species); Wild Tonguegrass (a name also applied to other species); Zitkala Tawote ("Small Bird's Food", Lakota). DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 2½ to 30 inches in height); the older leaves are yellow-green; the flowers are cream, green & reddish or white; flowering generally takes place between mid-March and late September (additional records: one for early February, one for mid-February and three for late February). HABITAT: Within the range of this species it has been reported from mountains; shaley mountaintops; mountainsides; rocky-gravelly-silty and shaley mesas; plateaus; cliffs; bases of cliffs; rocky walls; along sandy canyons; along canyonsides; along stony-gravelly and sandy canyon bottoms; talus slopes; crevices in rocks; gravelly and sandy bluffs; rocky, rocky-gravelly-clayey, gravelly, gravelly-sandy and sandy-clayey buttes; knobs; rocky knolls; rocky ledges; rocky, rocky-gravelly, shaley, stony-sandy and gravelly ridges; rocky-sandy-loamy, sandy ridgetops; rocky openings in forests; clayey meadows; beds of moss; foothills; rocky, shaley, cindery (scoria), sandy-loamy and clayey hills; gravelly hillsides; along bouldery, bouldery-gravelly-silty-clayey, bouldery-sandy, rocky, rocky-sandy, rocky-sandy-loamy, shaley, shaley-sandy, stony, stony-sandy, stony-clayey, cobbly, cobbly-gravelly, cobbly-sandy-clayey, cindery (scoria), gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-clayey, sandy-clayey-loamy, clayey, clayey-loamy, clayey-silty and silty-clayey slopes; alluvial fans; alluvial terraces; shaley and gravelly benches; benchlands; clayey shelves; silty-loamy edges of tablelands; cobbly-sandy terraces; rocky, shaley and clinker outcrops; gravelly-sandy bases of outcrops; amongst rocks; boulder fields; rock beds; sand hills; sand bluffs; sandy-clayey bases of sand dunes; cindery, gravelly, loamy, loamy-clayey and clayey banks; shaley, sandy and clayey breaks; shaley barrens; gravelly-sandy and clayey steppes; gravelly-silty-loamy and silty-loamy prairies; stony, gravelly, gravelly-sandy, sandy and sandy-clayey plains; rocky, shaley-clayey, gravelly, sandy, sandy-clayey, sandy-clayey-loamy, loamy and clayey flats; rocky, gravelly-silty-loamy, sandy, sandy-silty, loamy, loamy-clayey, clayey, silty, silty-loamy and silty-loamy-clayey uplands; basins; clayey basin bottoms; valleys; coastal plains; coastal shorelines; along railroad right-of-ways; along roadbeds; sandy roadcuts; along muddy, rocky-sandy, gravelly, gravelly-loamy, gravelly-clayey and sandy roadsides; two-tracks; arroyos; along and in clayey draws; clayey bottoms of draws; gulches; sandy gullies; bottoms of gullies; rocky ravines; sandy bottoms of ravines; rocky-clayey seeps; springs; marshy seep-springs; along streams; along gravelly and gravelly-clayey streambeds; along creeks; along muddy and clayey creekbeds; along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; within rocky-sandy, shaley, sandy, clayey and silty-loamy drainages; clayey drainage bottoms; watercourses; along waterways; blowouts; in rocks around ponds; marshy areas; silty-loamy depressions; swales; (shaley, sandy, clayey, silty and silty-clayey) banks of draws, streams, creeks, creekbeds and rivers; (muddy) edges of rivers, pools and playas; (muddy) margins of streams, creeks, rivers, ponds and lakes; along shorelines of lakes; sandy areas of drawdown; mudflats; along rocky-sand, gravel and sand bars; gravelly and sandy beaches; sandy-clayey benches; rocky and clayey terraces; sandy bottomlands; clayey floodplains; lowlands; fencerows; dams; clayey catchments; around gravelly-sandy stock tanks; along banks, edges and shores of reservoirs; along ditches; sandy riparian areas; sandy waste places, and disturbed areas growing in muddy and wet, moist, damp and dry rimrock pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, stony-gravelly, stony-sandy, cobbly, cobbly-gravelly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; bouldery-gravelly-silty clay, rocky clay, rocky-gravelly-sandy clay, rocky-gravelly clay, shaley clay, stony clay, cobbly-sandy clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground, and rocky-gravelly

silty, sandy silty, clayey silty and silty ground, occurring from 100 to 11,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Lepidium densiflorum* is native to northwestern, northern, central and southern North America. *5, 6, 43 (010910), 44 (062312), 46 (Page 334), 63 (062312 - color presentation of seed), **85** (062412 - color presentation), 124 (062312), 127*

***Lepidium lasiocarpum* T. Nuttall: Shaggyfruit Pepperweed**

COMMON NAMES: Cucharita (Spanish); Cucharitas (Spanish); Hairy Pod Pepper-grass; Hairy-pod Pepper-grass; Hairy-pod Peppergrass; Hairy-pod Pepperweed; Hairy-pod Pepperwort; Hairy-podded Pepper-grass; Hairy-podded Peppergrass; Hairypod Lepidium (*L.l.* var. *wrightii*); Hairypod Pepperweed; Hispid Cress; Hispid-cress; Hispidcress; Isnsáap Ic Is ("Whose Fruit is on One Side" a name also applied to other species, Hokan: Seri)[140]; Ka:kowani (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Ka:kowañi <ka:cowani> (Uto-Aztecan: Tohono O'odham)[140]; Lentejilla (Spanish); Lipasote (Spanish); Pasote (Spanish); Pepper Grass (a name also applied to the genus *Lepidium*); Peppergrass (a name also applied to the genus *Lepidium*); Pepperweed (a name also applied to the genus *Lepidium*); Queeto Oohit ("What Aldebaran Eats" Hokan: Seri)[140]; Sand Pepper Grass; Sand Pepper-grass; Sand Peppergrass; Sand Pepperweed; Shaggy-fruit Pepperweed; Shaggyfruit Pepperweed; Soowiid̷ib̷ (Uto-Aztecan: Kawaiisu)[140]; Wright Pepperweed (*L.l.* var. *wrightii*); Wright's Pepperweed (*L.l.* var. *wrightii*). DESCRIPTION: Terrestrial annual or biennial forb/herb (stems 4 to 15 inches in height); the foliage is grayish; the flowers may be cream, green, greenish-yellow, white or yellow-green; flowering generally takes place between late December and late June (additional records: one for late August and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; rocky chutes; along rocky and shaley canyons; rocky, gravelly and sandy canyon bottoms; rocky talus slopes; bases of cliffs; buttes; rocky and sandy ledges; sandy ridges; rocky ridgetops; foothills; bouldery, rocky-sandy and sandy hills; hilltops; rocky hillsides; rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey and clayey-loamy slopes; rocky, rocky-sandy and gravelly alluvial fans; gravelly, gravelly-sandy and sandy bajadas; clayey benches; terraces; rocky outcrops; amongst boulders and rocks; lava flows; lava beds; sand dunes; sand sheets; sand flats; along rocky-sandy and sandy outwash fans; banks; gravelly-sandy-loamy and sandy-loamy plains; rocky, gravelly, sandy, sandy-loamy, clayey-loamy and silty flats; sandy basins; sandy and clayey valley floors; coastal bluffs; coastal dunes; coastal plains; tidal shores; along sandy roadsides; along and in gravelly and sandy arroyos; bottoms of arroyos; gulches; springs; around seeping streams; along creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in bedrock, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy, sandy and sandy-loamy washes; rocky-sandy drainages; along drainage ways; silty playas; silty depressions; raised areas in saltmarshes; along (muddy, gravelly-sandy and sandy) banks of rivers and washes; borders of washes; along (stony-sandy and sandy) edges of arroyos, washes, lakebeds and tanques; around margins of washes and marshes; shores of lakes; mudflats; gravel, gravelly-sand and sand bars; sandy beaches; bouldery benches; gravelly terraces; sandy, loamy and clayey bottomlands; sandy and silty floodplains; lowlands; along gravelly-sandy and sandy edges of stock tanks; canal banks; gravelly and sandy riparian areas; waste places; recently burned areas in woodlands and desertscrub, and disturbed areas growing in moist and dry cryptogamic soil; rimrock pavement; desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, stony-sandy, shaley, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and gravelly-sandy silty, sandy-silty and silty ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Lepidium lasiocarpum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (011010), 44 (062512), 46 (Page 334), **56**, **57**, 63 (062612 - color presentation), 68, 77, **85** (062612 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 124 (020511 - no record of species; genus record), 124 (062512 - no record of species; genus record), 127, 140 (Pages 97 & 287), **WTK** (May 8, 2011)*

Lepidium lasiocarpum var. *georginum* (see *Lepidium lasiocarpum* var. *lasiocarpum*)

***Lepidium lasiocarpum* T. Nuttall var. *lasiocarpum*: Shaggyfruit Pepperweed**

SYNONYMY: *Lepidium lasiocarpum* T. Nuttall var. *georginum* (P.A. Rydberg) C.L. Hitchcock; *Lepidium lasiocarpum* T. Nuttall var. *typicum* C.L. Hitchcock. COMMON NAMES: Typical Hairy Pod Pepper-grass; Typical Hairy-pod Pepper-grass; Typical Hairy-pod Peppergrass; Typical Hairy-pod Pepperweed; Typical Hairy-pod Pepperwort; Typical Hairy-podded Pepper-grass; Typical Hairy-podded Peppergrass; Typical Hairypod Pepperweed; Typical Hispid Cress; Typical Hispid-cress; Typical Hispidcress; Typical Sand Pepper Grass; Typical Sand Pepper-grass; Typical Sand Peppergrass; Typical Sand Pepperweed; Typical Shaggy-fruit Pepperweed; Typical Shaggyfruit Pepperweed. DESCRIPTION: Terrestrial annual or biennial forb/herb (stems 8 to 15 inches in height); the foliage may be reddish-purple; the flowers are cream or white; flowering generally takes place between early February and early June (additional records: two for mid-January and one for late June). HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; rocky canyons; sandy canyon bottoms; talus slopes; rocky ledges; ridges; meadows; rocky and sandy hills; rocky hillsides; rocky, rocky-sandy, gravelly-clayey-loamy, sandy and sandy-clayey slopes; banks; clayey benches; rocky outcrops; amongst rocks; sand dunes; along sandy outwash fans; plains; gravelly, sandy, sandy-clayey and silty flats; valley floors; along gravelly and loamy roadsides; arroyos; bottoms of arroyos; gulches; along streams; along creeks; along sandy creekbeds; riverbeds; along and in rocky-sandy, gravelly,

gravelly-sandy and sandy washes; drainages; (gravelly-sandy) banks of washes; gravelly-sand and sand bars; benches; floodplains; along ditches; gravelly riparian areas, and disturbed area growing in dry cryptogamic soil; rimrock pavement; desert pavement; rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, cobbly-silty loam, gravelly-clayey loam, clayey loam and loam ground; sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Lepidium lasiocarpum*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Lepidium lasiocarpum* var. *lasiocarpum* is native to southwest-central and southern North America. *5, 6, 43 (011010 - *Lepidium lasiocarpum* var. *georginum* C.L. Hitchc.), 44 (062612 - no record for variety; records for genus and species; records located under subsp. *lasiocarpum*), 46 (recorded as *Lepidium lasiocarpum* var. *typicum* C.L. Hitchcock, Page 334), 58, 63 (062612), **85** (062612 - color presentation of dried material), 124 (062512 - no record of variety or species; genus record), 127 (species)*

Lepidium lasiocarpum var. *typicum* (see *Lepidium lasiocarpum* var. *lasiocarpum*)

***Lepidium oblongum* J.K. Small (var. *oblongum* is the variety reported as occurring in Arizona): Veiny Pepperweed**

COMMON NAMES: Oblong Pepper Grass; Oblong Pepper-grass; Oblong Peppergrass; Pepper Grass (a name also applied to other species and the genus *Lepidium*); Pepper-grass (a name also applied to other species and the genus *Lepidium*, Oklahoma); Peppergrass (a name also applied to other species and the genus *Lepidium*); South American Pepper-grass; Veiny Peppergrass (a name also applied to other species); Veiny Pepperweed; Veiny Pepperwort; Wayside Peppergrass (a name also applied to other species); Wayside Pepperweed (*L.o. oblongum*). DESCRIPTION: Terrestrial annual or biennial forb/herb (prostrate, decumbent, ascending and/or erect stems 2 to 13 inches in height; specimens of var. *insularae* were reported as forming sprawling mounds 1 foot in height and 2 feet in width); the flowers are white; flowering generally takes place between mid-January and mid-May (additional records: one for early June and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; bluffs; canyon bottoms; hills; grassy hillsides; clayey-loamy slopes; alluvial terraces; bajadas; rocky outcrops; dunes; prairies; llanos; cobbly plains; valley floors; valley bottoms; coastal plains; sandy coasts; along rocky, cindery and sandy roadsides; springs; along streams; along sandy streambeds; in sand along rivers; sandy riverbeds; along washes; clayey playas; marshes; (loamy) banks of rivers; edges of rivers and ciénegas; terraces; floodplains; sandy margins of reservoirs; along ditches; gravelly-sandy-loamy riparian areas; waste places, and disturbed areas growing in moist and dry rocky, cobbly, cindery, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy loam, clayey loam and loam ground; clay ground, and silty ground, occurring from sea level to 7,700 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be food for both quail and bighorn. *Lepidium oblongum* is native to southwest-central and southern North America and Central America. *5, 6, **16**, 43 (011210), 44 (061911), 46 (Page 334), 63 (062612 - color presentation of seed), **85** (062612 - color presentation), 106 (061911 - color presentation of dried material), 124 (062612), 140 (Page 287)*

***Lepidium thurberi* E.O. Wooton: Thurber's Pepperweed**

COMMON NAMES: Thurber Pepper-grass; Thurber Peppergrass; Thurber Pepperweed; Thurber Pepperwort; Thurber's Pepper-grass; Thurber's Peppergrass; Thurber's Pepperweed; Thurber's Pepperwort; Wooton's Peppergrass. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 3 to 40 inches in height); the leaves are gray-green, light green or green; the flowers are white; the anthers are yellow; flowering generally takes place between early February and mid-November. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; bluffs; foothills; rocky hills; hillsides; rocky, gravelly, sandy, sandy-clayey and sandy-loamy slopes; sandy alluvial fans; sandy bajadas; amongst boulders; gravelly, sandy, sandy-clayey-loamy and clayey flats; basin bottoms; valley floors; railroad right-of-ways; along gravelly and sandy roadsides; arroyos; draws; gullies; along creekbeds; in sandy riverbeds; within gravelly and sandy washes; edges of playas; gravelly-gravelly-sandy and sandy bowls; (sandy) banks of streams and rivers; channel bars; benches; silty terraces; sandy-clayey and clayey bottomlands; floodplains; dry stock tanks (represos); riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; sandy loam and sandy-clayey loam ground; sandy clay and clay ground, and gravelly-sandy silty and sandy silty and silty ground, occurring from 1,500 to 8,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Lepidium thurberi* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 157), 43 (062809), 44 (022811), 46 (Page 333), 58, 63 (062612), 77, 85 (062612 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 124 (061911 - no record of species; genus record), 127, 140 (Page 287)*

***Lesquerella gordonii* (A. Gray) S. Watson (var. *gordonii* is the variety reported as occurring in Arizona): Gordon's Bladderpod**

SYNONYMY: (for *L.g.* var. *gordonii*: *Physaria gordonii* (A. Gray) S.L. O'Kane & I.A. Al-Shehbaz). COMMON NAMES: Arizona Bladderpod Mustard; Bead-pod; Bladder Pod; Bladder-pod; Bladderpod; Bladderpod Mustard; Gordon Bladder Pod; Gordon Bladder-pod; Gordon Bladderpod; Gordon's Bladder-pod; Gordon's Bladderpod; Yellow Bladderpod.

DESCRIPTION: Terrestrial annual, biennial or perennial [short-lived] forb/herb (prostrate, decumbent and/or erect stems 3 inches to 2 feet in height); the foliage is green; the flowers are yellow; flowering generally takes place between early February and mid-May (additional records: one for mid-January, one for early June, two for early June, one for late June, one for early September and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; plateaus; rocky canyons; rocky and gravelly canyon bottoms; ledges; rocky ridges; foothills; rocky hills; hilltops; rocky, rocky-gravelly and stony hillsides; rocky, rocky-gravelly, gravelly, gravelly-loamy and clayey-loamy slopes; bajadas; rocky outcrops; rocky-sandy alluvial fans; sandy bajadas; rocky, sandy, sandy-loamy, sandy-clayey and clayey-loamy plains; fields; rocky, gravelly, sandy and clayey-loamy flats; basins; valley floors; roadcuts; along rocky, gravelly, gravelly-loamy and sandy roadsides; bottoms of arroyos; draws; rocky ravines; streambeds; sandy creekbeds; along rivers; gravelly riverbeds; along and in bedrock-bouldery, gravelly, sandy and silty washes; along and in drainage ways; banks of creeks and washes; margins of washes; sandy beaches; benches; terraces; bottomlands; sandy floodplains; lowlands; mesquite bosques; along ditches; gravelly-sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground; sandy clay and clay ground; silty ground, and chalky ground, occurring from 100 to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lesquerella gordonii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 327), 34 (genus), 43 (011310), 44 (062712 - no listings under Common Names for either species or genus), 46 (Page 343), 48 (genus), **56**, **57**, 58, 63 (062712 - color presentation), 68, 77, **85** (062712 - color presentation), 86 (note under Fendler's Bladderpod), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Lesquerella gordoni* (Gray) Wats.), 115 (color presentation), 124 (062712), 140 (recorded as *Physaria gordonii* (A. Gray) O'Kane & Al-Shehbaz [*Lesquerella gordonii* (A. Gray) S. Watson var. *gordonii*, *Lesquerella tenella* A. Nelson], Page 287), **WTK** (March 13, 2012)*

Lesquerella gordonii (A. Gray) S. Watson var. *gordonii*: Gordon's Bladderpod

SYNONYMY: *Physaria gordonii* (A. Gray) S.L. O'Kane & I.A. Al-Shehbaz. COMMON NAMES: Arizona Bladderpod Mustard (a name also applied to the species); Bead-pod (a name also applied to the species); Bladder Pod (a name also applied to the species); Bladderpod Mustard (a name also applied to the species); Gordon Bladder Pod (a name also applied to the species); Gordon Bladder-pod (a name also applied to the species); Gordon Bladderpod (a name also applied to the species); Gordon's Bladderpod (a name also applied to the species); Yellow Bladderpod (a name also applied to the species). DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (3 inches to 24 inches in height); the foliage is green; the flowers are yellow; flowering generally takes place between early February and mid-May (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; plateaus; rocky canyons; rocky canyon bottoms; rocky ridges; foothills; rocky hills; hilltops; rocky, rocky-gravelly and stony hillsides; rocky, rocky-gravelly, gravelly-loamy and clayey-loamy slopes; bajadas; rocky outcrops; sandy, sandy-loamy and sandy-clayey plains; fields; rocky, gravelly, sandy and clayey-loamy flats; valleys; roadcuts; along gravelly, gravelly-loamy and sandy roadsides; within draws; rocky ravines; streambeds; sandy creekbeds; along and in sandy washes; along and in drainage ways; banks of creeks and washes; sandy beaches; benches; terraces; floodplains; sandy mesquite bosques; along ditches; riparian areas; waste places, and disturbed areas growing in moist and dry rocky, rocky-gravelly, stony, gravelly and sandy ground; gravelly loam, sandy loam and clayey loam ground; sandy clay ground; silty ground, and chalky ground, occurring from 100 to 7,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lesquerella gordonii* var. *gordonii* is native to southwest-central and southern North America. *5, 6, 28 (species, color photograph of species 327), 34 (genus), 43 (011310), 44 (062712 - no listings under Common Names for either species or genus), 46 (Page 343), 48 (genus), 63 (062712), 68, **85** (062712), 86 (note on species under Fendler's Bladderpod), 115 (color presentation of species), 124 (062712), 140 (recorded as *Physaria gordonii* (A. Gray) O'Kane & Al-Shehbaz [*Lesquerella gordonii* (A. Gray) S. Watson var. *gordonii*, *Lesquerella tenella* A. Nelson], Page 287)*

Lesquerella purpurea (A. Gray) S. Watson: Rose Bladderpod

COMMON NAMES: Bladder-pod (a name also applied to other species and the genus *Lesquerella*); Purple Bladderpod; Rose Bladderpod; White Bladderpod. DESCRIPTION: Terrestrial perennial forb/herb (sprawling prostrate, decumbent, weakly ascending to nearly erect stems 6 inches to 2 feet in height); the stems may be dark green; the leaves are bluish-green, gray-green or silvery-green; the flowers (to 3/8 inch diameter) may be blue, lavender-white, purple, purplish, white (fading to pink or purplish), white tinged with lavender, white-purple, white-violet or whitish-lavender; flowering generally takes place between late January and late May (additional records: one for late June, one for late August, one for early September and two for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; bases of cliffs; rocky canyons; rocky canyon bottoms; chasms; talus slopes; ledges; bedrock ridges; rocky foothills; rocky hills; rocky hillsides; along bedrock, rocky, gravelly, gravelly-sandy and sandy-silty slopes; bajadas; sandy bases of rocky outcrops; amongst boulders and rocks; gravelly bases of boulders and rocks; flats; bottoms of arroyos; draws; along creeks; along and in gravelly-sandy-silty washes; drainages; (stony-clayey and sandy) banks of creeks and rivers; borders of washes, and bouldery-cobbly-sandy and bouldery-gravelly riparian areas growing in wet, moist and dry bouldery, bouldery-cobbly-sandy, bouldery-gravelly, rocky, gravelly, gravelly-sandy and sandy ground; stony clay ground, and rocky-gravelly silty, gravelly-sandy silty and sandy silty ground, occurring from 1,500 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lesquerella*

purpurea is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 158), 34 (genus), 43 (071810), 44 (062712 - no listings under Common Names for either species or genus), 46 (Page 343), 48 (genus), 63 (062712 - color presentation), 77 (color photograph #26), **85** (062712 - color presentation), 115 (color presentation), 124 (061911 - no record of species; genus record)*

Matthiola bicornis (see *Matthiola longipetala*)

***Matthiola longipetala* (É.P. Ventenat) A.P. de Candolle: Night Scented Stock**

SYNONYMY: *Matthiola bicornis* (J.E. Smith) A.P. de Candolle; *Matthiola longipetala* (É.P. Ventenat) A.P. de Candolle subsp. *bicornis* (J.E. Smith) P.W. Ball. COMMON NAMES: Evening Scented Stock; Evening Stock; Evening-scent Stock; Evening-scented Stock; Eveningstock; Nacht-Levkoje (German); Night Scented Stock; Night-scent Stock; Night-scented Stock; Night Stock; Nightstock; Perfumeplant; Shaqaara (Arabic); Two-horn Stock. DESCRIPTION: Terrestrial annual or biennial forb/herb (decumbent, ascending and/or erect stems 4 inches to 2 feet in height); the foliage is gray-green; the flowers may be brown, lavender, lavender-pink, magenta-violet, pink, purple, purple-red, purple & white, purplish fading to white, white (rarely), violet or yellow; flowering generally takes place between early February and late May (additional records: flowering ending as late as June has been reported). HABITAT: Within the range of this species it has been reported from mesas; amongst cobbles; flats; along clayey roadsides; around streams; along rivers; sandy riverbeds; in rocky, gravelly and sandy washes; ponds; along (rocky-silty and cobbly) banks of rivers; floodplains; riparian areas; waste places, and disturbed areas growing in dry rocky, cobbly, gravelly and sandy ground; clay ground, and rocky-silty ground, occurring from 2,100 to 5,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Matthiola longipetala* is native to southeastern Europe; western and southern Asia and islands in the Mediterranean Sea, and northern Africa. *5, 6, **16** (recorded as *Matthiola bicornis* (Sibth. & Smith) DC.), 43 (011310 - *Matthiola bicornis* (L.) DC., *Matthiola longipetala* subsp. *bicornis* Ball), 44 (062712 - no listings under Common Names for the species; genus record), 46 (recorded as *Matthiola bicornis* (Sibth. & Smith) DC., note on Page 354), **56**, **57**, 63 (062712 - color presentation of seed), **77** (recorded as *Matthiola longipetala* (Vent.) DC. var. *bicornis* Sibth. & Smith), **85** (062712 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb, recorded as *Matthiola bicornis* (Sibth.) DC.), 115 (color presentation), 124 (062712 - no record of species or genus)*

Matthiola longipetala subsp. *bicornis* (see *Matthiola longipetala*)

Matthiola longipetala var. *bicornis* (see footnote 77 under *Matthiola longipetala*)

***Nasturtium officinale* W.T. Aiton: Watercress**

SYNONYMY: *Rorippa nasturtium-aquaticum* (C. Linnaeus) A. von Hayek. COMMON NAMES: Agrião (Portuguese); Berro (Spanish: Mexico, Sonora); Bronkors (Afrikaans); Brook Lime (a name also applied to other species); Brook-lime (a name also applied to other species); Brooklime (a name also applied to other species); Brown Cress; Brunnenkresse (German); Carsous; Common Water Cress; Common Water-cress; Common Watercress; Crashed; Crashes; Cresson d'Eau (French); Cresson de Fontaine (French); Dou Ban Cai (transcribed Chinese); Echte Brunnenkresse (German); Eker Tengtongues (German); Green Water Cress; Green Water-cress; Green Watercress; Kars; Karse; Mizu-garashi (Japanese: Rōmaji); Nasturtium (a name also applied to other species and the genus *Nasturtium*); Oranda-garashi (Japanese: Rōmaji); Pepper Leaf; Pepperleaf; Selada-air (Indonesian); True Water Cress; True Water-cress; True Watercress; Two Row Water-cress; Two Row Watercress; Two-row Water-cress; Two-row Watercress; Water Cress (a name also applied to the genus *Nasturtium*); Water Grass (a name also applied to other species); Water-cress (a name also applied to the genus *Nasturtium*); Water-grass (a name also applied to other species); Water-kers; Watercress (a name also applied to the genus *Nasturtium*); Well Grass; Well-cress; Well-grass; White Water Cress; White Water-cress; White Watercress. DESCRIPTION: Aquatic or semi-aquatic perennial forb/herb (creeper with flowering stalks 4 to 16 inches in height and stems 2 inches to 6½ feet in length); the stems are reddish; the leaves are green; the flowers are cream, cream-white, pink, white, white with a pale purple tinge or yellow & white; flowering generally takes place between early March and early November (additional record: one for early January, one for early February and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; cliff faces; hanging gardens; rocky canyons; bouldery-gravelly-sandy and rocky canyon bottoms; talus slopes; bluffs; clayey-loamy meadows; foothills; hillsides; bouldery, rocky-sandy, shaley, shaley-gravelly, sandy and sandy-loamy slopes; steppes; sandy plains; rocky, sandy and sandy-loamy flats; uplands; valleys; coastal strands; along railroad right-of-ways; roadsides; arroyos; bottoms of arroyos; draws; gulches; gullies; seeps; muddy-rocky-sandy springheads; around and in springs; along and in rivulets; along and in streamlets; in stony, loamy, clayey and clayey-loamy soils along streams; loamy streambeds; brooks; along and in creeks; (boggy) creekbeds; along and in rivers; sandy riverbeds; along and in rocky-sandy, rocky-silty and sandy washes; within drainages; waterfalls; waterholes; pools; spring pools; poolbeds; around ponds; lakes; bogs; spring bogs; cienegas; freshwater marshes; loamy swamps; depressions; along (sandy, loamy and sandy-silty) banks of springs, streams, creeks, creekbeds, rivers and drainages; (loamy) borders of streams; (sandy-clayey and sandy-clayey-loamy) edges of springs, streams, creeks, rivers, riverbeds, pools, ponds, lakes and freshwater marshes; (rocky) margins of creeks, rivers, pools, ponds and lakes; shorelines of springs, ponds and lakes; gravel and sand bars; oxbows; travertine terraces; bottomlands; sandy floodplains; in and around overflow areas; fencerows; beaver ponds; stock tanks; edges of reservoirs; along and in ditches; ditchbanks, and gravelly, gravelly-sandy, sandy and loamy riparian areas growing in shallow water; mucky; muddy and muddy-

rocky-sandy, and wet, moist and damp bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, shaley, shaley-gravelly, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty-clayey loam and loam ground; clay ground, and rocky silty, sandy silty and silty ground, occurring from sea level to 12,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant (*Rorippa nasturtium-aquaticum*) was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication. *Nasturtium officinale* is native to northern, central, eastern and southern Europe and coastal islands in the North Atlantic Ocean; western, central, eastern and southern Asia, and northern Africa. *5, 6, 15 (listed as an excluded species), 28 (color photograph 159), 43 (011310), 44 (062812), 46 (recorded as *Rorippa nasturtium-aquaticum* (L.) Schinz & Thell., Page 340), 58, 63 (062812 - color presentation), **85** (062812 - color presentation, recorded by J.W. Toumey as being present in Tucson, Arizona on May 20, 1894), 86 (color photograph), **89** (reported as being a perennial herb located on the Santa Cruz River and Irrigation Ditches, recorded as *Radicula nasturtium-aquaticum* (L.) Britton & Rusby), 124 (062712), 127 (recorded as *Rorippa nasturtium-aquaticum*)*

Physaria gordonii (see *Lesquerella gordonii* var. *gordonii*)

Radicula nasturtium-aquaticum (see footnote 89 under *Nasturtium officinale*)

Rorippa nasturtium-aquaticum (see *Nasturtium officinale*)

***Sisymbrium altissimum* C. Linnaeus: Tall Tumblemustard**

COMMON NAMES: Hamnsenap (Swedish); Hedge Mustard (a name also applied to other species); Hohe Rauke (German); Jim Hill Mustard; Jim Hill-mustard; Jim Hill Tumble-mustard; Jim Hill Tumblemustard; Jim Hill's Tumblemustard; Jimhill Mustard; Tall Hedge Mustard (a name also applied to other species); Tall Hedge-mustard (a name also applied to other species); Tall Mustard (a name also applied to other species); Tall Mustard-weed; Tall Rocket; Tall Sisymbrium; Tall Tumble Mustard; Tall Tumble-mustard; Tall Tumblemustard; Tall Tumbleweed Mustard; Tall Tumbleweed-mustard; Tumble Mustard (a name also applied to other species); Tumble-mustard (a name also applied to other species); Tumblemustard (a name also applied to other species); Tumbleweed Mustard (a name also applied to the genus *Sisymbrium*); Tumbleweed-mustard (a name also applied to the genus *Sisymbrium*); Tumbling Mustard; Tumbling-mustard; Ungarische Rauke (German); Vol-Ke-Dova (Havasupai); Yellow Tumbling Mustard. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 8 inches to 5 feet in height); the flowers may be white, pale yellow, yellow, yellow-cream, yellow-white or yellowish-white; flowering generally takes place between mid-March and early October (additional records: one for late January and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; sandy plateaus; rocky canyons; canyon walls; sandy canyon bottoms; talus slopes; along rocky ridges; gravelly ridgetops; openings in chaparral; meadows; sandy foothills; bouldery, rocky and cobbly-clayey hills; hilltops; rocky hillsides; bedrock-rocky-sandy, bouldery, rocky, rocky-gravelly-sandy-clayey-loamy, rocky-sandy-clayey, cobbly-loamy, cindery, gravelly, sandy-loamy and sandy-silty slopes; alluvial fans; rocky outcrops; amongst boulders and cobbles; sand hills; sandy dunes; gravelly outwash fans; rocky moraines; steppes; prairies; gravelly-sandy plains; gravelly-sandy, sandy, clayey and silty-loamy flats; basins; sandy valley floors; sandy railroad right-of-ways; roadbeds; along rocky, gravelly, gravelly-sandy-clayey-loamy, gravelly-loamy and sandy-loamy roadsides; rocky arroyos; sandy bottoms of arroyos; gulches; seeps; springs; gravelly-sandy streambeds; along creeks; creekbeds; in rocks along rivers; along and in rocky, gravelly, gravelly-sandy and sandy washes; sandy drainages; drainage ways; lakebeds; freshwater marshes; along (sandy) banks of streams, creeks and rivers; borders of washes; edges of washes and ponds; along (rocky-sandy) margins of rivers; (sandy) shores of rivers and lakes; mudflats; sandy beaches; benches; along gravelly and sandy terraces; loamy bottomlands; sandy floodplains; along fencelines; edges of stock tanks; within ditches; rocky, rocky-sandy, sandy and sandy-humusy riparian areas; waste places; recently burned areas in forests and chaparral, and disturbed areas growing in wet, moist and dry bouldery, rocky, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-gravelly-sandy-clayey loam, cobbly loam, gravelly loam, gravelly-sandy-clayey loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, rocky-sandy clay, cobbly clay, sandy clay and clay ground; sandy silty and silty ground, and sandy humus ground, occurring from sea level to 9,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and possibly as a drug or medication. *Sisymbrium altissimum* is native to middle and eastern Europe and western, central and southern Asia. Tumblemustard is an alternative host plant for the Potato Leafroll Virus (PLRV, *Polerovirus* sp.). Maintaining a healthy native plant community with minimal disturbance of soils is one of the best ways to prevent an infestation of this plant. Small infestations can be controlled by the hand pulling of rosettes in fall through spring. *5, 6, **16**, 28 (color photograph), 43 (011410), 44 (062812), 46 (Page 336), 63 (062812 - color presentation), 85 (062812 - color presentation, reduced recovery), 86 (note under *Sisymbrium officinale*), 101 (color photograph), 106 (011410 - Potato Leafroll Virus), 124 (062812), 127*

Sisymbrium incisum (see *Descurainia incana* subsp. *incisa*)

***Sisymbrium irio* C. Linnaeus: London Rocket**

COMMON NAMES: Ban Cenṣañig ("Coyote's Mouth", Uto-Aztecan: Hiá Ceḍ O'odham, Sonora)[140]; Ban Ciñiṣañ <ban ciniṣani> ("Coyote's Mouth", Uto-Aztecan: Tohono O'odham)[140]; Cocóol (Hokan: Seri)[140]; Glanz-Rauke (German); Haskahl' <has káhl> (Yuman: Mohave)[140]; London Mustard; London Rocket; London Rocket (English)[140]; London-rocket; Londonrocket; Mostaza (Spanish)[85]; Mostaza [Silvestre] ("[Wild] Mustard", Spanish: Sonora)[140]; Pamit (Uto-Aztecan: Ópata)[140]; Pamita (Spanish)[85]; Pamita (Spanish: Sonora)[140]; Pamitón (Uto-Aztecan: Mayo)[140]; Rocket Mustard (English)[140]; Rocket-mustard; Rocketmustard; Shuu'uvaḍ (Uto-Aztecan: Akimel O'odham)[140]; Tumble Mustard (a name also applied to other species and the genus *Sisymbrium*); Vallsenap (Swedish). DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 5 feet in height; plants were observed and described as being 8 inches in height and 6 inches in width); the flowers may be golden-yellow, white, pale yellow or yellow; the anthers are cream; flowering generally takes place between mid-December and mid-June (additional records: one for early July, one for late July, one for early August, one for mid-August, two for late August, one for mid-September, one for late September, one for early October, one for mid-October, one for early November, one for mid-November and four for late November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; plateaus; rocky canyons; along bouldery-gravelly-sandy and sandy canyon bottoms; rocky buttes; rock ledges; ridges; ridgetops; clayey meadows; foothills; rocky hills; rocky hillsides; bouldery, rocky, rocky-sandy, gravelly-sandy, sandy and sandy-loamy slopes; rocky alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; sand dunes; banks; berms; cobbly plains; rocky, gravelly, sandy and sandy-silty flats; basins; valley floors; loamy valley bottoms; railroad right-of-ways; gravelly-sandy roadbeds; cindery, gravelly, sandy and clayey roadsides; within rocky and sandy arroyos; along bottoms of arroyos; bottoms of ravines; seeps; springs; along streams; streambeds; along creeks; bouldery-rocky and rocky creekbeds; along rivers; rocky and rocky-cobbly-sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; within sandy drainage ways; silty lakebeds; bogs; sandy-loamy and silty depressions; along (cobbly-sandy, gravelly-sandy and sandy) banks of streams, creeks, rivers and washes; borders of washes; (rocky) edges of springs, streams, creeks, washes and ponds; margins of washes; sandy beaches; sandy benches; terraces; sandy and loamy bottomlands; floodplains; mesquite bosques; margins of stock tanks; canal edges and walls; along ditches; riparian areas; waste places; recently burned areas of woodland and desertscrub, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-cobbly; rocky-cobbly-sandy, rocky-sandy, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy loam, sandy loam and loam ground; sandy clay and clay ground, and sandy silty ground, occurring from sea level to 10,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities, this plant was first reported as occurring in Arizona, in Phoenix, in 1909. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food and beverage and as a drug or medication. *Sisymbrium irio* is native to central and southern Europe and islands in the Mediterranean Sea; western, central, eastern and southern Asia, and northern Africa. *5, 6, 15, **16**, 22, 28 (color photograph), 43 (011410), 44 (033111), 46 (Page 336), **56**, **57**, 58, 63 (062812 - color presentation), 68, 77, **85** (062812 - color presentation), 101 (color photograph), 115 (color presentation), 124 (033111), 127, 140 (Pages 98-99 & 287), **WTK** (Februar 7, 2012)*

Sisymbrium orientale C. Linnaeus: Indian Hedgemustard

COMMON NAMES: Eastern Rocket; Eastern Tumble Mustard; Eastern Tumble-mustard; Indian Hedge Mustard; Indian Hedge-mustard; Indian Hedgemustard; Mostaza (Spanish); Oriental Hedge Mustard; Oriental Hedge-mustard; Oriental Hedgemustard; Oriental Mustard (a name also applied to other species); Oriental Rocket; Oriental Sisymbrium; Orientalische Rauke (German); Orientsenap (Swedish); Tumble Mustard (a name also applied to other species and the genus *Sisymbrium*); Wild Mustard (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 5 feet in height); the flowers may be purple (one record), dull yellow, light yellow or yellow; flowering generally takes place between early February and late June (additional records: one for mid-July and one for late July, flowering ending as late as August has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; rocky canyons; bouldery-gravelly-sandy, rocky, rocky-sandy and gravelly-sandy canyon bottoms; gorges; talus; along ridges; ridgetops; openings in chaparral; foothills; sandy-clayey hilltops; cobbly-sandy-loamy hillsides; rocky, cobbly-sandy-loamy and sandy slopes; rocky-sandy and sandy bajadas; rocky outcrops; amongst rocks; lava fields; sandy flats; sandy ruts in roadbeds; rocky, rocky-loamy-clayey, gravelly and clayey-loamy roadsides; along arroyos; along bottoms of arroyos; draws; seeps; springs; along streams; along rocky stream courses; riverbeds; along and in rocky-sandy and sandy washes; within drainages; banks of streambeds and rivers; along (sandy) edges of washes and freshwater marshes; along (stony-sandy) margins of washes; along bouldery benches; sandy terraces; along fencelines; riparian areas; waste places; recently burned areas of woodland and chaparral, and disturbed areas growing in moist and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, clayey loam and loam ground, and rocky-loamy clay, rocky clay and sandy clay ground, occurring from sea level to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. A plant in fruit was collected on April 22, 1977, by Casey Hamilton at Milepost 210 on Interstate 10 at Eloy that was recorded as being a new record for this species for Arizona. *Sisymbrium orientale* is native to eastern and southern Europe and islands in the Mediterranean Sea; western, central and southern Asia, and northern Africa. *5, 6, 43 (011510), 44 (062912), 63 (062912), 77, **85** (062912 - color presentation), 124 (061911 - no record of species; genus record)*

Streptanthus arizonicus (see *Streptanthus carinatus* subsp. *arizonicus*)

***Streptanthus carinatus* C. Wright ex A. Gray: Lyreleaf Jewelflower**

COMMON NAMES: Lyreleaf Jewelflower, Lyreleaf Twistflower, Lyre-leaved Twistflower, Pecos Twist Flower, Silver Bells, Twist Flower, Twistflower (a name also applied to the genus *Streptanthus*). DESCRIPTION: Terrestrial annual or biennial forb/herb (6 to 42 inches in height); the foliage is bluish-green or grayish-green; the flowers may be cream, creamy-white, cream-yellow, bright golden-yellow, greenish, lemon-yellow, pinkish-cream, purple, purple with yellowish or white margins, red, dark red, red-violet, pale violet, violet, white with purple veins, pale yellow, yellow or deep yellow tipped with maroon or red; flowering generally takes place between mid-February and early May (additional records: one for late May, flowering beginning as early as January has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; rocky bases of cliffs; rocky canyons; along rocky canyon bottoms; talus slopes; crevices in rocks; bluffs; rocky ridges; foothills; rocky and gravelly hills; rocky hillsides; bouldery, rocky, rocky-gravelly-loamy and gravelly slopes; gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; gravelly-sandy banks; rocky, stony-gravelly-clayey and gravelly flats; bowls; along rocky, gravelly, gravelly-clayey-loamy and sandy roadsides; rocky arroyos; along draws; ravines; cobbly-sandy riverbeds; along and in sandy washes; drainages; (gravelly) edges of arroyos; margins of rivers; bottomlands; floodplains, and disturbed areas growing in moist and dry bouldery, rocky, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam and gravelly-clayey loam ground, and stony-gravelly clay ground, occurring from 1,500 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Streptanthus carinatus* is native to southwest-central and southern North America. *5, 6, **8**, 28 (color photograph of *Streptanthus arizonicus* 160), 43 (063009), 44 (062912 - no record of species; genus record), 46 (Pages 331-332), 63 (062912 - color presentation), 77 (color photograph #74), **85** (062912 - color presentation), 86 (note, color photograph of subspecies *arizonicus*), 115 (color presentation), 124 (062912 - no record of species; genus record), **WTK** (March 13, 2012)*

***Streptanthus carinatus* C. Wright ex A. Gray subsp. *arizonicus* (S. Watson) A.R. Kruckeberg, J.E. Rodman & R.D. Worthington: Lyreleaf Jewelflower**

SYNONYMY: *Streptanthus arizonicus* S. Watson. COMMON NAMES: Arizona Jewel Flower; Arizona Twist Flower; Lyreleaf Jewelflower; Lyreleaf Twistflower (a name also applied to the species); Lyre-leaved Twistflower (a name also applied to the species); Silver Bells (a name also applied to the species); Twist Flower (a name also applied to the species); Twistflower (a name also applied to the species and the genus *Streptanthus*). DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 6 to 42 inches in height; one plant was observed and described as being 10 inches in height with a crown 5 inches in width); the foliage is bluish-green or grayish-green; the flowers may be brownish, cream, cream-white, cream-yellow, bright golden-yellow, lemon-yellow, pinkish-cream, white, pale yellow, yellow or deep yellow tipped with red; flowering generally takes place between mid-February and early May (additional record: one for late May, flowering beginning as early as January has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; rocky bases of cliffs; rocky canyons; canyon bottoms; talus slopes; ridges; foothills; gravelly hills; rocky slopes; gravelly bajadas; rocky outcrops; sandy lava flows; rocky and gravelly flats; sandy roadsides; rocky arroyos; along draws; cobbly-sandy riverbeds; along and in sandy washes; drainages; (gravelly) edges of arroyos; margins of rivers and washes; bottomlands, and floodplains growing in dry rocky, cobbly-sandy, gravelly and sandy ground and gravelly loam ground, occurring from 1,500 to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Streptanthus carinatus* subsp. *arizonicus* is native to southwest-central and southern North America. *5, 6, 15, **16** (*Streptanthus arizonicus* Wats.), 28 (recorded as *Streptanthus arizonicus*, color photograph 160), 43 (063009), 44 (062912 - no record of species or subspecies; genus record), 46 (*Streptanthus arizonicus* Wats., Pages 331-332), 63 (062912 - color presentation), **85** (062912 - color presentation), 86 (color photograph of *Streptanthus arizonicus*), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Streptanthus arizonicus* Wats.), 115 (color presentation of species), 124 (062912 - no record of species or subspecies; genus record)*

***Thelypodium* S.F. Endlicher: Thelypody**

COMMON NAME: Thelypodium; Thelypody. *43 (051710), 44 (062912), 46 (Pages 329-330), 63 (062912), **89** (reported from Tumamoc Hill, recorded as *Thelypodium* sp.), 124 (062912)*

Thelypodium lasiophyllum (see *Guillenia lasiophylla*)

Thysanocarpus amplectens (see *Thysanocarpus curvipes*)

***Thysanocarpus curvipes* W.J. Hooker: Sand Fringepod**

SYNONYMY: *Thysanocarpus amplectens* E.L. Greene; *Thysanocarpus curvipes* W.J. Hooker var. *elegans* (F.E. von Fischer & C.A. von Meyer) B.L. Robinson; *Thysanocarpus curvipes* W.J. Hooker var. *eradiatus* W.L. Jepson; *Thysanocarpus elegans* F.E. von Fischer & C.A. von Meyer. COMMON NAMES: Common Fringe Pod; Common Fringe-pod; Common Fringed-pod; Common Fringepod; [Common, Sand] Fringe [fringed]-pod (English)[140]; Hairy Fringe Pod; Hairy Fringe-pod; Hairy Fringepod; Hairy Lace Pod; Hairy Lace-pod; Hairy Lacepod; [Hairy, Sand] Lace Pod [Lacepod, Lacepod Mustard] (English)[140]; Lace Pod Mustard; Lace-pod (a name also applied to the genus *Thysanocarpus*); Lace-pod Mustard; Lacepod (a name also applied to the genus *Thysanocarpus*); Lacepod Mustard; Sand Fringe Pod; Sand Fringe-pod; Sand Fringe-pod (English)[140]; Sand Fringed-pod; Sand Fringepod; Sand Lace Pod; Sand Lace-pod; Sand Lacepod. DESCRIPTION: Terrestrial

annual forb/herb (erect stems 4 to 32 inches in height; one plant was observed and described as being 10 inches in height with a crown 2 inches in width, plants were observed and described as being 16 to 22 inches in height and 4 to 8 inches in width); the foliage is pale gray-green; the flowers may be cream, pale pink, pink, purple, purplish, white or white with green midribs; flowering generally takes place between early January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky cliffs; rock faces and walls; rocky canyons; canyon walls; bouldery, rocky and sandy canyon bottoms; talus; bases of cliffs; crevices in bedrock and boulders; buttes; ledges; ridges; rocky ridgetops; meadows; foothills; bouldery, rocky and sandy hills; hilltops; bouldery, rocky, rocky-cobbly-gravelly, stony and loamy hillsides; bases of hills; bouldery; bouldery-gravelly, rocky, rocky-gravelly, rocky-clayey-loamy, rocky-silty-loamy, cobbly, cobbly-clayey, gravelly, gravelly-loamy, sandy, sandy-loamy, loamy and clayey slopes; sandy bajadas; rocky outcrops; amongst boulders and rocks; bases of rocks; lava flows; sand dunes; rocky banks; breaks; rocky, shaley, gravelly and sandy flats; sandy valley floors; railroad right-of-ways; along roadsides; arroyos; draws; rocky chutes; gulches; seeps; along streams; edges of streambeds; along creeks; creekbeds; rocky riverbeds; along and in rocky-sandy, gravelly-sandy, sandy, sandy-loamy and loamy washes; along and in drainages; along and in sandy drainage ways; around pools; rocky and (sandy) banks of draws, creeks and rivers; (cobbly) edges of streambeds and washes; margins of washes; shores of lakes; bouldery and rocky benches; rocky-gravelly and sandy terraces; loamy bottomlands; floodplains; along sandy margins of reservoirs; ditches; rocky and sandy riparian areas; recently burned areas in woodlands and chaparral, and disturbed areas growing in moist and dry bouldery, bouldery-rocky-sandy, bouldery-gravelly, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, rocky-silty loam, cobbly-gravelly loam, gravelly loam, sandy loam and loam ground; rocky clay, stony clay, cobbly clay, gravelly clay, sandy clay and clay ground, and silty ground often having been reported as growing in shade and amongst grasses, occurring from sea level to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Thysanocarpus curvipes* is native to west-central and southern North America. *5, 6, 15 (recorded as *Thysanocarpus elegans* Fisch. & Mey.), **16**, 43 (011610), 44 (062912 - color photograph), 46 (recorded as *Thysanocarpus amplectens* Greene, Page 348), 58 (recorded as *Thysanocarpus curvipes* Hook. var. *elegans* (Fisch. & Meyer) Robins.), 63 (062912 - color presentation), 77 (recorded as *Thysanocarpus curvipes* Hook. var. *elegans* (F. and M.) Robins.), **85** (063012 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill), 115 (color presentation), 124 (062912 - no record of species or genus), 127, 140 (Pages 99-100 & 287)*

Thysanocarpus curvipes var. *elegans* (see *Thysanocarpus curvipes*)

Thysanocarpus curvipes var. *eradiatus* (see *Thysanocarpus curvipes*)

Thysanocarpus elegans (see *Thysanocarpus curvipes*)

Cactaceae: The Cactus Family

Cactus grahamii (see *Mammillaria grahamii*)

***Carnegiea gigantea* (G. Engelmann) N.L. Britton & J.N. Rose: Saguaro**

SYNONYMY: *Cereus giganteus* G. Engelmann. COMMON NAMES: ʾA:ʾá (Yuman: Cocopa)[140]; A'a' (plant and fruit, Yuman: Maricopa)[140]; A'á'īl'íla (Yuman: Walapai, fruit a'á')[140]; Bahidaj (the fruit, Uto-Aztecan: Hiá Ceḍ O'odham and Tohono O'odham, Arizona)[140]; Giant Cactus; Giant Cereus; Giant Saguara; Giant Saguara Cactus; Giant Saguaro; Giant Saguaro Cactus; Giant Sahuara; Giant Sahuara Cactus; Giant Sahuaro; Giant Sahuaro Cactus; Giant Suwarro Cactus; Ha Shun (Pima); Ha:sañ (Uto-Aztecan: Hiá Ceḍ O'odham, Sonora)[140]; Ha:sañ (Uto-Aztecan: Tohono O'odham)[140]; Haashan <ha:canyi, hahshani> (Uto-Aztecan: Akimel O'odham, Arizona)[140]; Hosh 'Aditshaii <xwoctítshahiih> (Athapascan: Navajo)[140]; Mashad (Tohono O'odham); Mojépe <moxéppe> (Hokan: Seri)[140]; Nanolzheegé [Nanolzheegí] (Athapascan: Western Apache)[140]; Pitahaya (Spanish Conquistadors); Riesenkaktus (German); Sage of the Desert; Sage-of-the-desert; Saguara; Saguara Cactus; Saguaro (a name also applied to the genus *Carnegiea*); Saguaro (English)[140]; Saguaro Cactus; Saguarokaktus (Swedish); Saguo <sauguo> (Uto-Aztecan: Mayo); Sahuara; Sahuara Cactus; Sahuaro (Spanish)[140]; Sauwo (Uto-Aztecan: Yaqui)[140]; Suwarro; Tudhua (Uto-Aztecan: Ópata)[140]; Xucntsai ("Large Cactus", Athapascan: Chiricahua and Mescalero Apache)[140]. DESCRIPTION: Terrestrial perennial stem-succulent tree (erect stems 5 to 60 feet in height and 6 to 30 inches in diameter); the plants are green; the spines are yellow or reddish-brown aging to gray or gray-black; the flowers (2 to 3 inches in diameter) are a waxy creamy-white opening at about 8 p.m. and closing at about 5 p.m. the next day with around four blooms opening per day over a 30 day period; the anthers are cream-white; the stigma lobes are cream-white; flowering generally takes place between late April and mid-June (additional records: one for late March, one for early July, one for mid-July, two for early September and one for early October), the ripe fruits (2¼ to 3 inches in length and 1 to 1½ inches in diameter) split into 2 to 6 segments that curl back to reveal the red inner lining of the rinds which are sometimes mistakenly thought to be red flowers. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; rocky canyons; canyon walls; rocky canyon bottoms; buttes; ridges; ridgelines; rocky foothills; rocky and gravelly hills; rocky hilltops; rocky hillsides; rocky, gravelly, gravelly-loamy and

sandy-clayey-loamy slopes; rocky and gravelly bajadas; rocky outcrops; amongst and on boulders and rocks; stabilized sandy and sandy-powdery dunes; plains; cindery, gravelly, gravelly-sandy and sandy flats; valley floors; along and in rocky and sandy arroyos; rocky bottoms of arroyos; streambeds; along and in riverbeds; within sandy washes; borders of washes; drainages; bottomlands; floodplains; mesquite bosques, and on rocks in riparian areas growing in dry desert pavement; bouldery, rocky, cindery-sandy, gravelly, sandy and sandy-powdery ground, and gravelly loam and sandy-clayey loam ground, occurring from sea level to 5,100 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder (seeds), beverage and/or fiber crop; it was also noted as having been used as tools, for ceremonial items and musical instruments, and as an indicator of the changing of the seasons (with the Saguaro harvest marking the beginning of a new year). Saguaros are very slow to establish, a 5 year old plant may be no more than ¼ to ½ inch in height. The growth rate of Saguaros is extremely variable. William G. McGinnies in his book "Discovering the Desert" reports that a plant 36 inches in height may be from 20 to 50 years of age, he also presents a table of typical growth rates reporting the following: 4 inches - 8.0 years, 8 inches - 12.5 years, 16 inches - 19.1 years, 32 inches - 27.3 years, 3.3 feet - 30.3 years, 6.6 feet - 40.5 years, 10 feet - 47.5 years, 13 feet - 54 years, 16 feet - 60.0 years, 18 feet - 74.0 years. 20 feet - 83.0 years, 25 feet - 107.0 years, 30 feet - 131.0 years, and 35 feet - 157.0 years. The growth rate of propagated and cultivated saguaros is much faster. One of the largest known saguaros, located in Saguaro National Monument, was reported to be 52 feet in height, had 52 arms, weighed an estimated 10 tons and was thought to be 235 years of age. Cristate forms have been reported. The Broad-billed Hummingbird (*Cynanthus latirostris*), Broad-tailed Hummingbird (*Selasphorus platycercus*), Costa's Hummingbird (*Calypte costae*), Curved-billed Thrasher (*Toxostoma curvirostre*), Lesser Long-nosed Bat (*Leptonycteris curasoae* subsp. *yerbabuenae*), Rufous Hummingbird (*Selasphorus rufus*) and White-winged Dove (*Zenaida asiatica*) have been observed visiting the flowers. Coyotes (*Canis latrans*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*), Javelina (*Peccari tajacu*) and White-winged Doves (*Zenaida asiatica*) as well as other animals and birds feed on the saguaro fruit and seeds. the Gila Woodpecker (*Melanerpes uropygialis*) and Gilded Flicker (*Colaptes chrysoides*) make holes in this plant for their nests which are later utilized by the Ash-throated Flycatcher (*Myiarchus cinerascens*), Cactus Wren (*Campylorhynchus brunneicapillus*), Elf Owl (*Micrathene whitneyi*), House Finch (*Carpodacus mexicanus*), Lucy's Warbler (*Vermivora luciae*), Purple Martin (*Progne subis*) and Cactus Wren (*Campylorhynchus brunneicapillus*). Red-tailed Hawks (*Buteo jamaicensis*), White-winged Doves (*Zenaida asiatica*) and other birds nest on the arms of the plant. *Carnegiea gigantea* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Cereus giganteus* Engelm., Pages 108-111: Frontispiece (color photograph including habitat with associated species), Page ii, Plate 2.1, Page 109 and Plate 2.5, Page 112), 13 (color photographs including habitat with associated species: Plates C.2., Page 391 and D.3, Page 392), 15 (color photograph including habitat and associated species, Page 7), **16**, 18, 26 (color photograph), 27 (recorded as *Cereus giganteus*, Pages 64-65; color photographs: Plates 39, 39A & 39B, Page 102), 28 (recorded as *Cereus giganteus*, color photographs 109 A,B&C), 38 (color photograph), 43 (011610), 44 (040111), 45 (color photograph), 46 (Page 569), 48 (recorded as *Cereus giganteus*), 52 (recorded as *Cereus giganteus*, color photograph), 53 (recorded as *Cereus giganteus* Engelm.), 58 (recorded as *Cereus giganteus* Engelm.), 63 (070112 - color presentation), 77 (color photograph #63), **85** (070112 - color presentation, reduced recovery), 86 (recorded as *Cereus gigantea*, color photograph), **89** (reported as being a tree located on Tumamoc Hill, recorded as *Cereus giganteus* Engelm.), 91 (Pages 146-149), 107, 115 (color presentation), 119, 124 (040111 - no record of species or genus), 127, 134, 140 (Pages 100-102 & 288), ADS (Friday, April 20, 2012, Page A1&4: Saguaros, emblems of the desert, now claim higher ground), **WTK** (August 12, 2005)*

Cereus giganteus (see *Carnegiea gigantea*)

Cereus greggii (see *Peniocereus greggii*)

***Cylindropuntia acanthocarpa* (G. Engelmann & J. Bigelow) F.M. Knuth var. *major* (G. Engelmann & J. Bigelow) D.J. Pinkava: Buckhorn Cholla**

SYNONYMY: *Opuntia acanthocarpa* G. Engelmann & J. Bigelow var. *major* (G. Engelmann & J. Bigelow) L.D. Benson; *Opuntia acanthocarpa* G. Engelmann & J. Bigelow var. *ramosa* R.H. Peebles. COMMON NAMES: Buckhorn Cholla (a name also applied to the species); Major Cholla. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect stems 2 to 7 feet in height, one plant was described as being 2 feet in height and 8 inches in width, one plant was described as being 32 inches in height with a crown 5 feet in width, one plant was described as being 32 inches in height with a crown 6 feet in width, one plant was described as being 4 feet in height and width, one plant was described as being 4 feet in height with a crown 87 inches in width, one plant was described as being 5 feet in height and width, one plant was described as being 5 feet in height with a crown 98 inches in width, one plant was described as being 6 feet in height with a crown 79 inches in width); the stems may be grayish-blue-green, green or dark green; the spines may be dark brown, gray with dark brown tips, purple-brown, red-brown or yellow; the glochids are brown to yellow; the flowers (1 to 1¾ inches in diameter) may be brick-red, bronze-red, bronze-yellow, brick-orange, golden, magenta, orange, pink, purple, red, red-pinkish or yellow; the anthers are yellow; the stigma lobes are light green to white; flowering generally takes place between early March and early June (additional records: two for early January and two for early August); the mature spiny (rarely spineless) dry fruits (1/2 to 7/8 inch in length and ½ to 1 inch in diameter) may be brown, light charcoal, gray, grey-beige or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky-sandy mesas; buttes; ridges; ridgelines; gravelly hills; hilltops; rocky hillsides; rocky slopes; gravelly-loamy and sandy bajadas; gravelly and sandy flats; basins; along gravelly-sandy washes, and margins of

washes growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and gravelly loam, clayey loam and loam ground, occurring from 800 to 3,800 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species (*Opuntia acanthocarpa*) was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Cylindropuntia acanthocarpa* var. *major* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia acanthocarpa* Engelmann & Bigelow var. *major* (Engelmann & Bigelow) L. Benson, Page 35 & 37), 26 (genus, recorded as *Opuntia*), 27 (Page 19; color photograph: Plates 14 & 14A, Page 96), 43 (011710 - *Cylindropuntia acanthocarpa* (Engelm. & J.M. Bigelow) F.M. Knuth var. *major* (Engelm.) Pinkava, *Opuntia acanthocarpa* Engelm. & J.M. Bigelow var. *major* (Engelm. & J.M. Bigelow) L.D. Benson, *Opuntia acanthocarpa* Engelm. & J.M. Bigelow var. *ramosa* Peebles), 44 (070212 - no record of variety genus and species records), 45 (color photograph of species), 46 (recorded as *Opuntia acanthocarpa* Engelm. & Bigel. var. *ramosa* Peebles, Page 585), 48 (genus, recorded as *Opuntia*), 53 (species, recorded as *Opuntia acanthocarpa* Engelm. & Bigel.), 63 (070212 - color presentation), 77 (recorded as *Opuntia acanthocarpa* Engelm. & Bigel. var. *major* (Engelm. & Bigel.) L. Benson, color photograph labeled *Opuntia acanthocarpa* #66), 85 (070212 - color presentation), 115 (color presentation of species), 119 (species, recorded as *Opuntia acanthocarpa* Engelm.), 124 (070212 - no record of variety, species or genus, "chollas" are included under the genus *Opuntia*), 127, **WTK** (May 27, 2005)*

Cylindropuntia arbuscula (G. Engelmann) F.M. Knuth: Arizona Pencil Cholla

SYNONYMY: *Opuntia arbuscula* G. Engelmann. COMMON NAMES: Arizona Pencil Cholla; Bush Pencil Cholla; Clavellina (Spanish); Pencil Cholla; Siviri (Spanish); Wipnoi. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect stems 20 inches to 12 feet in height; one plant observed and described as being 5 feet in height with a crown 5 feet in width, one plant was observed and described as being 78 inches in height with a crown 102 inches in width, one plant was observed and described as being 7 feet in height with a crown 66 inches in width); the trunk may be dark gray; the stems may be blue-green, gray-green, dull green, green or yellow-green and sometimes tinged with purple; the spines may be pale yellow or red-brown turning black with age; the glochids are pale yellow; the flowers (¾ to 1½ inches in diameter) may be dark bronze, brown, green, greenish-yellow tinged with red, orange-bronze, orange-yellow, red, terra cotta, pale yellow-green or yellow-green; the anthers are yellow; the stigma lobes may be pale green or greenish; flowering generally takes place between early April and early June (additional record: one for late July); the spineless fleshy pear-shaped fruits (1/2 to 7/8 inch in diameter and 1 to 1¼ inches in length) are green with a pink blush, green tinged with purple or red or yellow-green. HABITAT: Within the range of this species it has been reported from rocky canyon bottoms; hills; rocky hillsides; rocky, gravelly, sandy and silty-loamy slopes; rocky and gravelly bajadas; plains; gravelly, sandy, sandy-loamy and silty flats; basins; valley floors; coastal plains; coastal beaches; along gravelly roadsides; along arroyos; within gullies; riverbeds; along gravelly, gravelly-sandy and sandy washes; along drainages; borders of washes; floodplains; mesquite bosques; around represos, and disturbed areas growing in damp and dry desert pavement; rocky, gravelly, gravelly-sandy and sandy ground; sandy loam and silty loam ground, and silty ground, occurring from sea level to 5,600 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The fruit is eaten by browsing animals including the Javelina (*Peccari tajacu* subsp. *sonoriensis*). *Cylindropuntia arbuscula* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia arbuscula* Engelm., Pages 58-59), 15 (recorded as *Opuntia arbuscula* Engelm.), 26 (genus, recorded as recorded as *Opuntia*), 27 (Page 3; color photograph: Plate 3, Page 94), 28 (recorded as *Opuntia arbuscula*, color photograph 114), 43 (011710), 44 (112910 - no record of species; genus record), 45 (color photograph), 46 (recorded as *Opuntia arbuscula* Engelm., Page 584), 48 (genus, recorded as recorded as *Opuntia*), **56**, **57**, 58 (recorded as *Opuntia arbuscula* Engelm.), 63 (070212 - color presentation), 77 (recorded as *Opuntia arbuscula* Engelm.), **85** (070212 - color presentation, reduced recovery), 91, 115 (color presentation), 119 (recorded as *Opuntia arbuscula* Engelm.), 124 (111210 - no record of species or genus, "chollas" are included under the genus *Opuntia*), 127, 140 (Pages 103 & 288)*

Cylindropuntia fulgida (G. Engelmann) F.M. Knuth var. *fulgida*: Jumping Cholla

SYNONYMY: *Opuntia fulgida* G. Engelmann; *Opuntia fulgida* G. Engelmann var. *fulgida*. COMMON NAMES: Brincadora (Spanish: a name also applied to the species); Chain Cholla (a name also applied to the species); Chain-fruit Cholla (a name also applied to the species); Cholla (a name also applied to the species, other species and to the genus *Cylindropuntia*); Cholla Brincadora (a name also applied to the species); Choya (Spanish: a name also applied to the species, other species and to the genus *Cylindropuntia*); Jumping Chain-fruit Cholla (a name also applied to the species); Jumping Cholla (a name also applied to the species); Sonora Jumping Cholla (a name also applied to the species); Velas de Ccoyote (a name also applied to the species). DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 3 to 15 feet in height; one plant was observed and described as being 4¼ feet in height with a crown 40 inches in width, one plant was observed and described as being 4¼ feet in height with a crown 8¼ feet in width, one plant was observed and described as being 6½ feet in height with a crown 5 feet in width, one plant was observed and described as being 10 feet in height with a crown 13 feet in width); the stems may be green or purple; the spines are golden-yellow, yellow or pale pinkish aging to brown; the glochids are yellow; the flowers (¾ to 1 inch in diameter) may be cream-yellow, pink, pink-purple, purple, purple-pink, red-purple, rose-pink or yellow tinged with pink; the anthers may be cream or white; the stigma lobes are whitish to pale yellow; flowering generally takes place between mid-April and mid-September (additional records: one for late March, one for early December); the smooth fleshy fruits (¾ to 2 inches in length and ¾ to 1 inch in diameter) may be gray-green, green or purple forming clusters or pendulant "chains". HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; mesas; canyons; ledges;

ridges; hills; bases of hills; hillsides; rocky, gravelly-loamy and sandy slopes; gravelly bajadas; plains; rocky-gravelly, gravelly, sandy and sandy-silty flats; along valley floors; coastal plains; along rocky-gravelly and sandy roadsides; along creeks; along and in washes; banks of streams, creeks and washes; edges of washes; terraces, and floodplains growing in dry desert pavement; rocky, rocky-gravelly, gravelly and sandy ground; gravelly loam and silty-clayey loam ground; clay ground, and sandy silty ground, occurring from 600 to 4,100 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Each year, following flowering, additional fruits are added to the end of the chains. Chain-fruit Chollas may live to be from 40 to 80 years of age. The Chain-fruit Cholla is a preferred nesting site of the Cactus Wren (*Campylorhynchus brunneicapillus*). The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers. Deer and Javelina feed on the fruits. *Cylindropuntia fulgida* var. *fulgida* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*, Pages 49-52), 15 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*), **16** (recorded as *Opuntia fulgida* Engelm.), 26 (genus, recorded as *Opuntia*), 27 (species, Pages 10-11; color photograph: Plate 10, Page 96), 28 (recorded as *Opuntia fulgida*, color photographs 116 A&B), 43 (011810), 44 (070312 - no record of variety or species; genus record), 45 (species, color photograph of species), 46 (recorded as *Opuntia fulgida* Engelm., Page 585), 48 (genus, recorded as *Opuntia*), 52 (recorded as *Opuntia fulgida*, color photograph), 53 (recorded as *Opuntia fulgida* Engelm.), 63 (070312 - color presentation), 77 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*), **85** (070312 - color presentation, reduced recovery), **89** (reported as being a shrub located on the Mesa-like Mountain Slopes, recorded as *Opuntia fulgida* Engelm.), 91 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*, Pages 293-294), 115 (color presentation of species), 119 (recorded as *Opuntia fulgida* Engelm.; genus record: the chollas are included under the genus *Opuntia*), 124 (070312 - no record of species or genus; species record found under *Opuntia fulgida*), 127, 140 (Page 288), **WTK** (August 12, 2005)*

Cylindropuntia fulgida **(G. Engelmann) F.M. Knuth var.** ***mamillata*** **(A.C. Schott ex G. Engelmann) C. Backeberg: Jumping Cholla**

SYNONYMY: *Opuntia fulgida* G. Engelmann var. *mamillata* (A.C. Schott ex G. Engelmann) J.M. Coulter; *Opuntia fulgida* G. Engelmann var. *mamillata* (A.C. Schott ex G. Engelmann) J.M. Coulter forma *monstrosa* J.M. Coulter; *Opuntia mamillata* A.C. Schott ex G. Engelmann. COMMON NAMES: Boxing-glove Cactus (forma *monstrosa*); Boxing-glove Cholla (forma *monstrosa*); Brincadora (Spanish: a name also applied to the species); Chain [-fruit] Cholla[140]; Chain-fruit Cholla (a name also applied to the species); Cholla Brincadora (a name also applied to the species); Cholla (a name also applied to the species, other species and to the genus *Cylindropuntia*); Choya (Spanish: a name also applied to the species, other species and to the genus *Cylindropuntia*); Club Cactus (a name also applied to the species); Jumping Cholla (a name also applied to the species); Smooth Chain-fruit Cholla; Velas de Coyote (a name also applied to the species). DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 2 to 9 feet in height; one plant was observed and described as being 6 feet in height with a crown 4 feet in width, one plant was observed and described as being 8 feet in height with a crown 8 feet in width); the stems may be drab green or green; the flowers (¾ to 1 inch in diameter) may be cream tinged with magenta, light pink, pink, pink-purple, rose-pink or violet; the anthers may be cream or white; the stigma lobes are whitish to pale yellow; flowering generally takes place between late May and mid-September (additional records: one for mid-April and one for late April; flowering as late as October has been reported); the smooth fleshy fruits (¾ to 2 inches in length and ¾ to 1 inch in diameter) may be gray-green or green forming pendulant "chains". HABITAT: Within the range of this species it has been reported from mountains; mesas; ledges; ridges; rocky ridgetops; foothills; hills; rocky hillsides; rocky slopes; bajadas; lava plains; sand dunes; plains; gravelly and sandy flats; roadsides; sandy arroyos; along washes; rocky-sandy benches; floodplains, and disturbed areas growing in dry rocky, rocky-sandy, gravelly and sandy ground, occurring from sea level to 3,900 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The plant, *Opuntia fulgida*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Each year, following flowering, additional fruits may be added to the end of the chains. Chain-fruit Cholla may live to be from 40 to 80 years of age. Cristate forms (forma *monstrosa* J.M. Coulter) have been reported. The Chain-fruit Cholla is a preferred nesting site of the Cactus Wren (*Campylorhynchus brunneicapillus*). The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers. Deer and Javelina feed on the fruits. *Cylindropuntia fulgida* var. *mamillata* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coulter, Pages 50 & 52), 15 (recorded as *Opuntia fulgida* var. *mammillata* (Schott) Coult.), 26 (genus, recorded as *Opuntia*), 27 (Pages 12 & 13 (forma *monstrosa*); color photograph: Plate 11, Page 96), 43 (011810 - recorded as *Opuntia fulgida* Engelm. var. *mamillata* (A. Schott) J.M. Coult., no record for *Opuntia fulgida* var. *mamillata* forma *monstrosa*), 44 (070312 - no record of variety or species; genus record), 45 (species, color photograph of species), 46 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult., Page 585), 48 (genus, recorded as *Opuntia*), 53 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult.), 58 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult.), 63 (070312), 77 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult.), **85** (062011 - color presentation, reduced recovery), 91 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult., Pages 293-294), 115 (color presentation of species), 124 (070312 - no record of species or genus; species record found under *Opuntia fulgida*), 127, 140 (Pages 103, 105 & 288)*

Cylindropuntia fulgida var. *mamillata* forma *monstrosa* (see NOTES under *Cylindropuntia fulgida* var. *mamillata*)

***Cylindropuntia leptocaulis* (A.P. de Candolle) F.M. Knuth: Christmas Cactus**

SYNONYMY: *Opuntia leptocaulis* A.P. de Candolle. COMMON NAMES: Agujilla; Alfilerillo (Spanish); Catalineria (Spanish); Christmas Cactus; Christmas Cholla; Darning Needle Cactus; Desert Christmas Cactus; Desert Christmas Cholla; Diamond Cactus; Holycross Cholla; Naf (or Nav?, Gila River Pima); Pencil Cactus (a name also applied to other species); Pencil Cholla (a name also applied to other species); Pencil-joint Cholla; Pennopuntia (Swedish); Pipestem Cactus; Rat-tail Cactus; Rattail Cactus; Slender-stem Cactus; Tajasilla; Tasajilla (Hispanic); Tasajillo[140]; Tasajillo (Spanish, Texas); Tasajo (Spanish); Tesajo (Hispanic); Tesajo Cactus (Christmastree Cacti); Tassajilla (Oklahoma); Tassijilla; Wipnoi[140]. DESCRIPTION: Terrestrial perennial stem-succulent shrub (trailing (rarely), sub-erect (rarely) and/or erect stems 1 to 6 feet in height (sometimes becoming vine-like and growing upwards 8 to 15 feet in height with support); plants were observed and described as being 20 inches in height with crowns 20 inches in width, one plant was observed and described as being 20 inches in height with a crown 40 inches in width, one plant was observed and described as being 20 inches in height with a crown 6½ feet in width, one plant was observed and described as being 2 feet in height with a crown 2 feet in width, one plant was observed and described as being 30 inches in height with a crown 5 feet in width, plants were observed and described as being to 40 inches in height with crowns 40 inches in width, one plant was observed and described as being 40 inches in height with a crown 5 feet in width, one plant was observed and described as being 4 feet in height with a crown 8 feet in width, one plant was observed and described as being 5 feet in height with a crown 8¼ feet in width); the stems may be gray-green, dark gray-green, green, purplish or yellow-green; the spines gray-brown, purple-brown, red-brown or yellow-brown often being paler toward the tip; the glochids may be reddish-brown or yellow; the anthers are yellow; the stigma lobes are greenish-yellow; the flowers (3/8 to 3/4 inch in diameter) are bronze, cream, light green-cream, cream-yellow, green, green-yellow, greenish-cream, greenish-yellow, pale yellow, yellow or whitish; flowering generally takes place between late March and late June (additional records: two for mid-July, one for late July, one for early August, one for early October, one for mid-October and one for late October); the spineless (with glochids) fleshy fruits (1/2 to 3/4 inch in length and 1/4 to 7/16 inch in diameter) may be coral, green (rarely, sometimes tinged with scarlet), pale green-yellow, orange, orange-red, red, reddish-orange, scarlet, scarlet-red or yellow (rarely) when mature. HABITAT: Within the range of this species it has been reported from mountains; sandy mountainsides; rocky-sandy, gravelly and silty mesas; along cliffs; rocky canyons; bases of canyon walls; rocky canyon bottoms; rocky talus slopes; rocky ledges; bedrock and gravelly ridges; foothills; rocky and rocky-gravelly hills; hilltops; rocky hillsides; bedrock, rocky, gravelly, gravelly-sandy-loamy, sandy and silty-loamy slopes; clayey-loamy alluvial fans; rocky, gravelly, gravelly-silty and sandy bajadas; rocky and gypsum outcrops; amongst cobbles; sandy lava flows; lava beds; sand hills; sand dunes; breaks; sandy and clayey-loamy plains; rocky-sandy, gravelly, gravelly-sandy and sandy flats; basins; rocky-gravelly valley floors; gravelly and gravelly-sandy roadsides; within gravelly and sandy arroyos; bottoms of arroyos; along ravines; along rivers; riverbeds; along and in rocky, gravelly and sandy washes; along sandy drainages; along (cobbly-sandy) banks of rivers and drainages; borders of washes; edges of arroyos, ravines and washes; rocky and sandy benches; terraces; bottomlands; floodplains; along fencelines; along ditches; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, clayey loam, silty loam and loam ground; rocky-sandy clay and loamy clay ground, and gravelly silty and silty ground often found growing within grasses, shrubs or trees, occurring from sea level to 6,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Desert Christmas Cactus is believed to have a life span of about 50 years. A high mortality rate is to be expected with plants coming into contact with fire. Hummingbirds have been observed visiting the flowers; the fruits are eaten by birds and small mammals, and Cochineal Scale (*Dactylophius coccus*) has been observed growing on this plant. *Cylindropuntia leptocaulis* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia leptocaulis* DC., Pages 56-58), 15 (recorded as *Opuntia leptocaulis* DC.), **16** (recorded as *Opuntia leptocaulis* DC.), 18, 26 (genus, recorded as *Opuntia*), 27 (Page 2; color photograph: Plate 2, Page 94), 28 (recorded as *Opuntia leptocaulis*, color photograph 129), 43 (011910), 44 (070312 - no record of species; genus record), 45 (color photograph), 46 (recorded as *Opuntia leptocaulis* DC., Page), 48 (genus, recorded as *Opuntia*), **56**, **57**, 58 (recorded as *Opuntia leptocaulis* DC.), 63 (070412 - color presentation), 77 (recorded as *Opuntia leptocaulis* DC.), **85** (070312 - color presentation, reduced recovery), 86 (recorded as *Opuntia leptocaulis*, color photograph), **89** (reported as being a shrub located on Tumamoc Hill, recorded as *Opuntia leptocaulis* DC.), 91 (recorded as *Opuntia leptocaulis* DC.), 115 (color presentation), 119 (recorded as *Opuntia leptocaulis* DC.), 124 (070312 - no record of species or genus, recorded as *Opuntia leptocaulis*), 127, 140 (Pages 103 & 288), **WTK** (August 12, 2005)*

***Cylindropuntia spinosior* (G. Engelmann) F.M. Knuth: Walkingstick Cactus**

SYNONYMY: *Opuntia spinosior* (G. Engelmann) J.W. Toumey. COMMON NAMES: Atáta (Yuman: Havasupai); Atót (Yuman: Maricopa); Cac Q^{w}ʔi:š (Yuman: Cocopa); Cane Cholla; Cane [Handlegrip] Cholla <choya> ("Cholla" is Spanish for "skull" or "head" in allusion to the fruits ..., English)[140]; Cardenche; Ceolim <ciolim, cialim, tci'orim> (Uto-Aztecan: Tohono O'odham)[140]; 'Chi'odima' (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Choa (Uto-Aztecan: Yaqui)[140]; Ḍaqwi:s (Yuman: Walapai); Hanam <hánam> (Uto-Aztecan: Tohono O'odham)[140]; Handgrip Cholla; Handlegrip Cholla; Hosh 'Aditsahiitsoh <hosh 'aditsahii, xwoctítshahiih> (Athapascan: Navajo)[140]; Hosh Ńchaagi <k'intsǫǫze> (Athapascan: Western Apache)[140]; Spiny Cholla; Ösö <ʔöso, ɜsɜʾ> (Uto-Aztecan: Hopi)[140]; Siviri <sivili> (Uto-Aztecan: Cahita)[140]; Tasajo (Spanish: Arizona, New Mexico, Chihuahua, Sonora)[140]; Tourney-cane Cholla (Arizona); Ušil <ʔusi-l> (Uto-Aztecan: Tübatulabal)[140]; Úunvat (Uto-Aztecan: Luiseño, Juaneño dialect)[140]; Walking-stick Cactus (English: New Mexico)[140]; Walkingstick Cactus; Walking Stick Cholla; Wehcábori [Wehcapó] (Uto-Aztecan: Guarijío)[140]; Wiyattampü (Uto-Aztecan: Panamint)[140]. DESCRIPTION: Terrestrial

perennial stem-succulent shrub (erect stems 16 inches to 10 feet in height; one plant was observed and described as being 6½ feet in height with a crown 5 to 6½ feet in width, one plant was observed and described as being 6½ feet in height with a crown 10 feet in width); the stems may be brown-green, dark gray-green, grayish-maroon, grayish-purple, green, dark green, purple or purplish-green; the spines may be brown, gray, pale pink, pink, pinkish, purplish-gray, red-brown, reddish-gray, pale tan, tan or yellowish; the glochids may be tan, yellow or yellowish-white aging to gray; the flowers (1¾ to 2 inches in diameter) may be bronze-purple, brown, greenish-yellow, magenta, magenta-red, maroon, orange, pink, dark pink, light purple, purple, purple-pink, red, dark red, red-purple, red & yellow, saffron, salmon-pink, terra-cotta, white or yellow; the anthers are pale yellow or yellow; the stigma lobes are cream to white; flowering generally takes place between early April and early August (additional records: three for early January, two for early February and one for late September); the fleshy ripe fruits (1 to 1¾ inches in length and ¾ to 1 inch in diameter) may be bright lemon-yellow, pale yellow, yellow, yellow-green or yellowish-green sometimes with a purple-brown, red, reddish or purple cast. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; mesas; cliffs; rocky canyons; rocky canyon bottoms; talus, bedrock ridges; rocky ridgetops; ridgelines; foothills; rocky hills; rocky hillsides; along bedrock, rocky, rocky-sandy, gravelly and sandy slopes; bajadas; rock outcrops; amongst rocks; plains; gravelly, gravelly-sandy and silty flats; silty valley floors; roadsides; arroyos; bottoms of arroyos; rocky draws; springs; along creeks; creekbeds; along sandy washes; drainages; along drainage ways; banks of washes; sandy flood channels; terraces; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; silty-clayey loam, silty loam and loam ground, and silty ground, occurring from 900 to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Cactus Wren (*Campylorhynchus brunneicapillus*) nests in the branches. *Cylindropuntia spinosior* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia spinosior* (Engelm.) Toumey, Pages 39-43; color photograph: Plate 1.17, Page 43), 15 (recorded as *Opuntia spinosior* (Engelm.) Toumey), **16** (recorded as *Opuntia spinosior* (Engelm.) Toumey), 26 (genus, recorded as *Opuntia*), 27 (Page 14, color photograph: Plate 12, Page 96), 28 (color photograph 117), 43 (063009), 44 (040111 - no record of species; genus record), 45 (color photographs), 46 (recorded as *Opuntia spinosior* (Engelm. & Bigel.) Toumey, Page 585), 48 (genus, recorded as *Opuntia*), 53, **56**, **57**, 58 (recorded as *Opuntia spinosior* (Engelm.) Toumey), 63 (070412 - color presentation), 77 (recorded as *Opuntia spinosior* (Engelm.) Toumey), 85 (070512 - color presentation, reduced recovery), **89** (reported as being a shrub located on the Mesa-like Mountain Slopes, recorded as *Opuntia spinosior* (Engelm.) Toumey), 115 (color presentation), 119, 124 (070512 - no record of species or genus, "chollas" are included under the genus *Opuntia*), 127, 140 (Pages 102-103 & 288), **WTK** (August 12, 2005)*

Cylindropuntia spinosior (G. Engelmann) F.M. Knuth x *Cylindropuntia versicolor* (G. Engelmann ex J.M. Coulter) F.M. Knuth: Cholla

SYNONYMY: *Opuntia spinosior* (G. Engelmann) J.W. Toumey x *Opuntia versicolor* G. Engelmann ex J.M. Coulter. COMMON NAME: Cholla; Hybrid Cholla. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect stems 4 to 5 feet in height, one plant was reported as being 4 feet in height with a crown 6½ feet in width); the stems are gray-green or purple; the flower color is variable; flowering generally takes place between early April and late April (possibly into May). HABITAT: Within the range of this species it has been reported from slopes; bajadas, and along roadsides, occurring from 2,200 to 3,300 feet in elevation in the desertscrub ecological formation. NOTE: *Cylindropuntia spinosior* x *Cylindropuntia versicolor* is native to southwest-central North America. *26 (genus, recorded as *Opuntia*), 44 (070512 - no record of species; genus record), 48 (genus, recorded as *Opuntia*), 63 (070512 - no record of hybrid; species and genus records), **77** (recorded as *Opuntia spinosior* (Engelm.) Toumey x *Opuntia versicolor* Engelm.), **85** (070512), 124 (070512 - no record of species or genus, "chollas" are included under the genus *Opuntia*)*

Cylindropuntia x *tetracantha* (J.W. Toumey) F.M. Knuth (pro sp.) [*Cylindropuntia acanthocarpa* x *Cylindropuntia leptocaulis*]: Four-spined Klein's Cholla

SYNONYMY: *Opuntia kleiniae* A.P. de Candolle var. *tetracantha* (J.W. Toumey) W.T. Marshall; *Opuntia tetracantha* J.W. Toumey; *Opuntia* x *tetracantha* J.W. Toumey (pro sp.). COMMON NAMES: Candle Cholla; Cane Cholla; Four-spined Cholla; Four-spined Klein's Cholla; Hybrid Pencil Cholla; Klein Pencil Cholla; Pencil Joint Cholla; Tucson Cholla; Tucson Prickly-pear; Tucson Pricklypear. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect stems 1 to 8 feet in height; plants were observed and described as being 20 inches in height and 32 inches in width, one plant was observed and described as being 4 feet in height and width); the stems may be gray-green, green (often reported with a gray wax) or reddish; the spines may be purple-brown or yellow; the glochids are dark brown or yellow; the flowers (3/4 to 1 3/8 inches in diameter) may be green edged with brown, maroon or red, greenish-bronze, dirty pink, pink-purple-red over yellow, light reddish, dirty reddish-purple, red-magenta, yellow-green suffused with purple-brown; the anthers are pale green or pale yellow; flowering generally takes place between mid-April and late May (additional records: one for early February, one for late March, one for mid-September and one for late September); the egg-shaped fleshy to dry fruits are green turning yellow with a red blush or red with age; the ripe fruits (3/4 to 1 inch in length and 1/2 to 5/8 inch in diameter) are green, green-red, greenish-yellow, red or reddish-orange. HABITAT: Within the range of this species it has been reported from mountains; canyons; ridgetops; rocky hills; rocky slopes; gravelly bajadas; rocky and gravelly flats; roadsides; gullies; along washes; banks of arroyos, and mesquite bosques growing in damp and dry desert pavement and rocky and gravelly ground, occurring from 700 to 4,400 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat.

Cylindropuntia x *tetracantha* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia kleiniae* DC. var. *tetracantha* (Toumey) W.T. Marshall, Page 60), 15 (recorded as *Opuntia kleiniae* DC. var. *tetracantha* (Toumey) W.T. Marshall), **16** (recorded as *Opuntia kleiniae* DC. var. *tetracantha* (Toumey) Marshall), 26 (genus, recorded as *Opuntia*), 27 (recorded as *Opuntia kleiniae* DeCandolle var. *tetracantha* (Toumey) F.M, Knuth, Marshall, Page 4; color photograph: Plate 4, Page 94), 43 (070512), 44 (062111 - no record of species; genus record), 46 (recorded as *Opuntia tetracantha* Toumey, Page 584), 48 (genus, recorded as *Opuntia*), 63 (070512), **77** (recorded as *Opuntia* x *tetracantha* Toumey), **85** (070512 - color presentation of dried material), 124 (010911 - no record of species or genus, "chollas" are included under the genus *Opuntia*)*

***Cylindropuntia versicolor* (G. Engelmann ex J.M. Coulter) F.M. Knuth: Staghorn Cholla**

SYNONYMY: *Opuntia versicolor* G. Engelmann ex J.M. Coulter. COMMON NAMES: Deer Horn Cactus; Deer Horn Cholla; Deerhorn Cholla; Morada Cholla (Spanish); Staghorn Cholla; Tree Cholla. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect stems 3 to 15 feet in height; one plant was observed and described as being 40 inches in height with a crown 40 inches in width, one plant was observed and described as being 40 inches in height with a crown 6½ feet in width, one plant was observed and described as being 50 inches in height with a crown 40 inches in width, one plant was observed and described as being 51 inches in height with a crown 6½ feet in width, one plant was observed and described as being 63 inches in height with a crown 87 inches in width, one plant was observed and described as being 75 inches in height with a crown 87 inches in width); the stems may be green, green-purple, greenish-red, maroon, purple, purple-green or dark purple-red; the spines may be dark brown, gray, pinkish, purple-brown, red-brown; dark reddish-brown or whitish; the glochids are yellow or dark yellow; the flowers (1¼ to 2¼ inches in diameter) may be bronze, bronze-red, brown, burnt orange, gold, green, lavender, magenta, orange, orange-brown, orange-red, orange-rust, pink-red, purple, red, rose, rose-purple, yellow, yellow-green or yellow-green-bronze; the anthers are yellow; the stigma lobes are whitish; flowering generally takes place between early April and mid-June (additional records: one for early January, one for early March, two for mid-August, one for late August and one for mid-September); the fleshy, spineless or nearly spineless pear-shaped fruits (¾ to 1¾ inches in length and ¾ inch in diameter) may be green tinged with lavender, purple, straw-yellow, red, bright yellow or yellowish-green sometimes tinged with purple or red, sometimes forming chains of 2 to 4 fruits. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky and sandy canyons; rocky canyon bottoms; ridges; rocky ridgetops; foothills; rocky and rocky-gravelly hills; rocky hillsides; rocky and gravelly slopes; gravelly-sandy alluvial fans; rocky and gravelly-sandy bajadas; sand dunes; plains; gravelly and gravelly-sandy flats; sandy valley floors; along roadsides; along sandy arroyos; gravelly and sandy bottoms of arroyos; ravines; along sandy streambeds; riverbeds; along sandy washes; playas; sandy gravel bars; strands; bottomlands; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 5,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Varied flower colors between plants, the cascading branches of the larger plants, along with pendulous fruits make this an attractive plant. *Cylindropuntia versicolor* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia versicolor*, Pages 43 & 45-46; color photograph: Plate 1.17, Page 43), 15 (recorded as *Opuntia versicolor* Engelm.), **16** (recorded as *Opuntia versicolor* Engelm.), 26 (genus, recorded as *Opuntia*), 27 (Page 6; color photographs: Plates 6, 6A & 6B, Page 95), 28 (color photograph 118), 43 (012110 - *Cylindropuntia versicolor* (Engelm.) F.M. Knuth), 44 (070512 - no record of species; genus record), 45 (color photograph), 46 (recorded as *Opuntia versicolor* Engelm., Page 585), 48 (genus, recorded as *Opuntia*), 58 (recorded as *Opuntia versicolor* Engelm.), 63 (070512 - color presentation), 77 (recorded as *Opuntia versicolor* Engelm., color photograph #15), **85** (070512 - color presentation), **89** (reported as being a shrub located on Tumamoc Hill, recorded as *Opuntia versicolor* Engelm.), 115 (color presentation), 119 (recorded as *Opuntia versicolor* Engelm.), 124 (070512 - no record of species or genus, "chollas" are included under the genus *Opuntia*), 127, 140 (Pages 102, 103 & 288), **WTK** (August 12, 2005)*

Echinocactus wislizeni (see *Ferocactus wislizeni*)

***Echinocereus fasciculatus* (G. Engelmann ex B.D. Jackson) L.D. Benson: Pinkflower Hedgehog Cactus**

SYNONYMY: *Echinocereus fasciculatus* (G. Engelmann) L.D. Benson var. *fasciculatus*; *Echinocereus fendleri* (G. Engelmann) F. Sencke ex J.N. Haage var. *fasciculatus* (G. Engelmann ex B.D. Jackson) N.P. Taylor; *Echinocereus fendleri* (G. Engelmann) F. Sencke ex J.N. Haage var. *robustus* (R.H. Peebles) L.D. Benson; *Mammillaria fasciculata* G. Engelmann ex B.D. Jackson (possibly incorrectly applied). COMMON NAMES: Bundle Hedgehog; Bundle Hedgehog Cactus; Bundle-spine Hedgehog; Magenta-flower Hedgehog Cactus; Pinkflower Hedgehog Cactus (a name also applied to other species); Robust Hedgehog; Robust Hedgehog Cactus; Short-spine Strawberry Cactus; Strawberry Cactus (a name also applied to other species). DESCRIPTION: Terrestrial perennial stem-succulent shrub (ascending to erect stems 2 to 18 inches in height and 1½ to 3 inches in width; either single or in clusters of up to 30 stems; one plant was reported to have 150 stems); the stems are green or dark green; the spines often having zones of differing colors including black, gray, grayish-black-purplish, reddish-brown, whitish or yellowish turning gray with age; the flowers (2 to 3 inches in diameter) may be cerise, lavender-pink, pale magenta, magenta, magenta-maroon, magenta-pink, magenta-purple, magenta-red, pink, pink-purple, purple, reddish-purple, rose-pink or white; the anthers are yellow; the stigma lobes may be green, dark green or olive green; flowering generally takes place between late March and late June (additional records: one for early October, one for mid-October, one for late October, two for early November and one for early December); the mature fruits (¾ to 1¼ inches in length and ½ to 1 inch in diameter) may be orange-red or bright

red. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; bases of cliffs; canyons; canyonsides; buttes; knolls; ledges; ridges; along rocky and stony ridgetops; foothills; rocky, gravelly and sandy hills; rocky hilltops; rocky and sandy hillsides; rocky, stony and gravelly slopes; bajadas; rocky outcrops; amongst rocks and gravels; rocky and sandy banks; plains; gravelly flats; valley floors; along cobbly creeks; along and in washes, and floodplains growing in dry rocky, rocky-gravelly, stony, cobbly, gravelly and sandy ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Echinocereus fendleri*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The fruits are eaten by birds and other animals. *Echinocereus fasciculatus* is native to southwest-central and southern North America. *5, 6, 8, 12 (color photograph - recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*, Pages 132-135), 15 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*), **16** (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson), 27 (Page 81; color photograph: Plate 50, Page 104), 43 (101510 - *Echinocereus fendleri* var. *fasciculatus* (Engelm. ex B.D. Jacks.) N.P. Taylor, *Echinocereus fendleri* var. *robustus* (Peebles) L.D. Benson), 44 (070512 - no record of species; genus record), 45 (color photograph), 46 (recorded as *Echinocereus fendleri* (Engelm.) Rümpler var. *robustus* (Peebles) L. Benson, Page 572 and *Echinocereus fendleri* (Engelm.) Rümpler var. *robustus* (Peebles) L. Benson, Page 572), 48 (genus), 58 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*), 63 (070512), 77 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson, color photograph #64), **85** (070512 - color presentation), 115 (color presentation), 119 (species, recorded as *Echinocereus fendleri* (Engelm.) Rümpler), 124 (070512 - no record of species; genus record), 127, 140 (Page 288 - recorded as *Echinocereus fendleri* (Engelmann) F. Seitz var. *fasciculatus* (Engelmann ex B.D. Jackson) N.P. Taylor)*

Echinocereus fasciculatus var. *fasciculatus* (see *Echinocereus fasciculatus*)

***Echinocereus fendleri* (G. Engelmann) F. Sencke ex J.N. Haage: Pinkflower Hedgehog Cactus**

COMMON NAMES: Fendler Cactus; Fendler Hedgehog Cactus; Fendler's Hedgehog Cactus; Fendler's Needle-spine Hedgehog; Pinkflower Hedgehog Cactus (a name also applied to other species); Strawberry Cactus (a name also applied to other species). DESCRIPTION: Terrestrial perennial stem-succulent shrub (decumbent, ascending to erect stems 1½ to 14 inches in height and 1½ to 4 inches in width either single or in clusters of up to 5 stems); the stems are dark green; the spines may be black, brown, pale gray or white aging to gray; the flowers (2 to 4 inches in diameter) may be lavender-pink, magenta, pink, pink-cerise, pink-lavender, pink-magenta, pink-purple, purple, purplish-maroon, rose magenta or rose-purple; the anthers are yellow; flowering generally takes place between early March and early July; the mature fruits (¾ to 1¼ inch in length and ½ to 1 inch in diameter) may be a dull carmine, orange-tan, purplish-maroon, purplish-orange, bright red, red or red-purple. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; rocky canyons; canyon walls; cobbly-sandy canyon bottoms; along bedrock and gravelly ridges; ridgetops; foothills; rocky and gravelly hills; rocky, gravelly and sandy hillsides; bases of hills; rocky, gravelly, gravelly-sandy and silty slopes; gravelly bajadas; rocky outcrops; sand hills; blow-sand; prairies; cindery, gravelly and gravelly-silty flats; along arroyos; ravines; springs; along banks of rivers; bottomlands, and cobbly-sandy floodplains growing in dry cryptogamic soils; rocky, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; sandy loam ground, and gravelly silty and silty ground, occurring from 1,800 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted that the dried fruits were used as a sweetener. *Echinocereus fendleri* is native to southwest-central and southern North America. *5, 6, 12 (Page 129-131), **16**, 27 (Page 79), 43 (012210 - *Echinocereus fendleri* Sencke ex Haage), 44 (070512 - no record of species; genus record), 45 (color photograph), 46 (Page 572), 48 (genus), 63 (070512 - color presentation), 85 (070612 - color presentation), **89** (reported as being a dwarf shrub located on Mesa-like Mountain Slopes), 119 (recorded as *Echinocereus fendleri* (Engelm.) Rümpler), 124 (070512 - no record of species; genus record), 127*

Echinocereus fendleri var. *fasciculatus* (see *Echinocereus fasciculatus*)

Echinocereus fendleri var. *robustus* (see *Echinocereus fasciculatus*)

***Ferocactus wislizeni* (G. Engelmann) N.L. Britton & J.N. Rose: Candy Barrelcactus**

SYNONYMY: *Echinocactus wislizeni* G. Engelmann. COMMON NAMES: Arizona Barrel Cactus; Arizona [Fish-hook, Candy] Barrel Cactus (English)[140]; Barrel Cactus (a name also applied to other species and the genus *Ferocactus*); Bisnaga, Biznaga; Biznaga [de Agua, Gigantesca, Hembra] ("[Water, Giant, Female] Barrel Cactus', Spanish)[140]; Biznaga de Agua (Spanish); Biznagre; Candy Barrel; Candy Barrel Cactus; Candy Barrelcactus; Chiávul (Uto-Aztecan: Akimel O'odham)[140]; Compass Barrel; Compass Plant; Fish-hook Barrel; Fishhook Barrel Cactus; Fishhook Cactus; Hisil <hísely> ("Cholla", Uto-Aztecan: Mountain Pima)[140]; Hosh Tsał <hosh chaal> (Athapascan: Western Apache)[140]; Hosh Sidáhí (Athapascan: Navajo)[140]; Ibávoli (Uto-Aztecan: Northern Tepehuan)[140]; Jiavul (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Jiavuli <jiawul, tciaur, tjedvoli> (Uto-Aztecan: Tohono O'odham)[140]; Kĭče'apïl (Uto-Aztecan: Tübatulabal)[140]; Miltát <milḍaḍ> (Yuman: Walapai)[140]; Miltót (Yuman: Maricopa)[140]; Multát (Yuman: Havasupai)[140]; Mul^{y}các (Yuman: Cocopa)[140]; Nookwi'a(pi) (Uto-Aztecan: Panamint)[140]; Ono'e (Uto-Aztecan: Yaqui)[140]; Siml <simlâa> ("True Barrel Cactus", Hokan: Seri)[140]; Southwest Barrel Cactus; Southwestern Barrel

Cactus; Táci (Uto-Aztecan: Southern Paiute)[140]; Te'íwe (Uto-Aztecan: Guarijío)[140]; Visnaga; Viznaga Hembra (Spanish); Wislizenus Barrel; Yellow-spined Barrel Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 8 inches to 11 feet [one record at 20 feet] in height and 8 to 40 inches in diameter); the stem is green or blue-gray-green; the central spines and larger radial spines are ashy gray, gray, dull pink, reddish or tan; the smaller radial spines are white; the flowers (1½ to 2½ inches in diameter) are orange, orange-yellow, orange-red, orange-yellow, parchment, pinkish-red, reddish, red-orange, yellow or yellow-orange; the stigma lobes are orange, red or yellow; flowering generally takes place between mid-July and mid-October (additional records: one for early January, three for early March, five for mid-March, two for late March, three for early April, one for mid-April, one for late April and two for early June); the mature fruits (1¼ to 2 inches in length and 1 to 1½ inches in diameter) are greenish-brown, yellow or yellow-green and may remain on the plant until the next flowering period. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky, gravelly and sandy canyons; canyon walls; rocky and sandy canyon bottoms; bluffs; foothills; bouldery, rocky, gravelly and sandy hills; hillsides; rocky, cobbly, gravelly and clayey-loamy slopes; rocky, gravelly and sandy alluvial fans; bajadas; rocky outcrops; plains; rocky, gravelly and sandy flats; valley floors; along roadsides; arroyos; sandy bottoms of arroyos; along washes; (rocky, gravelly and sandy) borders of washes; margins of washes; floodplains; mesquite bosques, and riparian areas growing in dry desert pavement; bouldery, rocky, cobbly, gravelly and sandy ground, and sandy-clayey loam and clayey loam ground, occurring from 200 to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a tool (the spines were heated and used to make fishing hooks). Fishhook Barrel Cacti are very slow to establish. A 4 year old plant may be no more than 1½ inches in height and 2 inches in width, and an 8 year old plant may be no more that 4¼ inches in height and 4¾ inches in width. The growth rate of propagated and cultivated barrel cacti may be much faster. The life-span of Fishhook Barrel Cactus has been reported to be from 50 to over 130 years of age. Some plants tend to lean to the south with age. Cristate forms have been reported. The Cactus Beetle (*Moneilema gigas*) feeds on this plant, the flowers are pollinated by Cactus Bees of the genus *Lithurge*; the fruits are eaten by Javelina (*Peccari tajacu*), Mule Deer (*Odocoileus hemionus*), Rock Squirrels (*Spermophilus variegatus*) and other animals, and the seeds are eaten by birds and rodents. *Ferocactus wislizeni* is native to southwest-central and southern North America. *5, 6, 12 (Pages 166-170; color photograph: Plate 5.5, Page 169), 15, **16**, 18, 26 (genus, color photograph of genus), 27 (Page 120; color photographs: Plates 60, 60A, 60B & 60C Pages 106), 28 (color photograph 125), 43 (063009 - *Ferocactus wislizeni* Britton & Rose), 44 (040111 - no record of species; genus record), 45 (color photograph), 46 (Page 573), 48 (genus), 58, 63 (070612 - color presentation), 77 (color photograph #10), 85 (070612 - color presentation, reduced recovery), **89** (reported as being a shrub located on Tumamoc Hill, recorded as *Echinocactus wislizeni* Engelm.), 91 (Pages 215-216), 106 (110110), 115 (color presentation), 119, 124 (040111 - no record of species or genus), 127, 135 (110110 - *Moneilema gigas*), 140 (Pages 103-105 & 288), **WTK** (August 12, 2005)*

Mammillaria fasciculata (see *Echinocereus fasciculatus* and/or *Mammillaria thornberi*)

***Mammillaria grahamii* G. Engelmann: Graham's Nipple Cactus**

SYNONYMY: *Cactus grahamii* (G. Engelmann) C.E. Kuntze; *Mammillaria grahamii* G. Engelmann var. *grahamii* G. Engelmann; *Mammillaria grahamii* G. Engelmann var. *oliviae* (C.R. Orcutt) L.D. Benson; *Mammillaria microcarpa* G. Engelmann; *Mammillaria milleri* (N.L. Britton & J.N. Rose) F. Boedeker; *Mammillaria oliviae* C.R. Orcutt; *Neomammillaria microcarpa* (G. Engelmann) N.L. Britton & J.N. Rose; *Neomammillaria milleri* N.L. Britton & J.N. Rose; *Neomammillaria oliviae* (C.R. Orcutt) N.L. Britton & J.N. Rose. COMMON NAMES: Arimo'o <urimo'o> (Uto-Aztecan: Onavas Pima)[140]; Arizona Fishhook (a name also applied to other species); Arizona Fishhook Cactus; Ba:ban Ha-'is:vig ("Coyotes' Hedgehog-cactus", Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Ba:ban Ha-i:swigĭ <bahban ha-ihswig, baaban ha-iiswikga> ("Coyotes' Hedgehog-cactus", Uto-Aztecan: Tohono O'odham)[140]; Ban Cekida ("Coyote Vaccination", Uto-Aztecan: Hiá Ceḍ O'odham and O'odham and Tohono O'odham)[140]; Ban Cepla (Uto-Aztecan: Tohono O'odham)[140]; Ban Cesani (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Ban Ha 'Iswig ("Coyotes' Hedgehog-cactus", Uto-Aztecan: Tohono O'odham)[140]; Ban Mauppa <baaban makuppa> ("Coyotes' Paws", Uto-Aztecan: Akimel O'odham)[140]; Ban Maupai ("Like Coyote Paws", Uto-Aztecan: Akimel O'odham)[140]; Biznaguita ("Little Barrel Cactus", Spanish: Sonora)[140]; Black-spined Pincushion; Cabeza de Viejo ("Old Man's Head", Spanish: Sonora)[140]; Cekida Cactus; Chi-kul Hu'i (Uto-Aztecan: Yaqui)[140]; Chicul Ónore (Uto-Aztecan: Mayo, Sonora)[140]; Chilitos de Viznaga ("Little Cactus Chiles", Spanish: San Luis Potosi)[140]; Choyita (Spanish: Sonora)[140]; Churrito (Spanish: Sonora)[140]; Corkseed Cactus; Fish-hook Cactus (a name also applied to other species); Fish-hook Cactus [Pincushion] (English: Arizona, Sonora)[140]; Fishhook Cactus; Fishhook Mammillaria (a name also applied to other species); Fishhook Pincushion (a name also applied to other species); Graham Fishhook; Graham Fishhook Cactus; Graham Nipple Cactus; Graham Nipple-cactus; Graham Pincushion Cactus; Graham's Fishhook; Graham's Fishhook Cactus; Graham's Fishhook Pincushion; Graham's Nipple Cactus (English)[140]; Graham's Nipple-cactus; Graham's Pincushion Cactus; Hant Iipzx Itéja ("Bladder of the Arroyo", Hokan: Seri)[140]; Hi-i:swigĭ; Híkuri (Uto-Aztecan: Tarahumara)[140]; Hue Tchurí <we'cúri, wehcúri> (Uto-Aztecan: Guarijío)[140]; Lizard Catcher; Miller's Fishhook Cactus; Miller's Fish-hook Cactus; Miller's Pincushion; Miller's Pincushion Cactus; Mu'tsa (for pincushions in general, Uto-Aztecan: Shoshoni)[140]; Nipple Cactus (a name also applied to other species and the genus *Mammillaria*); Noog^{w}iyav$\dot{+}$ (Uto-Aztecan: Kawaiisu)[140]; Olive Pincushion; Olive's Pincushion; Pin-cushion Cactus (a name also applied to other species); Pitahayita <pitaiaya, pitajaya, pitahaya> ("Little Cactus Fruit", (Spanish: Sonora)[140]; Strawberry Cactus (English)[140]; Sunset Cactus; ^{a}Tat (Yuman: Walapai)[140]; Tori Bichu (Uto-Aztecan: Mayo, Sonora)[140]; Tuur Soigai <tu'i shogi> (Uto-Aztecan:

Mountain Pima)[140]; Uvayu'u[s] (Uto-Aztecan: Southern Paiute)[140]; Xuebi (Athapascan: Chiricahua and Mescalero Apache)[140]. DESCRIPTION: Terrestrial perennial stem-succulent shrub (ascending to erect stems 1 to 12 inches in height and 1 to 3 inches in diameter; one plant was observed and described as being 1¼ inches in height and 1½ inches in width); the stems are gray-green or green; the central spines may be black, golden-brown, purplish-brown or reddish; the radial spines are whitish or whitish-yellow; the flowers (½ to 1½ inches in diameter) may be lavender, pink, pink with a darker mid-stripe, pink-lavender, rose-pink, rose-purple or white, the anthers are yellow; the stigma lobes are green to yellow-green; flowering generally takes place between mid-May and early August (additional records: flowering has also been described as taking place one week after heavy rains that occur between mid-March and late September); the mature club-shaped fruits (1/2 to 1 1/8 inches in length and 3/16 to 1/2 inch in diameter) are carmine, orange, orange-red, red, bright red, scarlet, yellow or yellowish (rarely). HABITAT: Within the range of this species it has been reported from rocky mountains; gravelly mesas; rocky canyons; rocky canyon walls; canyon bottoms; crevices in boulders and rocks; knobs; bedrock and cobbly ridges; rocky ridgetops; ridgelines; foothills; rocky and gravelly hills; rocky hillsides; bedrock, rocky and sandy slopes; bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders; protected clefts; plains; gravelly and sandy flats; valley floors; sandy arroyos; bottoms of arroyos; rocky ravines; streambeds; riverbeds; along and in bouldery and sandy washes; edges of streams; margins of arroyos; terraces; bottomlands; floodplains, and riparian areas growing in dry bouldery, rocky, cobbly, cindery-sandy, gravelly and sandy ground; gravelly loam ground; clay ground; silty ground, and humusy ground often in the shade of other plants, occurring from sea level to 5,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. Birds and rodents feed on the fruits. *Mammillaria grahamii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Mammillaria grahamii* Engelm., Pages 156 &159-161, *Mammillaria grahamii* Engelm. var. *grahamii*, Pages 159-160, *Mammillaria grahamii* Engelm. var. *oliviae* (Orcutt) L. Benson, Pages 160-161 and *Mammillaria microcarpa* Engelm., Pages 152-153 &156; color photographs: Plate 4.8, Page 156), 15 (recorded as *Mammillaria grahamii* Engelm. var. *grahamii*, *Mammillaria grahamii* Engelm. var. *oliviae* (Orcutt) L. Benson and *Mammillaria microcarpa* Engelm.), 16 (recorded as *Mammillaria microcarpa* Engelm.), 18 (genus), 27 (recorded as *Mammillaria grahamii*, Page 172, *Mammillaria grahamii* Engelmann var. *oliviae* (Orcutt) L. Benson, Page 173 and as *Mammillaria microcarpa* Engelmann, Page 179; color photographs: Plate 94, Page 113, Plate 95, Page 113 and Plate 99, Page 114), 28 (recorded as *Mammillaria microcarpa*, color photograph 126), 43 (071212), 44 (112910), 45 (color photograph), 46 (recorded as *Mammillaria microcarpa* Engelm., Page 578 and as *Mammillaria oliviae* Orcutt, Page 578), 48 (genus), 58 (recorded as *Mammillaria microcarpa* Engelm.), 63 (070712 - color presentation), 77 (color photograph #11), 85 (070712 - color presentation, reduced recovery), 86 (recorded as *Mammillaria microcarpa*, color photograph), **89** (reported as being a dwarf shrub located on Tumamoc Hill, recorded as *Cactus grahamii* (Engelm.) Kuntze), 115 (color presentation), 119 (recorded as *Neomammillaria microcarpa* (Engelm.) B. & R., *Neomammillaria milleri* B. & R.), 124 (062311 - no record of species; genus record), 127, 140 (Pages 106-107 & 288 - recorded as *Mammillaria grahamii* Engelmann var. *grahamii*), **WTK** (August 12, 2005)*

Mammillaria grahamii var. *grahamii* (see *Mammillaria grahamii*)

Mammillaria grahamii var. *oliviae* (see *Mammillaria grahamii*)

Mammillaria microcarpa (see *Mammillaria grahamii*)

Mammillaria milleri (see *Mammillaria grahamii*)

Mammillaria oliviae (see *Mammillaria grahamii*)

Neomammillaria microcarpa (see *Mammillaria grahamii*)

Neomammillaria milleri (see *Mammillaria grahamii*)

Neomammillaria oliviae (see *Mammillaria grahamii*)

Opuntia acanthocarpa var. *major* (see *Cylindropuntia acanthocarpa* var. *major*)

Opuntia acanthocarpa var. *ramosa* (see *Cylindropuntia acanthocarpa* var. *major*)

Opuntia arbuscula (see *Cylindropuntia arbuscula*)

Opuntia arizonica (see *Opuntia phaeacantha*)

Opuntia blackeana (see footnote 89 under *Opuntia phaeacantha*)

Opuntia discata (see *Opuntia engelmannii* var. *engelmannii*)

***Opuntia engelmannii* J.F. Salm-Reifferscheid-Dyck ex G. Engelmann: Cactus Apple**

COMMON NAMES: Á'láv[a] <alav> (Yuman: Walapai)[140]; Abrojo; Ai'gwobi (Uto-Aztecan: Shoshoni)[140]; Ăláva (Yuman: Havasupai)[140]; Cacanapo (Spanish: for var. *lindheimeri*); Cactus Apple; Cactus-apple; Cow-tongue Cactus (var. *linguiformis*); Cowtongue Cactus (var. *linguiformis*); Cow-tongue Prickly-pear (var. *linguiformis*); Cowtongue Prickly-pear (var. *linguiformis*); Coyonoxtle <joconostle> (Spanish: Náhuatl)[140]; Cuija (Spanish)[140]; Desert Prickly-pear; Desert Pricklypear; Desert Pricklypear Cactus; Discus Prickly Pear; Discus Prickly-pear; Ekupittsi (Uto-Aztecan: Panamint)[140]; Engelmann Prickly Pear; Engelmann Prickly Pear Cactus; Engelmann Prickly-pear; Engelmann Pricklypear; Engelmann's Prickly Pear; Engelmann's Prickly Pear Cactus; Engelmann's Prickly-pear; Engelmann's Prickly-pear Cactus; Engelmann's Pricklypear; Few-spine Marble-fruit Prickly-pear; Flaming Pricklypear; Gołtcide <gułtcide> (Athapascan: Chiricahua and Mescalero Apache)[140]; Heel Hayéen Ipáii ("Prickly-pear Used for Face Painting", Hokan: Seri)[140]; Hosh Nteelí <h^{w}os> (Athapascan: Navajo)[140]; Hosh Nteelí [ts'osé] (Athapascan: Western Apache)[140]; Huichacame <huichanabo> (Spanish: Sonora)[140]; I:bai <Ibai> (Uto-Aztecan: Onavas Pima)[140]; 'I:bhai <iibhai> ("Fruit", Uto-Aztecan: Akimel O'odham and Hiá Ceḍ O'odham)[140]; I:bhai ("Fruit", Uto-Aztecan: Tohono O'odham)[140]; Ila' (Uto-Aztecan: Guarijío)[140]; Indian Fig; Irá [Ira-ka, Rihuirí] (Uto-Aztecan: Tarahumara)[140]; Ïyal <i'yal> (Uto-Aztecan: Tübatulabal)[140]; Joconostle; Kal Yap (Yuman: Maricopa)[140]; Klein Rondeblaarturksvy (Afrikaans: for var. *lindheimeri*); Lindheimer Prickly-pear (var. *lindheimeri*); Naavo (Uto-Aztecan: Yaqui)[140]; Náavut (Uto-Aztecan: Luiseño)[140]; Nabo <nacoó> (Uto-Aztecan: Cahita)[140]; Nabu (Uto-Aztecan: Northern Paiute)[140]; Napó (Uto-Aztecan: Tarahumara)[140]; Nav (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Nava (Uto-Aztecan: Mountain Pima)[140]; Navet <náve-t, navit> (Uto-Aztecan: Cahuilla)[140]; Navĭ <naf, naw, nohwi> ("the Plant", Uto-Aztecan: Akimel O'odham and Tohono O'odham)[140]; Návoi (Uto-Aztecan: Northern Tepehuan)[140]; Návu ("the Plant", Uto-Aztecan: Hopi)[140]; Navú-c (Uto-Aztecan - Eudeve)[140]; Návūt (Uto-Aztecan: Cupeño, Luiseño)[140]; Nopal (Mexico: Sonora); Nopal [Cuixo] ("[Lizard] Prickly-pear", Spanish: Sonora)[140]; Nopal de Engelmann; Nopal Prickly-pear (var. *lindheimeri*); Prickly Pear (a name also applied to the species, to other species and to the genus *Opuntia*); Prickly Pear Cactus (a name also applied to other species and the genus *Opuntia*); Prickly-pear (a name also applied to other species and the genus *Opuntia*); Prickly-pear (English)[140]; Prickly-pear Cactus; Pricklypear (a name also applied to other species and the genus *Opuntia*); Sae (Kiowa Tanoan: Tewa)[140]; Small Round-leaf Prickly-pear (var. *lindheimeri*); Tach Pa (Yuman: Yuma)[140]; Texas Prickly-pear (var. *lindheimeri*); Tuna; Tuna [Cuija] ("[Lizard] Prickly-pear", Spanish: Sonora)[140]; Vela de Coyote ("Coyote's Candle", Spanish)[140]; Xpa: (Yuman: Cocopa)[140]; Xté (Yuman: Paipai)[140]; Yöngö <yüñü, yɜ́:ngu> ("the Fruit", Uto-Aztecan: Hopi)[140]. DESCRIPTION: Terrestrial perennial stem-succulent shrub (forms clumps with ascending and/or decumbent stems 1 to 8 feet in height and 40 inches to 10 feet or more in width, one plant was reported as being 12 inches in height and 55 inches in width; plants were observed and described as being 40 inches in height and width, one plant was observed and described as being 40 inches in height and 6½ feet in width, one plant was observed and described as being 4 feet in height and 6 feet in width); the paddle-shaped stems (6 to 16 inches in length and 4 to 12 inches in width, except in var. *linguiformis* where the stems are 6 inches to 4 feet in length and 4 to 16 inches in width) are blue-gray, blue-green, green, dark green or yellow-green; the spines are dark brown, brown-red, rust, white with red tips, yellow or pale yellow-brown aging to gray; the glochids are light brown, golden, red-brown, reddish or yellow aging to blackish or gray; the flowers (2¼ to 3½ in diameter) may be lemon-yellow, pink, pink-red, red-magenta, red-pink, reddish-rose, rose-red, salmon, whitish, yellow or yellow-orange turning to orange, orange-yellow or pink-orange with age; the anthers may be cream, whitish or yellow; the stigma lobes may be green, lime green or yellow-green; flowering generally takes place between early March and late June with the individual flowers lasting one or two days (additional records: two for mid-February, one for mid-July, one for mid-August, one for late August, one for early September, two for mid-September, one for late October and one for late December); the mature fruits (also known as tunas are 1½ to 3½ in length and ¾ to 1½ inches in diameter) are maroon, purple, dark red, red-maroon, red-purple or wine-red. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mountainsides; rocky mesas; bedrock, bouldery and rocky mesas; rocky canyons; rocky canyon bottoms; talus slopes; rocky ledges; bedrock ridges; rocky ridgetops; ridgelines; foothills; rocky and rocky-sandy-loamy hills; bouldery, rocky and gravelly hillsides; bases of hills; bouldery, rocky, gravelly-sandy and sandy slopes; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; lava beds; rocky, gravelly and sandy flats; rocky valleys; along roadsides; along gravelly-humusy arroyos; gullies; along streams; along streambeds; along creeks; creekbeds; riverbeds; along washes; along and in drainage ways; ciénegas; banks of creeks and rivers; borders of washes; beaches; benches; shelves; terraces; loamy bottomlands; sandy floodplains; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam and loam ground; silty ground, and gravelly humus ground, occurring from sea level to 7,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, cooking agent or paint crop; it was also noted as having been used as a tool, as a lubricant (var. *engelmannii*) and as a drug or medication. This plant provides cover for many desert animals. *Opuntia engelmannii* is native to south-central and southern North America. *5, 6, 26, 28 (color photograph 135 A&B, 43 (063009), 44 (121210), 45 (color photograph), 46 (Page 583), 48 (genus), 63 (070712 - color presentation), 77, **85** (071112 - color presentation, reduced recovery), 91 (recorded *Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington together with *Opuntia phaeacantha* var. *major* Engelmann, "Both species are sympatric throughout much of their range and often can be found together.", Pages 291-293), 115 (color presentation), 119, 124 (110210), 127, 140 (Pages 105-106 & 288 - reported as *Opuntia engelmannii* Salm-Dyck [*Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington])*

***Opuntia engelmannii* J.F. Salm-Reifferscheid-Dyck ex G. Engelmann var. *engelmannii*: Cactus Apple**

SYNONYMY: *Opuntia discata* D. Griffiths; *Opuntia phaeacantha* G. Engelmann var. *discata* (D. Griffiths) L.D. Benson & D.L. Walkington. COMMON NAMES: Á'láv[a] <alav> (Yuman: Walapai)[140]; Abrojo; Ai'gwobi (Uto-Aztecan: Shoshoni)[140]; Ăláva (Yuman: Havasupai)[140]; Cactus Apple (a name also applied to the species and to other species); Cactus-apple (a name also applied to the species and to other species); Coyonoxtle <joconostle> (Spanish: Náhuatl)[140]; Cuija (Spanish)[140]; Desert Pricklypear Cactus (a name also applied to the species and to other species); Discus Prickly Pear; Ekupittsi (Uto-Aztecan: Panamint)[140]; Engelmann Prickly Pear; Engelmann Prickly Pear Cactus; Engelmann Prickly-pear; Engelmann Pricklypear; Engelmann's Prickly Pear; Engelmann's Prickly Pear Cactus; Engelmann's Prickly-pear; Engelmann's Prickly-pear Cactus; Engelmann's Pricklypear; Flaming Prickly-pear; Gołtcide <gułtcide> (Athapascan: Chiricahua and Mescalero Apache)[140]; Heel Hayéen Ipáii ("Prickly-pear Used for Face Painting", Hokan: Seri)[140]; Hosh Nteelí <h^{w}os> (Athapascan: Navajo)[140]; Hosh Nteelí [ts'osé] (Athapascan: Western Apache)[140]; Huichacame <huichanabo> (Spanish: Sonora)[140]; I:bai <Ibai> (Uto-Aztecan: Onavas Pima)[140]; 'I:bhai <iibhai> ("Fruit", Uto-Aztecan: Akimel O'odham and Hiá Ceḍ O'odham)[140]; I:bhai ("Fruit", Uto-Aztecan: Tohono O'odham)[140]; Ila' (Uto-Aztecan: Guarijío)[140]; Irá [Ira-ka, Rihuirí] (Uto-Aztecan: Tarahumara)[140]; Ĭyal <i'yal> (Uto-Aztecan: Tübatulabal)[140]; Joconostle; Kal Yap (Yuman: Maricopa)[140]; Naavo (Uto-Aztecan: Yaqui)[140]; Náavut (Uto-Aztecan: Luiseño)[140]; Nabo <nacoó> (Uto-Aztecan: Cahita)[140]; Nabu (Uto-Aztecan: Northern Paiute)[140]; Napó (Uto-Aztecan: Tarahumara)[140]; Nav (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Nava (Uto-Aztecan: Mountain Pima)[140]; Navet <náve-t, navit> (Uto-Aztecan: Cahuilla)[140]; Navĭ <naf, naw, nohwi> ("the Plant", Uto-Aztecan: Akimel O'odham and Tohono O'odham)[140]; Návoi (Uto-Aztecan: Northern Tepehuan)[140]; Návu ("the Plant", Uto-Aztecan: Hopi)[140]; Navú-c (Uto-Aztecan - Eudeve)[140]; Návūt (Uto-Aztecan: Cupeño, Luiseño)[140]; Nopal [Cuixo] ("[Lizard] Prickly-pear", Spanish: Sonora)[140]; Nopal de Engelmann; Prickly Pear (a name also applied to this species, to other species and to the genus *Opuntia*); Prickly Pear Cactus (a name also applied to the species, to other species and to the genus *Opuntia*); Prickly-pear (a name also applied to the species, to other species and to the genus *Opuntia*); Prickly-pear (English)[140]; Pricklypear (a name also applied to the species, to other species and to the genus *Opuntia*); Sae (Kiowa Tanoan: Tewa)[140]; Tach Pa (Yuman: Yuma)[140]; Tuna [Cuija] ("[Lizard] Prickly-pear", Spanish: Sonora)[140]; Vela de Coyote ("Coyote's Candle", Spanish)[140]; Xpa: (Yuman: Cocopa)[140]; Xté (Yuman: Paipai)[140]; Yöngö <yüñü, yɜ́:ngu> ("the Fruit", Uto-Aztecan: Hopi)[140]. DESCRIPTION: Terrestrial perennial stem-succulent shrub (forms clumps with ascending and/or decumbent stems 20 inches to 8 feet in height and 20 inches to 10 feet or more in width; one plant was observed and described as being 20 inches in height and 8¼ feet in width, one plant was observed and described as being 3 feet in height and 4½ feet in width, one plant was observed and described as being 3 feet in height and 6 to 12 feet in width, one plant was observed and described as being 3 feet in height and 8 feet in width, one plant was observed and described as being 40 inches in height and 79 inches in width, one plant was observed and described as being 40 inches in height and 10 feet in width); the paddle-shaped stems (8 to 16 inches in length and 6½ to 12 inches in width) may be bluish-green, gray-green, green, dark green or yellow-green; the spines may be brown-red, chalky-white, pale straw or pale yellow-brown usually with red or red-brown bases aging to black or gray; the glochids are reddish or yellow; the flowers (2¼ to 3½ in diameter) may be lemon-yellow, pink, pink-red, red-pink, rose-red, salmon, tannish-yellow, yellow, light yellow-orange, yellow-orange or yellow-peach turning to orange, orange-yellow or pink-orange with age; the anthers are yellow; the stigma lobes are lime green; flowering generally takes place between mid-March and mid-July (additional records: one for early January, two for mid-February, two for mid-August, one for early September, six for mid-September, four for early October and one for late December); the mature fruits (also known as tunas are 2½ to 3¼ in length and 1¼ inches in diameter) are magenta-rose, purple, red or reddish-purple. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mountainsides; bedrock mesas; edges of cliffs; canyons; canyon bottoms; talus slopes; ledges; ridges; rocky ridgetops; rocky hills; bouldery, rocky and gravelly hillsides; bouldery, rocky, rocky-gravelly and sandy slopes; bajadas; rocky outcrops; amongst boulders and rocks; lava beds; breaks; steppes; plains; rocky, gravelly and sandy and silty flats; basins; valley floors; along roadsides; along and in gravelly and gravelly-humusy arroyos; gullies; along streams; along creeks; creekbeds; along and in washes; along and in rocky-sandy and gravelly-sandy drainages; banks of rivers; beaches; benches; shelves; terraces; sandy floodplains; amongst mesquites; ditches, and gravelly-sandy and sandy riparian areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam ground; clay ground; silty ground, and gravelly humusy ground, occurring from 100 to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Opuntia engelmannii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, cooking agent or paint crop; it was also noted as having been used as a tool, as a lubricant (var. *engelmannii*) and as a drug or medication. The flowers open around 8 AM and remaining open for one or two days, and may live to be 30 or more years of age. The juicy fruits (tunas) with edible pulp are fed on by many browsing animals, including Black Bear (*Ursus americanus amblyceps*), Coyote (*Canis latrans mearnsi*), Javelina (*Peccari tajacu sonoriensis*) and Desert Tortoise (*Gopherus agassizi*) among others, and birds. The plant provides cover for many desert animals. *Opuntia engelmannii* var. *engelmannii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) Benson & Walkington "This is the largest and, in especially southern Arizona, one of the best-known native prickly pears of the Southwestern Deserts of the United States. It is variable in habit of growth, shape and size of joints, and size and distribution of spines. It is almost always found growing with var. *major*, which has longer brown spines restricted largely to the upper part of the narrower joint. Almost everywhere there are intergrading forms with many character recombinations. Var. *discata* is rarely stable but apparently a fringe-population extreme tied in closely with the more abundant and wide-ranging var. *major*.", Pages 99 & 101-103; color photograph: Plate 1.74, Page 102), 15 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) Benson & Walkington), **16** (recorded as *Opuntia phaeacantha* Engelmann var.

discata (Griffiths) L. Benson - "Rocky slopes and gravelly flats; common; intergrading with *O. p.* var. *major*."), 26 (species), 27 (recorded as *Opuntia phaeacantha* Engelmann var. *discata* (Griffiths) L. Benson, Pages 53 & 99-100; color photographs: Plates 30 & 30A, Pages 99 & 100), 28 (recorded as *Opuntia phaeacantha* var. *discata*, color photograph 135 A&B), 43 (063009), 44 (062311), 45 (species, color photograph), 46 (species, Page 583), 48 (genus), 58 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) Benson & Walk.), 63 (070812 - color presentation), 77 (recorded as *Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington, color photograph #14 labeled as *Opuntia phaeacantha*), **85** (071112 - color presentation, reduced recovery), **89** (reported as being a shrub located on Tumamoc Hill, recorded as *Opuntia discata* Griffiths), 91 (recorded together with *Opuntia engelmannii* Salm-Dyck. *Opuntia phaeacantha* var. *discata* (Griffiths) L.D. Benson & Walkington / *Opuntia phaeacantha* var. *major* Engelmann: "Both species are sympatric throughout much of their range and often can be found together.", Pages 291-293), 115 (color presentation of the species), 119 (recorded as *Opuntia discata* Griffiths), 124 (062311 - no record of variety; genus and species record), 127 (variety *engelmannii* and species), 140 (Pages 105-106 & 288 - reported as *Opuntia engelmannii* Salm-Dyck [*Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington]), **WTK** (August 12, 2005)*

***Opuntia engelmannii* J.F. Salm-Reifferscheid-Dyck ex G. Engelmann var. *linguiformis* (D. Griffiths) B.D. Parfitt & D.J. Pinkava: Cactus Apple**

SYNONYMY: *Opuntia lindheimeri* G. Engelmann var. *linguiformis* (D. Griffiths) L.D. Benson. COMMON NAMES: Cactus Apple (a name also applied to the species and to other species); Cow Tongue Prickly Pear; Cow's Tongue; Cow's Tongue Prickly Pear; Cow's Tongue Pricklypear; Cow's-tongue Prickly-pear; Cow's-tongue Pricklypear; Cowtongue Cactus; Cowtongue Prickly-pear; Lengua de Vaca; Prickly Pear (a name also applied to the species, to other species and to the genus *Opuntia*). DESCRIPTION: Terrestrial perennial stem-succulent shrub (stems 4 to 10 feet in height and 4 to 8 feet in width); the paddle-shaped stems (6 inches to 4 feet in length and 4 to 16 inches in width) are light green; the spines are yellow aging or blackish; the glochids are yellow to dark brown; the stigma lobes are light green; the flowers (3 to 4 inches in diameter) are yellow; flowering generally takes place between April and mid-May; the mature fruits are purple or red. HABITAT: Within the range of this species it has been reported from hillsides; slopes; bajadas; gravelly flats; along washes, and floodplains growing in dry gravelly ground, occurring from 300 to 3,300 feet in elevation in the scrub and desertscrub ecological formations. NOTES: EXOTIC Invasive Plant. The species, *Opuntia engelmannii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, cooking agent or paint crop; it was also noted as having been used as a tool, as a lubricant (var. *engelmannii*) and as a drug or medication. *Opuntia engelmannii* var. *linguiformis* is native to southwest-central North America. *5, 6, **16** (recorded as *Opuntia lindheimeri* Engelm. var. *linguiformis* (Griffiths) L. Benson), 26 (species), 43 (070109), 44 (062311 - no record of variety; genus and species records), 45 (species, color photograph), 46 (species, Page 583), 48 (genus), 63 (070812), 77 (recorded as *Opuntia lindheimeri* Engelm. var. *linguiformis* (Griffiths) L. Benson), **85** (071112 - color presentation), 124 (062311 - no record of variety; genus and species records), 127 (species), **WTK** (October 28, 2009)*

***Opuntia ficus-indica* (C. Linnaeus) P. Miller: Barbary Fig**

SYNONYMY: *Opuntia opuntia* (C. Linnaeus) G.K. Karsten. COMMON NAMES: Barbary Fig; Barbary Fig Cactus; Barbary Fig Prickly Pear; Barbary Fig Prickly-pear; Barbary Fig Pricklypear; Barbary-fig; Barbary-fig Cactus; Boereturksvy (Afrikaans); Burbank Prickly Pear; Burbank's Spineless; Cactus Pear; Chumba (Spanish); Chumbera (Spanish); Common Tuna; Common Tuna Cactus; Feigenkaktus (German); Figo-da-Espanha (Portuguese); Figo-da-Índia (Portuguese); Figueira-da-Barbária (Portuguese); Figuier d'Inde (French); Figuier de Barbarie (French); Fikonkaktus (Swedish); Grootdoringturksvy (Afrikaans); Higuera (Spanish); Indian Fig (a name also applied to the genus *Opuntia*); Indian-fig; Indian-fig Prickly-pear; Indian-fig Pricklypear; Jamaracá (Portuguese); Jurumbeba (Portuguese); Mission Cactus; Mission Prickly Pear; Mission Prickly-pear; Mission Pricklypear; Mission Tuna; Mission Tuna Cactus; Mission-fig Cactus; Nopal (a name also applied to the genus *Opuntia*); Nopal de Castilla (Spanish); Nopal Pelón (Spanish); Nopal Prickly-pear; Nopal Tuna; Nopales Cactus; Nopales Prickly Pear; Orelha-de-onka (Portuguese); Palma-de-gado (Portuguese); Palma-gigante (Portuguese); Prickly Pear (a name also applied to the species, to other species and to the genus *Opuntia*); Prickly-pear (a name also applied to the species, to other species and to the genus *Opuntia*); Rancheria Prickly Pear; Rancheria Prickly-pear; Spineless Cactus; Smooth Mountain Prickly Pear; Smooth Mountain Prickly-pear; Smooth Mountain Pricklypear; Smooth Prickly-pear (a name also applied to other species); Spineless Cactus (a name also applied to other species); Spiny Pest Pear (a name also applied to other species); Sweet Prickly-pear (a name also applied to other species); Sweet Pricklypear (a name also applied to other species); Tuberous Prickly-pear (a name also applied to other species); Tuna (Spanish); Tuna Blanca (Hispanic); Tuna Cactus (a name also applied to other species); Tuna de Campo (Hispanic); Tuna de Castilla (Spanish); Tuna Fina (Hispanic); Tuna Mansa (Spanish). DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 6 to 23 feet in height and to 10 feet in width); the paddle-shaped stems (8 to 24 inches in length and 6 to 16 inches in width) may be gray-green or green; the spines if present are brown, tan or whitish; the glochids are yellowish aging brown; the flowers (¾ to 2 inches in diameter) are orange or yellow fading to salmon; the anthers may be cream-yellow or yellow; the stigma lobes are light yellow or yellow; flowering generally takes place in April (flowering records: one for early June); the mature fruits (also known as tunas are 2 to 4 inches in length and 1½ to 3½ inches in diameter) may be orange, purple, red, reddish or yellow. HABITAT: Within range reported from mountains; canyons; canyon bottoms; slopes; bajadas; gravelly flats; uplands; coastal plains; coastal beaches; along roadsides; along washes; floodplains; riparian areas, and disturbed areas growing in dry gravelly and sandy ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub and desertscrub ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been

utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The young stem segments are called nopalitos. This plant was probably created by native peoples through the selection of spineless forms of *Opuntia streptacantha* to facilitate the collection and culturing of the cochineal scale insect (Flora of North America). *Opuntia ficus-indica* is native to southern North America. *5, 6, 12 (note), **16**, 18, 26 (color photograph), 30, 43 (012310 - *Opuntia opuntia* H. Karsten), 44 (071112 - color photograph), 48 (genus - *Opuntia*), **56**, **57**, 63 (071112 - color presentation), 85 (071112 - color presentation), 115 (color presentation), 124 (071112 - no record of species, genus record), 127*

Opuntia fulgida (see *Cylindropuntia fulgida* var. *fulgida*)

Opuntia fulgida var. *fulgida* (see *Cylindropuntia fulgida* var. *fulgida*)

Opuntia fulgida var. *mamillata* (see *Cylindropuntia fulgida* var. *mamillata*)

Opuntia fulgida var. *mamillata* forma *monstrosa* (see NOTES under *Cylindropuntia fulgida* var. *mamillata*)

Opuntia gilvescens (see *Opuntia phaeacantha*)

Opuntia kleiniae var. *tetracantha* (see *Cylindropuntia* x *tetracantha*)

Opuntia leptocaulis (see *Cylindropuntia leptocaulis*)

Opuntia lindheimeri var. *linguiformis* (see *Opuntia engelmannii* var. *linguiformis*)

Opuntia mamillata (see *Cylindropuntia fulgida* var. *mamillata*)

***Opuntia microdasys* (J.G. Lehmann) L.K. Pfeiffer: Angel's-wings**

COMMON NAMES: Angel's-wings (a name also applied to other species); Bunny Cactus (a name also applied to other species); Bunny Ear Prickly Pear; Bunny Ears; Bunny Ears Pricklypear; Bunny-ear Prickly Pear; Bunny-ear Prickly-pear; Bunny-ears Cactus; Bunny-ears Prickly-pear; Bunny-ears Pricklypear; Bunnyears Cactus; Cegador (Spanish); Golden-bristle; Goldplush; Guldopuntia (Swedish); Nopal Cegador (Spanish); Nopalillo Cegador (Spanish); Polka Dot Cactus; Polka-dot Cactus; Prickly Pear (a name also applied to other species and the genus *Opuntia*); Rabbit Ears (a name also applied to other species); Rabbit Ears Prickly Pear. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect sprawling stems 12 to 40 inches in height and 4 to 5 feet in width); the paddle-shaped stems (2 to 6 inches in length and 1¼ to 4 inches in width) are light green or green; the glochids may be brown, golden-yellow, reddish-brown, white, whitish or yellow; the flowers (1 to 1¼ inches in width) are bright yellow aging to peach or pinkish-salmon; the anthers are yellowish; the stigma lobes are green or dark green; flowering generally takes place between late April and early June (additional records: one for late June and one for early October); the ripe fruits may be green or red. HABITAT: Within range reported from mountains; rocky canyon bottoms; bouldery-rocky hills; slopes; bajadas; amongst boulders and rocks; flats; uplands; along and in rocky-sandy washes; banks of washes; benches, and floodplains growing in dry bouldery, bouldery-rocky, rocky, rocky-sandy and sandy ground and loam ground, occurring from 800 to 6,900 feet in elevation in the scrub and desertscrub ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to native habitat. *Opuntia microdasys* is native to southern North America. *5, 6, 18, 26 (color photograph), 43 (012310), 44 (062411), 48 (genus - *Opuntia*), **56**, **57**, 63 (071112 - recorded as *Opuntia microdasys* (Lehm.) N.E. Pfeiffer, color presentation), **77**, **85** (071112 - color presentation of dried material), 106 (102308), 124 (062411 - no record of species; genus record)*

Opuntia opuntia (see *Opuntia ficus-indica*)

***Opuntia phaeacantha* G. Engelmann: Tulip Pricklypear**

SYNONYMY: *Opuntia arizonica* D. Griffiths; *Opuntia gilvescens* D. Griffiths; *Opuntia phaeacantha* G. Engelmann var. *major* G. Engelmann; *Opuntia phaeacantha* G. Engelmann var. *phaeacantha*; *Opuntia phaeacantha* G. Engelmann var. *superbospina* (D. Griffith) L.D. Benson. COMMON NAMES: Abrojo; Berry Prickly Pear; Berry Prickly Pear Cactus; Berry Pricklypear; Blåopuntia (Swedish); Brown Spine Prickly-pear Cactus; Brown Spined Prickly Pear; Brown Spined Prickly Pear Cactus; Brown-spine Prickly-pear; Brown-spine Prickly-pear Cactus; Brown-spine Pricklypear; Brown-spined Prickly Pear; Brown-spined Prickly Pear Cactus; Brown-spined Prickly-pear; Brown-spined Pricklypear; Brownspine Prickly Pear; Brownspine Prickly-pear; Brownspine Pricklypear; Brownspined Prickly Pear; Brownspined Prickly-pear; Brownspined Pricklypear; Dense-spine Prickly-pear; Densely Spined Prickly Pear; Desert Prickly-pear (a name also applied to other species); Figuier de Barbarie à Fruits Violets (French); Great Pricklypear; Great Pricklypear Cactus; Joconostle; Major Prickly Pear, Major Prickly-pear; Major Pricklypear; Major Pricklypear Cactus; Mojave Prickly-pear (a name also applied to other species); Mojave Pricklypear (a name also applied to other species); Mojave Tuna; New Mexico Prickly-pear (a name also applied to other species); Nopal (a name also applied to other species and the genus *Opuntia*, Spanish); Nopal Pardo; Plains Pricky-pear[140]; Prickly Pear (a name also applied to other species and the genus *Opuntia*); Prickly-pear (a name also applied to other species and the genus *Opuntia*); Pricklypear (a name also applied to other species and the genus *Opuntia*); Purple-fruit Prickly-pear (a name

also applied to other species); Sprawling Prickly Pear (a name also applied to other species); Tulip Prickly Pear; Tulip Prickly Pear Cactus; Tulip Prickly-pear; Tulip Pricklypear; Vela de Coyote; Yellow Pricklypear; Yellow-spine Prickly-pear (a name also applied to other species). DESCRIPTION: Terrestrial perennial stem-succulent shrub (trailing and/or decumbent stems 10 inches to 7 feet in height and 3 to 10 feet in width sometimes forming clumps up to 75 feet in width; one plant was observed and described as being 10 inches in height and 40 inches in width, one plant was observed and described as being 1 foot in height and 3 feet in width, one plant was observed and described as being 14 inches in height and 52 inches in width, plants were observed and described as being 16 inches in height and 40 inches in width, one plant was observed and described as being 16 inches in height and 48 inches in width, one plant was observed and described as being 16 inches in height and 60 inches in width, one plant was observed and described as being 18 inches in height and 8 to 10 feet in width, one plant was observed and described as being 20 inches in height and 13 feet in width, one plant was observed and described as being 2 feet in height and 5 to 6 feet in width, one plant was observed and described as being 30 inches in height and 5 feet in width, plants were observed and described as being 3 feet in height and 4 to 10 feet in width); may develop a trunk; the paddle-shaped stems (4 to 10 inches in length and 3 to 8 inches in width) may be bluish-green, gray-brown, gray-green, green, dark green, dull green, greenish-yellow, purple, reddish or yellow-gray-green; the spines may be blackish, brown, charcoal, gray, reddish, red-brown, white or yellow; the glochids may be golden, red-brown, reddish-brown or tan; the flowers (1½ to 3 inches in diameter) may be golden-apricot (with yellow-green mid-stripes), orange, orange-yellow, pink, pink-purple, red, red-pink, pale yellow, yellow (with an orange or red center or brown, greenish, greenish-brown or red mid-stripes) or yellow-orange aging to red-orange; the anthers are yellow; the stigma lobes are green to yellow-green; flowering generally takes place between mid-March to late July (additional records: one for early January, one for late January, one for early February, three for mid-August, two for late August, one for late September and one for early October); the mature pear-shaped fruits (1¼ to 3½ inches in length and 1 to 1¼ inches in width) may be maroon, purple, purple-red, red, dark red, red-brown or wine-red. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; cliffs; bases of cliffs; rocky canyons; bedrock canyon rims; rocky and sandy-silty canyon bottoms; rocky rincons; talus slopes; bluffs; rocky-gravelly-sandy buttes; knolls; rocky ledges; bedrock ridges; rocky and sandy-loamy ridgetops; meadows; foothills; rocky and gravelly hills; cobbly and sandy hilltops; bouldery, rocky, gravelly and gravelly-sandy-loamy hillsides; bedrock, bouldery, rocky, rocky-gravelly, gravelly, gravelly-clayey, sandy, sandy-loamy and silty slopes; gravelly bajadas; rocky outcrops, amongst rocks; on boulders and rocks; lava beds; blow-sand; prairies; plains; sandy llanos; plains; rocky, shaley, cindery and sandy flats; sandy uplands; valley floors; along sandy roadsides; within rocky and sandy arroyos; bottoms of arroyos; draws; springs; sandy streambeds; along creeks; along creekbeds; along and in sandy riverbeds; along and in bedrock-bouldery-sandy, gravelly and sandy washes; sandy drainages; silty-loamy and silty-clayey-loamy dry lakebeds; along (sandy) banks of rivers; borders of washes; cobbly-sandy-silty and gravelly-sandy terraces; sandy-loamy bottomlands; sandy floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry cryptogrammic soil; rimrock pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and silty-clayey loam ground; gravelly-sandy clay and gravelly clay ground; cobbly-sandy silty, sandy silty and silty ground, and humusy ground, occurring from 600 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or cooking agent crop; it was also noted as having been used for tools, in pottery making and as a drug or medication. This plant provides cover for many desert animals. Deer, Javelina (*Peccari tajacu sonoriensis*) and rodents feed on the stems, and the fruits are eaten by deer, grasshoppers, Javelina and other desert animals (including grasshoppers). Cristate forms have been reported. The change in nomenclature in USDA NRCS has not been recognized in BONAP, varieties remain as varieties of *Opuntia phaeacantha* (accessed 041806). *Opuntia phaeacantha* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia phaeacantha* Engelm., Pages 95-101, *Opuntia phaeacantha* Engelm. var. *major* Engelm., Pages 99-101 and *Opuntia phaeacantha* Engelm. var. *phaeacantha*, Pages 97-98), 15 (recorded as *Opuntia phaeacantha* var. *major* Engelm., color photograph which includes habitat and associated species, Page 77), **16** (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm.), 26 (color photograph), 27 (recorded as *Opuntia phaeacantha* Engelmann, Page 50, *Opuntia phaeacantha* Engelmann var. *major* Engelmann, Page 51 and *Opuntia phaeacantha* Engelmann var. *superbospina* (Griffith) L. Benson, Page 54; color photographs: Plate 28, Page 99, Plate 29, Page 99 and Plate 31, Page 100), 43 (071212), 44 (062411 - color photograph), 45 (color photograph), 46 (recorded as *Opuntia phaeacantha* Engelm., Page 583 and *Opuntia gilvescens* Griffiths, Page 583), 48 (genus - recorded as *Opuntia*), **56**, **57**, 58 (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm.), 63 (071212 - color presentation), 77 (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm., color photograph #14 labeled as *Opuntia phaeacantha*), **85** (071212 - color presentation, reduced recovery), **89** (reported as being a shrub located on Tumamoc Hill, recorded as *Opuntia arizonica* Griffiths, *Opuntia blakeana* Rose and *Opuntia toumeyi* Rose), 91 (recorded together with *Opuntia engelmannii* Salm-Dyck. (*Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington) / *Opuntia phaeacantha* var. *major* Engelmann - "Both species are sympatric throughout much of their range and often can be found together.", Pages 291-293), 119, 124 (062411), 127, 140 (Pages 105, 106 & 288 - recorded as *Opuntia phaeacantha* Engelmann var. *major* Engelmann), **WTK** (reported as *Opuntia phaeacantha* var. *major*, August 12, 2005)*

Opuntia phaeacantha var. *discata* (see *Opuntia engelmannii* var. *engelmannii*)

Opuntia phaeacantha var. *major* (see *Opuntia phaeacantha*)

Opuntia phaeacantha var. *phaeacantha* (see *Opuntia phaeacantha*)

Opuntia phaeacantha var. *superbospina* (see *Opuntia phaeacantha*)

***Opuntia santa-rita* (D. Griffiths & R.F. Hare) J.N. Rose: Santa Rita Pricklypear**

SYNONYMY: *Opuntia violacea* G. Engelmann var. *santa-rita* (D. Griffiths & R.F. Hare) L.D. Benson. COMMON NAMES: Blue Blade; Blue-blade; Dollar Cactus; Duraznilla (spanish); Nopal Morado (Spanish); Purple Prickly Pear; Purple Pricklypear; Red Blade Pricklypear; Santa Rita Cactus; Santa Rita Prickly Pear; Santa Rita Prickly-pear; Santa Rita Pricklypear; Santa-Rita Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 2 to 6½ feet in height); the paddle-shaped stems (4 to 8 inches in length) may be azure-purple (warmer months), bluish-green, gray-green with a red tinge on the edge, green, greenish-blue, lavender, pink, red-purple, reddish-purple (cooler months), rose or pale violet-purple; the spines may be golden, pale yellow or pale yellow-gray aging to reddish-brown; the glochids may be golden, tan or yellow aging to brown or reddish-brown; the flowers (3 to 3½ inches in diameter) may be lemon-yellow, orange-yellow, pale yellow or yellow; the anthers are pale yellow or yellow; the stigma lobes may be light chartreuse, light green, green or light yellow; flowering generally takes place between early March and early June (additional record: one for early January and one for early August); the ripe fruits (1 to 1½ inches in length and ¾ inch in diameter) may be maroon, purple, purplish or reddish aging to gray. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; canyons; canyon bottoms; ridges; rocky hills; rocky hillsides; rocky and gravelly-sandy-loamy slopes; bajadas; rocky outcrops; sandy dunes; terraces; gravelly and sandy plains; flats; valley floors; along roadsides; creekbeds, and disturbed areas growing in dry rocky, rocky-sandy, gravelly and sandy ground and gravelly-sandy loam ground, occurring from 2,000 to 5,600 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; however, it was apparently observed as a naturalized ornamental. *Opuntia santa-rita* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia violacea* Engelm. var. *santa-rita* (Griffiths & Hare) L. Benson, Pages 92 & 95-96), 26 (recorded as *Opuntia violacea* var. *santa-rita*, color photograph), 27 (recorded as *Opuntia violacea* Engelmann var. *santa-rita* (Griffiths & Hare) L. Benson, Page 58; color photographs: Plates 34 & 34A, Pages 100-101), 28 (recorded as *Opuntia violacea* var. *santa-rita*, color photograph 136), 43 (071810 - *Opuntia violacea* G. Engelmann in Emory var. *santa-rita* (Griffiths & Hare) L.D. Benson), 44 (062411 - no record of species; genus record), 45 (color photograph), 46 (Page 582), 48 (genus), 58 (recorded as *Opuntia violacea* Engelm. var. *santa-rita* (Griff. & Hare) L. Benson), 63 (071212), 77, 85 (071212 - color presentation), 91 (Pages 294-295), 115 (color presentation), 124 (062411 - no record of species; genus record), 140 (Pages 106 & 288), **HR***

Opuntia spinosior (see *Cylindropuntia spinosior*)

Opuntia spinosior x *Opuntia versicolor* (see *Cylindropuntia spinosior* x *Cylindropuntia versicolor*)

Opuntia tetracantha (see footnote 46 under *Cylindropuntia* x *tetracantha*)

Opuntia x *tetracantha* (see *Cylindropuntia* x *tetracantha*)

Opuntia toumeyi (see footnote 89 under *Opuntia phaeacantha*)

Opuntia versicolor (see *Cylindropuntia versicolor*)

Opuntia violacea var. *santa-rita* (see *Opuntia santa-rita*)

***Peniocereus greggii* (G. Engelmann) N.L. Britton & J.N. Rose: Nightblooming Cereus**

SYNONYMY: *Cereus greggii* G. Engelmann. COMMON NAMES: Arizona Queen-of-the-night; Chaparral Cactus; Deer-horn Cactus; Desert Night-blooming Cereus; Desert Threadcereus; Night-blooming Cereus; Nightblooming Cereus; Huevos de Venado (Spanish); Jaramatraca (Spanish); Queen of the Night; Queen-of-the-night; Reina de la Noche (Spanish); Reina-de-la-noche; Saramatraca (Spanish); Sweet Potato-cactus. DESCRIPTION: Terrestrial perennial root- and stem-succulent shrub (sprawling to erect stems 1 to 8 feet in height and ¼ to ½ inch in width); the stems may be gray, gray-green or purple; the spines may be black or yellowish-white; the large white flowers (2 to 5 inches in diameter and 6 to 8½ inches in length) open after dusk and last only one night; the anthers are pale cream-yellow; the stigma lobes are white; flowering generally takes place between late May and early July (additional records: one for early January, two for mid-March, one for early May and one for early December); the ripe fruits (1¼ to 4 inches in length and ¾ to 2 inches in diameter) are orange-red or bright red. HABITAT: Within the range of this species it has been reported from mountains; mesas; ridges; ridge crests; gravelly hills; rocky hillsides; rocky slopes; bajadas; sand dunes; gravelly-sandy plains; gravelly flats; valley floors; arroyos; along sandy washes; edges of washes and bottomlands growing in dry desert pavement; rocky, gravelly and sandy ground, and rocky-sandy loam, gravelly loam, gravelly-sandy loam, sandy loam and clayey loam ground, occurring from 800 to 5,200 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are fragrant. The plant, *Peniocereus greggii* var. *greggii*, was reported to have been utilized by native peoples of North

America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a drug or medication. Plant with other desert shrubs and trees, such as the Creosote Bush (*Larrea tridentata* var. *tridentata*), Foothill Paloverde (*Parkinsonia microphylla*) and Velvet Mesquite (*Prosopis velutina*), that will provide support and protection. Birds feed on the fruit and seeds. *Peniocereus greggii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Cereus greggii* Engelm., Pages 116-118), **16**, 27 (recorded as *Cereus greggii* Engelmann, Pages 61; color photographs: Plates 36 & 36A, Page 101), 28 (color photographs 112 A&B), 43 (012310), 44 (040111 - no record of species or genus), 45 (color photograph), 46 (Page 568), 48, 63 (071212), 77, 85 (071212 - color presentation), 86 (recorded as *Cereus greggii*, color photograph), **89** (reported as being a dwarf shrub located on the Mesa-like Mountain Slopes, recorded as *Cereus greggii* Engelm.), 115 (color presentation), 119, 124 (040111 - no record of species or genus),127 (records found under *Peniocereus greggii* var. *greggii*), 151*

Campanulaceae: The Bellflower Family

***Nemacladus glanduliferus* W.L. Jepson: Glandular Threadplant**

COMMON NAMES: Glandular Nemacladus; Glandular Threadplant (a name also applied to other species); Redtip Threadstem; Silver Stem Threadplant; Thread Plant (a name also applied to the genus *Nemacladus*); Threadplant (a name also applied to the genus *Nemacladus*); Threadstem (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (stems 2 to 16 inches in height); the stems are reddish-brown; the foliage is brown; the flowers may be pinkish-white, purple and white, white, whitish, white-blue-pink, white-cream-lavender, white and maroon or white tinged with purple; flowering generally takes place between mid-February and mid-June. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; rocky canyons; rocky and rocky-sandy canyon bottoms; talus slopes; crevices in rocks; buttes; chalky ridges; ridgetops; rocky hills; hilltops; rocky hillsides; bedrock, rocky, gravelly, gravelly-loamy, sandy-loamy, loamy and clayey slopes; alluvial fans; gravelly bajadas; shaley outcrops; volcanic flows; sand dunes; ridges on sand dunes; gravelly banks; rocky-sandy and sandy plains; rocky, gravelly, sandy, sandy-clayey-loamy [creosote] and loamy flats; valley floors; along gravelly-sandy roadsides, along and in gravelly and sandy arroyos; sandy bottoms of arroyos; ravines; along and in sandy streambeds; in sand along creeks; gravelly riverbeds; along and in rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy washes; along and in drainages; (gravelly and gravelly-sandy) banks of rivers and washes; (sandy) edges of drying pools; gravelly-sand bars; beaches; sandy benches; sandy terraces; sandy bottomlands; sandy floodplains; gravelly-sandy and sandy riparian areas, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-sandy, shaley, shaley-sandy, stony, stony-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam and loam ground; clay ground; gravelly silty ground, and chalky ground, occurring from sea level to 5,000 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE: *Nemacladus glanduliferus* is native to southwest-central and southern North America. *5, 6, 43 (012310), 44 (071212 - color photograph), 46 (Page 827), 63 (071212), 77, **85** (071312 - color presentation), 115 (color presentation), 124 (071212 - no record of species or genus)*

***Nemacladus glanduliferus* W.L. Jepson var. *orientalis* R. McVaugh: Glandular Threadplant**

SYNONYMY: *Nemacladus orientalis* (R. McVaugh) N.R. Morin. COMMON NAMES: Glandular Nemacladus (a name applied to the species); Glandular Threadplant (a name also applied to the species and other species); Silver Stem Threadplant (a name applied to the species); Thread Plant (a name applied to the species and the genus *Nemacladus*); Threadplant (a name applied to the species and the genus *Nemacladus*); Threadstem (a name applied to the species and other species). DESCRIPTION: Terrestrial annual forb/herb (stems 3 to 8 inches in height); the stems are reddish-brown; the flowers are pinkish-white, white, white-cream-lavender or white and maroon; flowering generally takes place between mid-February and mid-June. HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; canyons; crevices in rocks; ridgetops; rocky hills; hilltops; rocky hillsides; bedrock, rocky, rocky-sandy, gravelly, gravelly-loamy, sandy-loamy and loamy slopes; alluvial fans; shaley outcrops; gravelly and loamy flats; valley floors; gravelly-sandy roadsides; within gravelly and sandy arroyos; bottoms of arroyos; gravelly riverbeds; along and in rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy washes; along and in drainages; (gravelly and gravelly-sandy) banks of rivers and washes; gravelly-sand bars; sandy benches; riparian areas, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-cobbly, rocky-sandy, shaley, shaley-sandy, stony-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground, and gravelly silty ground, occurring from 500 to 4,900 feet in elevation in the desertscrub and wetland ecological formations. NOTE: *Nemacladus glanduliferus* var. *orientalis* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (070310), 44 (071212 - no listings recorded under Common Names), 46 (Page 827), 63 (071212), **85** (071312 - color presentation of dried material), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Nemacladus ramosissimus* Nutt.), 115 (color presentation of the species), 124 (071212 - no record of variety, species or genus)*

Nemacladus orientalis (see *Nemacladus glanduliferus* var. *orientalis*)

Nemacladus ramosissimus (see footnote 89 under *Nemacladus glanduliferus* var. *orientalis*)

Cannabaceae: The Hemp Family

***Cannabis sativa* C. Linnaeus: Marijuana**

COMMON NAMES: Asa (Japanese Rōmaji); Asian Hemp; Bang (Hindu and Persian); Barren Hemp; Bhang (India - subsp. *indica*); Bhanga (Sanskrit); Cáñamo (Spanish - subsp. *sativa*); Canapa (Italian); Cânhamo (Portuguese - subsp. *sativa*); Cannab (Arabic); Cannabis (a name also applied to the genus *Cannabis*, Greek and Latin); Cannabis Indica; Cementer of Friendship (India); Cementer-of-friendship (India); Chanvre (French - subsp. *sativa*); Chanvre d'Inde (French - subsp. *indica*); Chanvre Indien (French - subsp. *indica*); Common American Hemp; Common Hemp; Cultivated Cannabis; Cultivated Hemp; Dagga Canopy; Dama (transcribed Chinese); Ditch Weed; Exciter of Desire (India); Exciter-of-desire (India); Fimble; Gallow Grass; Gallow-grass; Gallowgrass; Gallowgrasse; Gallows Grass; Gallows-grass; Gallowsgrass; Ganga (Bengali); Gangika (Sanskrit); Ganja (India - subsp. *indica*); Ganjah; Grass (a name also applied to other species and the Poaceae); Grass of Fakirs (India); Grass-of-Fakirs (India); Grifa (Spanish - subsp. *indica*); Guaza; Gunjah; Hachis (Spanish- subsp. *indica*); Hampa (Swedish); Hanf (German - subsp. *sativa*); Haschisch (German - subsp. *indica*); Hashash; Hashisch; Hashish; Hemp (subspp. *indica* and *sativa*, a name also applied to the genus *Cannabis* and the Cannabaceae); Hemp Seed; Hemp Weed; Hemp-weed; Hempseed; Hempweed; Increaser of Pleasure (India); Increaser-of-pleasure (India); India Hemp; Indian Cannabis; Indian Hemp (subsp. *indica*); Indischer Hanf (German - subsp. *indica*); Indisk Hampa (Swedish - subsp. *indica*); Kanas; Laughter Mover (India); Laughter-mover (India); Leaf of Delusion; Maconha (Portuguese - subsp. *indica*); Mariguana (Spanish - subsp. *indica*); Marihuana (subsp. *indica*, a name also applied to the genus *Cannabis*); Marijuana (subsp. *indica*, a name also applied to the genus *Cannabis*); Marryjoanna; Mary Jane; Maryjane; Mota (Spanish); Neck-weed (a name also applied to other species); Neckweed (a name also applied to other species); Nick-weed; Nickweed; Pot; Red-root; Redroot; Russian Hemp; Sam (transcribed Korean); Soft Hemp; St. Andrew's-lace; St. Andrews-lace; Tristram's Knot; Tristram's-knot; True Hemp; Weed; Welsh Parlsey; Welsh Parsley. DESCRIPTION: Terrestrial annual forb/herb (erect stems 8 inches to 20 feet in height); the foliage is dark green; the flowers are greenish with staminate flowers and pistillate flowers being born on separate plants; flowering generally takes place between early February and early October. HABITAT: Within the range of this species it has been reported from hanging gardens; rocky canyons; rocky ridges; clearings in woodlands; foothills; clayey hills; slopes; alluvial fans; prairies; plains; valley floors; railroad right-of-ways; along sandy roadsides; along streams; creekbeds; banks of streams; (sandy) edges of creeks; sandy beaches; along terraces; along and in ditches; ditch banks; bouldery-sandy riparian areas; waste places, and disturbed areas growing in wet, moist and dry desert pavement and bouldery, bouldery-sandy, rocky and sandy ground and clayey ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. A Controlled Substance in Arizona as defined by the Arizona Revised Statutes, Chapter 27 (Uniform Controlled Substances Act), Article 1, Section 36-2501. *Cannabis sativa* is probably native to south-central Asia. *5, 6, 43 (012410), 44 (071412), 63 (071412 - color presentation), **77**, 85 (071412 - color presentation), 101 (color photographs), 106 (102608), 124 (071312), 127*

Capparaceae (Capparidaceae): The Caper Family

***Koeberlinia spinosa* J.G. Zuccarini: Crown of Thorns**

COMMON NAMES: Abrojo; All-thorn (a name also applied to the genus *Koeberlinia*); Allthorn (a name also applied to the genus *Koeberlinia*); Corona de Cristo (a name also applied to other species); Crown of Thorns (a name also applied to other species); Crown-of-thorns (a name also applied to other species); Crucifixion-thorn (a name also applied to other species); Junco; Spiny All Thorn; Spiny All-thorn; Spiny Allthorn. DESCRIPTION: Terrestrial perennial shrub or tree (20 inches to 15 feet in height; one plant was observed and described as being 40 inches in height and 6½ feet in width, one plant was observed and described as being 5 feet in height and 10 feet in width, one plant was observed and described as being 6½ feet in height and 13 feet in width); the bark may be dark green or yellow-green aging scaly and gray; the branches and twigs may be dark green, green or yellow-green; the flowers (¼ inch in length) may be cream, creamy-white, greenish-white, greenish-yellow, white, white tinged with green, pale yellow, yellow, yellowish or yellowish-white; the anthers are pale yellow-orange; the stigmas are purple-maroon; flowering generally takes place between mid-February and early October (additional record: one for late December), March and June; the berries (¼ inch in diameter) are black or purplish-black and shiny. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly and sandy mesas; bouldery and rocky canyons; ridges; rocky foothills; hills; rocky and rocky-gravelly hillsides; rocky and gravelly slopes; cobbly-clayey alluvial fans; bajadas; amongst boulders; sand dunes; gravelly, sandy and clayey plains; gravelly flats; clayey-loamy valley floors; gravelly-pebbly-silty and loamy valley bottoms; coastal plains; sandy coastal flats; coastal beaches; along gravelly and gravelly-clayey roadsides; along and in arroyos; rocky bottoms of ravines; springs; along and in gravelly-clayey and sandy washes; sandy-clayey playas; cienegas; silty swales; (sandy) banks of rivers and washes; along (cobbly-clayey) edges of arroyos and washes; margins of drainage ways; benches; terraces; floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, gravelly and sandy ground; clayey loam and loam ground; cobbly clay, gravelly clay, sandy clay and clay ground, and gravelly-pebbly silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Koeberlinia spinosa* is native to southwest-central and southern North America. *5, 6, 13, **16**, 43 (071412), 44 (071412), 46 (placed in The Koeberliniaceae: The Junco Family, Page 558), 53, **56**, **57**, 63 (071412), 77, **85** (071412 - color presentation), **89** (reported as being a shrub located on the Santa Cruz Flood-plain), 91, 124 (071412 - no record of species or genus)*

***Koeberlinia spinosa* J.G. Zuccarini var. *spinosa*: Crown of Thorns**

COMMON NAMES: Abrojo; All-thorn (a name also applied to the species and genus *Koeberlinia*); Allthorn (a name also applied to the species and genus *Koeberlinia*); Corona de Cristo (a name applied to the species and other species); Crown of Thorns (a name also applied to the species and other species); Crown-of-thorns (a name applied to the species and other species); Crucifixion-thorn (a name also applied to the species and other species); Junco; Typical Spiny All Thorn; Typical Spiny All-thorn; Typical Spiny Allthorn. DESCRIPTION: Terrestrial perennial shrub or tree (a rounded spreading shrub 3 to 6 feet in height); the bark of the branches is yellow-green; the flowers are inconspicuous; flowering generally takes place in late summer (flowering record: one for early August); the berries are black. HABITAT: Within the range of this species it has been reported from gravelly and sandy mesas; hillsides; rocky slopes; sandy and gravelly plains; gravelly flats; along arroyos; along gravelly drainage ways; banks of washes, and disturbed areas growing in dry rocky, gravelly and sandy ground, occurring from 2,400 to 6,900 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Jackrabbits use the twigs for browse. *Koeberlinia spinosa* var. *spinosa* is native to southwest-central and southern North America. *5, 6, 13, 43 (071412 - no record of variety), 44 (071412 - no record of variety; genus and species records), 46 (placed in the Koeberliniaceae: The Junco Family, Page 558), 53, 63 (071412), 85 (012410 - color presentation), 91, 124 (071412 - no record of variety, species or genus), **WTK** (October 28, 2009 - these plants may be var. *wivaggii*)*

***Koeberlinia spinosa* J.G. Zuccarini var. *wivaggii* W.C. Holmes, K.L. Yip & A.E. Rushing: Crown of Thorns**

COMMON NAMES: Crown of Thorns (a name also applied to the species and other species). DESCRIPTION: Terrestrial perennial shrub or tree (2 to 10 feet in height; one plant was observed and described as being 2 feet in height and 6½ to 10 feet in width, one plant was observed and described as being 6½ feet in height and 13 feet in width); the spine-tipped stems are green or dark green with a yellow tinge; the flowers may be cream, cream-white, white tinged with green, light yellow, yellowish or yellowish-white; the anthers are pale yellow-orange; the stigmas are purple-maroon; based on few flowering records located flowering generally takes place between early July and mid-September (additional records: two for early June); the fruit is golden yellow. HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; foothills; hills; valley floors; within arroyos; along and in gravelly-clayey washes; along gravelly drainages; cienegas; sandy banks of washes; margins of rivers; benches; terraces; floodplains; mesquite bosques, and sandy riparian areas growing in dry gravelly and sandy ground and gravelly clay ground, occurring from 1,900 to 6,900 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Koeberlinia spinosa* var. *wivaggii* is native to southwest-central and southern North America. *13 (species), 43 (071412), 44 (071412 - no record of variety; genus and species records), 46 (species, Page 558), 53 (species), 63 (071412 - no record for var. *wivaggii* ; species record), **85** (071412 - color presentation of dried material), 91 (species), 124 (071412 - no record of variety, species or genus)*

***Polanisia dodecandra* (C. Linnaeus) A.P. de Candolle subsp. *trachysperma* (J. Torrey & A. Gray) H.H. Iltis: Sandyseed Clammyweed**

SYNONYMY: *Polanisia dodecandra* (C. Linnaeus) A.P. de Candolle var. *trachysperma* (J. Torrey & A. Gray) H.H. Iltis; *Polanisia trachysperma* J. Torrey & A. Gray. COMMON NAMES: Clammy Weed (a name also applied to the genus *Polanisia*); Clammy-weed (a name also applied to the genus *Polanisia*); Clammyweed (a name also applied to the genus *Polanisia*); Common Clammy Weed (a name also applied to the species); Common Clammy-weed (a name also applied to the species); Common Clammyweed (a name also applied to the species); Large Clammy Weed; Large Clammy-weed; Large Clammyweed; Large-flower Clammyweed; Large-flowered Clammy Weed; Large-flowered Clammy Weed; Large-flowered Clammy-weed; Large-flowered Clammyweed; Polansia (a name also applied to the genus *Polanisia*, Iowa); Red-whisker Clammyweed (a name also applied to the species); Red-whisker Clammy-weed (a name also applied to the species); Red-whisker Clammyweed (a name also applied to the species); Redwhisker Clammyweed (a name also applied to the species); Rough-seed Clammy-weed (a name also applied to the species); Rough-seed Clammyweed (a name also applied to the species); Roughseed Clammyweed (a name also applied to the species); Sandy-seed Clammy-weed; Sandyseed Clammyweed; Stinking Clammy-weed (a name also applied to the species); Stinking Clammyweed (a name also applied to the species); Stinkweed (Iowa, a name also applied to other species); Western Clammy-weed; Western Clammyweed; Western Trachysperma Clammyweed. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 to 40 inches in height); the stems are hairy and sticky; the leaves are dark green; the flowers may be cream, lavender, light pink, pink-purple, purple, white, white tinged with purple, white-yellow or yellowish; the anthers are red; flowering generally takes place between early May and late November (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; plateaus; rocky canyons; canyonsides; along gravelly and sandy canyon bottoms; talus slopes; bluffs; cindery buttes; ledges; shaley ridgetops; meadows; foothills; bouldery-cindery, stony, cindery, cindery-clayey, gravelly and sandy hills; gravelly-sandy hilltops; rocky and cindery hillsides; bouldery, rocky, rocky-sandy, shaley, stony-sandy, cindery, gravelly, gravelly-loamy, sandy, clayey and clayey-loamy slopes; bajadas; rocky outcrops; amongst rocks; sand hills; sand dunes; around and in ant hills; sandy terraces; prairies; gravelly and sandy plains; rocky-sandy uplands; gravelly and sandy flats; basins; gravelly-sandy valley floors; valley bottoms; along railroad right-of-ways; roadbanks; along rocky, rocky-sandy-loamy, gravelly and sandy roadsides; within sandy arroyos; along sandy and sandy-silty bottoms of arroyos; silty draws; gravelly-sandy and sandy bottoms of draws; gulches; gullies; ravines; springs; along sandy streams; along and in rocky, cobbly-gravelly and gravelly-sandy streambeds; along creeks;

along and in stony-cobbly-gravelly, gravelly-sandy and sandy creekbeds; in sand along rivers; along and in rocky, gravelly-sandy and sandy riverbeds; along and in rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy, sandy and clayey washes; drainage ways; sandy bowls; along (muddy, rocky, gravelly and sandy) banks of streams, creeks and rivers; (gravelly and sandy) edges of arroyos and streams; margins of rivers; (sandy) sides of brooks and streams; mudflats; rocky-sand, shaley, stony-cobbly-gravel, stony-sand, gravel, gravelly-sand and sand bars; sandy beaches; sandy-clayey benches; terraces; bottomlands; rocky-sandy-clayey and sandy floodplains; lowlands; fencerows; banks of reservoirs; in sandy ditches; bouldery-cobbly-sandy, cobbly-sandy and sandy riparian areas; waste places, and disturbed areas growing in mucky, muddy and wet, moist and dry bouldery, bouldery-cobbly-sandy, bouldery-cindery, rocky, rocky-cindery, rocky-gravelly-sandy, rocky-sandy, stony, stony-cobbly-gravelly, stony-sandy, cobbly-gravelly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, clayey loam and loam ground; rocky-sandy clay, cindery clay, sandy clay and clay ground, and sandy silty and silty ground, occurring from 300 to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the crushed or bruised stems give off an odor that may be objectionable. *Polanisia dodecandra* subsp. *trachysperma* is native to central and southern North America. *5, 6, 15, **16** (recorded as *Polanisia dodecandra* (L.) DC. var. *trachysperma* (Torr. & Gray) Iltis, placed in the Cleomaceae), 28 (recorded as *Polanisia dodecandra*, color photograph 162), 43 (070209), 44 (062511 - color picture), 46 (recorded as *Polanisia trachysperma* J. Torrey & A. Gray - placed in the Capparidaceae: The Caper Family, Page 358), **56**, **57**, 58, 63 (071412 - color presentation), 68 (recorded as *Polanisia trachysperma* Torr. & Gray), 77, **85** (071512 - color presentation), 86 (recorded as *Polanisia dodecandra*, color photograph), 115 (color presentation of the species), 124 (062511), **WTK** (October 28, 2009)*

Polanisia dodecandra var. *trachysperma* (see *Polanisia dodecandra* subsp. *trachysperma*)

Polanisia trachysperma (see *Polanisia dodecandra* subsp. *trachysperma*)

***Wislizenia refracta* G. Engelmann: Spectacle Fruit**

COMMON NAMES: Jack-ass Clover; Jackass Clover (a name also applied to the genus *Wislizenia*); Jackass-clover (a name also applied to the genus *Wislizenia*); Jackassclover (a name also applied to the genus *Wislizenia*); Rocky Mountain Bee Plant; Spectacle Fruit; Spectacle Pod (a name also applied to other species); Spectacle-fruit; Spectacle-pod (a name also applied to other species); Spectaclefruit; Spider Flower; Yellow Bee Weed. DESCRIPTION: Terrestrial annual (subspp. *californica* and *refracta*) or perennial (subsp. *palmeri*) forb/herb (erect stems 2 inches to 8 feet in height); the foliage is light green; the flowers are yellow; flowering generally takes place between mid-February and early December (additional record: one for mid-January). HABITAT: Within the range of this species it has been reported from mountains; crevices in rocks; cinder cones; foothills; sandy hills; hillsides; cindery slopes; bajadas; amongst boulders; lava flows; sand dunes; sand hummocks; sandy, sandy-loamy, clayey and silty flats; valley bottoms; coastal dunes; coastal plains; coastal beaches; gravelly-sandy road beds; along rocky, gravelly, gravelly-sandy-loamy and sandy roadsides; arroyos; bottoms of arroyos; within gullies; seeps; springs; streambeds; along rivers; in sandy washes; bouldery-sandy-silty drainages; silty lakebeds; playas; palm oases; marshes; depressions; sandy swales; edges of ponds; margins of washes; mudflats; sandy beaches; bottomlands; sandy floodplains; along riparian areas, and disturbed areas growing in wet and dry bouldery, bouldery-sandy, rocky, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, gravelly-sandy-clayey loam and sandy loam ground; clay ground, and bouldery-sandy-silty and silty ground, occurring from sea level to 7,900 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Rufous Hummingbirds (*Selasphorus rufus*) and Pygmy Blue Butterflies have been observed visiting the flowers. *Wislizenia refracta* is native to southwest-central and southern North America. *5, 6, 28 (color photograph 332), 43 (012410), 44 (071512 - color photograph), 46 (placed in the Capparidaceae: The Caper Family, Page 357), 63 (071512 - color presentation of seed), 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plants. "Feeding experiments have shown this annual forb to be highly toxic but the plant is not very palatable."), 85 (071512 - color presentation), 86 (color photograph), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 115 (color presentation), 124 (071512 - no record of species or genus)*

***Wislizenia refracta* G. Engelmann subsp. *refracta*: Spectacle Fruit**

SYNONYMY: *Wislizenia refracta* G. Engelmann var. *melilotoides* (E.L. Greene) I.M. Johnston. COMMON NAMES: Jack-ass Clover (a name also applied to the species); Jackass Clover (a name also applied to the species and genus *Wislizenia*); Jackass-clover (a name also applied to the species and genus *Wislizenia*); Rocky Mountain Bee Plant; Spectacle Fruit (a name also applied to the species); Spectacle Pod (a name also applied to other species); Spectacle-fruit (a name also applied to other species); Spectaclefruit (a name also applied to other species); Yellow Bee Weed. DESCRIPTION: Terrestrial annual forb/herb (erect stems 16 inches to 4 feet in height); the flowers are yellow; flowering generally takes place between mid-April and mid-October (additional record: one for early March). HABITAT: Within the range of this species it has been reported from crevices in rocks; foothills; sandy hills; sand dunes; sandy-loamy flats; sandy valley floors; along rocky, gravelly and sandy roadsides; rocky arroyos; bottoms of arroyos; within gullies; springs; streambeds; in sandy and sandy-silty washes; lakebeds; playas; depressions; sandy swales; edges of ponds and playas; bottomlands, and sandy floodplains growing in wet and dry rocky, gravelly and sandy ground; sandy loam ground; clay ground, and sandy silty and silty ground, occurring from sea level to 6,500 feet in elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. The Rufous Hummingbird (*Selasphorus rufus*) has been observed visiting the flowers. *Wislizenia refracta* subsp. *refracta*

is native to southwest-central and southern North America. *5, 6, 28 (species, color photograph of species 332), 43 (062611), 44 (071512 - color picture), 46 (recorded as *Wislizenia refracta* Engelm. var. *melilotoides* (Greene) Johnst., placed in the Capparidaceae: The Caper Family, Page 357), 63 (071512), 80 (The species is listed as a Rarely Poisonous and Suspected Poisonous Range Plants. "Feeding experiments have shown this annual forb to be highly toxic but the plant is not very palatable."), **85** (071512 - color presentation), 86 (species, color photograph of species), 115 (color presentation of the species), 124 (071512 - no record of subspecies, species or genus)*

Wislizenia refracta var. *melilotoides* (see *Wislizenia refracta* subsp. *refracta*)

Caprifoliaceae: The Honeysuckle Family

Sambucus caerulea var. *mexicana* (C. Presl ex DC.) L.D. Benson (see *Sambucus nigra* subsp. *canadensis*)

Sambucus canadensis (see *Sambucus nigra* subsp. *canadensis*)

Sambucus cerulea var. *mexicana* (C. Presl ex DC.) L.D. Benson (see *Sambucus nigra* subsp. *canadensis*)

Sambucus mexicana C. Presl ex DC. (see *Sambucus nigra* subsp. *canadensis*)

***Sambucus nigra* C. Linnaeus: Black Elderberry**

SYNONYMY: (For subsp. *canadensis* (C. Linnaeus) R. Bolli: *Sambucus caerulea* C.S. Rafinesque-Schmaltz var. *mexicana* (C.B. Presl ex A.P. de Candolle) L.D. Benson, orth. var. (alternate spelling: *Sambucus cerulea* C.S. Rafinesque-Schmaltz var. *mexicana* (C.B. Presl ex A.P. de Candolle) L.D. Benson); *Sambucus canadensis* C. Linnaeus; *Sambucus mexicana* C.B. Presl ex A.P. de Candolle. For subsp. *cerulea* (C.S. Rafinesque-Schmaltz) R. Bolli: *Sambucus caerulea* (alternate spellings observed: *Sambucus cerulea* and *Sambucus coerulea*) C.S. Rafinesque-Schmaltz; *Sambucus caerulea* (alternate spellings observed: *Sambucus cerulea* var. *neomexicana*) C.S. Rafinesque-Schmaltz var. *neomexicana* (E.O. Wooten) A. Rehder; *Sambucus glauca* T. Nuttall; *Sambucus neomexicana* E.O. Wooten; *Sambucus nigra* C. Linnaeus subsp. *caerulea* (C.S. Rafinesque-Schmaltz) R. Bolli, orth.var.). COMMON NAMES: Alcanfor (Hispanic); Alderne; American Black-berry Elder; American Black-berried Elder; American Black Elderberry; American Elder; American Elder Tree (applied to subsp. *canadensis*); American Elderberry; Arizona Blueberry Elder; Arizona Blue Elder; Arizona Elder; 'Atsiniltł'ish 'Ii'tąą' <ʔacinl̥̂-iš ʔilt'ąʔí> (applied to *Sambucus mexicana*, Athapascan: Navajo)[140]; Azumate (applied to subsp. *canadensis*, en Mich); Azumatl (applied to subsp. *canadensis*, en Mich); Azumate (applied to subsp. *canadensis*, en Mich); Azumatl (applied to subsp. *canadensis*, en Mich); Azumate (en Mich); Azumatl (en Mich); Baaduʔ <páru> (applied to *Sambucus mexicana*, Hokan: Washo)[140]; Bapoki Hi (applied to subsp. *canadensis* "Popping Blackhaw Plant", Osage); Bixhumí (applied to *Sambucus mexicana*, Oto-Manguean: Zapotec)[140]; Black Elder; Black-berry Elder; Black-berried Elder; Black-berried European Elder; Blue Elder (applied to subsp. *cerulea*, a name also applied to other species); Blue Elderberry (applied to subsp. *cerulea*, a name also applied to other species); Blueberry Elder (a name also applied to other species); Bone Tree (a name also applied to the genus *Sambucus*); Bone-tree (a name also applied to the genus *Sambucus*); Bore Tree (applied to subsp. *canadensis*); Bore-tree (applied to subsp. *canadensis*); Bottery Tree (applied to subsp. *canadensis*); Bottery-tree (applied to subsp. *canadensis*); Bountry; Boutry; Bur Tree (a name also applied to the genus *Sambucus*); Bur-tree (a name also applied to the genus *Sambucus*); Canadian Elderberry (applied to subsp. *canadensis*); Canadian Red-berry Elder (applied to subsp. *canadensis*); Canadian Red-berried Elder (applied to subsp. *canadensis*); Canadische Hollunder (applied to subsp. *canadensis*, German); Capiro (applied to *Sambucus mexicana*, Spanish)[140]; Chaputa (applied to subsp. *canadensis*, Dakota); Chaputa-hu (applied to subsp. *canadensis* "Elder Bush", Dakota); Ch'ił Bitsiin Łizhin <č'il bicin łižin> (applied to *Sambucus mexicana*, Athapascan: Navajo)[140]; Ch'ilhazhé <suul> (applied to *Sambucus mexicana*, Athapascan: Western Apache)[140]; Common Elder; Common Elderberry; Continental Elder; Coyapa (Chiapas); Coyapa (applied to *Sambucus mexicana*, Mixe-Zoque: Zoque)[140]; Cumdemba <cumdumba, cumtempa, condumbo> (applied to *Sambucus mexicana*, Tarascan: Purépecha)[140]; Dahapdam (applied to *Sambucus mexicana*, Uto-Aztecan: Akimel O'odham)[140]; Danewort; Desert Elderberry (a name also applied to other species); [Blue-] Desert Elderberry (applied to *Sambucus mexicana* and subsp. *cerulea*, English)[140]; Dwarf Elder; Dwarf Elder (applied to subsp. *cerulea*); Dwarf Elder; Elder (a name also applied to other species and the genus *Sambucus*); Elder Bush (applied to subsp. *canadensis*); Elder Flowers (applied to subsp. *canadensis*); Elder Rob (applied to subsp. *canadensis*, a name given to the juice of the berries); Elder-blow (applied to subsp. *canadensis*); Elder-blows (applied to subsp. *canadensis*); Elder-flowers (applied to subsp. *canadensis*); Elderberry (a name also applied to other species and the genus *Sambucus*); Ellar; Ellarne (a name also applied to the genus *Sambucus*); Ellen; Ellenwood (a name also applied to the genus *Sambucus*); Ellet; Ellhorn (a name also applied to the genus *Sambucus*); Elnorne (a name also applied to the genus *Sambucus*); Elren (a name also applied to the genus *Sambucus*); English Elder; European Black Elder (applied to subsp. *nigra*); European Black Elderberry (applied to subsp. *nigra*); European Common Elder; European Common Elderberry; Euroelder; European Elder; European Elder Berry; European Elderberry (applied to subsp. *nigra*); Fläder (Swedish); Filkfläder (Swedish); Flieder (German); Flor de Sauco (Hispanic); Flor Sauco; Florida Elder (applied to subsp. *canadensis*); Florida Elderberry; German Elder; Guarico (Hispanic); Hairy Blue Elderberry; Hauk U'usi <hauk u'ushi> (applied to *Sambucus mexicana*, Uto-Aztecan: Mountain Pima)[140]; Hilder; Hillerne; Hollunder (German); Hubu' <hub·ú> (applied to *Sambucus mexicana*, Uto-Aztecan: Northern Paiute)[140]; Hungwat <hun-kwat> (applied to *Sambucus mexicana*, Uto-Aztecan:

Cahuilla)[140]; Huvúhya (applied to *Sambucus mexicana*, Uto-Aztecan: Mono)[140]; Huvúi (applied to *Sambucus mexicana*, Uto-Aztecan: Western Paiute)[140]; Hylder; Ita Tindo (Yuku en Oax); Ita Tindoo (yaa Mixteco en Oax); Jiłhazhí (applied to *Sambucus mexicana*, Jiłhazí is a name that may also be applied to *Celtis palida* and *Celtis reticulata*, Athapascan: Navajo)[140]; Joday Kanadese Vlier (applied to subsp. *canadensis*, Afrikaans); Joday Llochic (Tepehuano en Nayarit); Judas Tree (misapplied); Kanadese Vlier (Afrikaans); Kēwēmäm <kíwimám, kiwimöm, kiwi> (applied to *Sambucus mexicana*, Yuki: Yuki)[140]; Kondembasi (Tarasco); Kopáhl (applied to *Sambucus mexicana*, Yuman: Kumiai)[140]; Kuhupïl <kuhupɨ-l> (applied to *Sambucus mexicana*, Uto-Aztecan: Tübatulabal)[140]; Kunugívū (applied to *Sambucus mexicana*, Uto-Aztecan: Mono)[140]; Kunuki(ppüh) (applied to *Sambucus mexicana*, Uto-Aztecan: Panamint)[140]; Kunuvugɨ (applied to *Sambucus mexicana*, Uto-Aztecan: Kawaiisu, the berry is called kunuvugu'ivi)[140]; Ku:ta (applied to *Sambucus mexicana*, Uto-Aztecan: Luiseño)[140]; Kuuhuutɨ (applied to *Sambucus mexicana*, Uto-Aztecan: Serrano)[140]; Kúūt (applied to *Sambucus mexicana*, Uto-Aztecan: Cupeño)[140]; Llochic (applied to subsp. *canadensis*, Tepehuano en Nayarit); Má' Ma Joo (Hispanic); Mexican Elder; Mexican Elder (applied to *Sambucus mexicana* and subsp. *cerulea*, English)[140]; Mexican Elderberry; Ne Ho (en Oax); New Mexican Blueberry; New Mexican Elder (applied to subsp. *cerulea*); New Mexican Elderberry (applied to subsp. *cerulea*); New Mexico Blueberry Elder; Nttzirza (applied to *Sambucus mexicana*, Oto-Manguean: Otomí)[140]; Ocoquihui (Chiapas); Ocoquihui (applied to *Sambucus mexicana*, Spanish)[140]; Pa'gonogwīp [Pa'go-nogīp] (applied to *Sambucus mexicana*, Uto-Aztecan: Shoshoni)[140]; Parsley Elder; Pɨgūbūxia, Hūbū́xia, Saíinoiya^{a}, Sainó̱waiyu^{u} (applied to *Sambucus mexicana*, Uto-Aztecan: Northern Paiute)[140]; Pipigwe-minan (applied to subsp. *canadensis*, Chippewa); Qayas (applied to *Sambucus mexicana*, Chumash: Chumash)[140]; Road Berry (Ohio); Rotosí (applied to *Sambucus mexicana*, Uto-Aztecan: Tarahumara)[140]; Sabugueiro-negro (Portuguese); Sahuco (Spanish); Sambugo (Spanish); Sau (applied to *Sambucus mexicana*, Uto-Aztecan: Mountain Pima)[140]; Sauce (Hispanic); Sauce Chico (Hispanic); Sauco (Spanish); S'auco (applied to subsp. *canadensis*, Zoque-popoluca en Veracruz); Sáuco (applied to subsp. *cerulea*, Spanish); Saúco (Spanish); Saúco [Azul] <sauco> (applied to *Sambucus mexicana*, "[Blue] Elder", Spanish: California, Chihuahua, Sonora south)[140]; Sauco Grande (Hispanic); Sauko [Saokó] (applied to *Sambucus mexicana*, Uto-Aztecan: Guarijío)[140]; Sauzo Tapiro (Hispanic); Schwarzer Holunder (German); Skaw; Skirariu (applied to subsp. *canadensis*, Pawnee); Soapberry (a name also applied to other species); Sureau (a name also applied to the genus *Sambucus*, French); Sureau du Canada (applied to subsp. *canadensis*, French); Sureau Noir (French); Sweet Elder (a name also applied to other species); Tapiro (Hispanic); Tahapidam (applied to *Sambucus mexicana*, Uto-Aztecan: Hiá Ceḍ O'odham, Tohono O'odham)[140]; Tal Tal (applied to *Sambucus mexicana*, Yuma: Paipai)[140]; Tapiro (Hispanic: New Mexico); Tápiro (applied to *Sambucus mexicana*, Spanish: Arizona, Sonora)[140]; Tapiro Sauco (Hispanic); Tóisavui (applied to *Sambucus mexicana*, Uto-Aztecan: Western Paiute)[140]; Toxem o Toxeem (Mixe en Oax); Toxiwua (en Michoacán); Tree of Music; Tsizoł (applied to *Sambucus mexicana*, Athapascan: Chiricahua and Mescalero Apache)[140]; Velvet Elder; Velvet-leaf Elder; Velvetleaf Elder; Wagathahashka (applied to subsp. *canadensis*, Omaha-Ponca); Wagathahashka-hi (applied to subsp. *canadensis*, "Elder Bush", Omaha-Ponca); Walewort; Western Blue Elder (applied to subsp. *cerulea*); Western Blue Berry Elder (applied to subsp. *cerulea*); Western Blue Elder Berry (applied to subsp. *cerulea*); Western Blue Elder-berry (applied to subsp. *cerulea*); Western Blue Elderberry (applied to subsp. *cerulea*); Western Blue-berry Elder (applied to subsp. *cerulea*); Western Blueberry Elder (applied to subsp. *cerulea*); Whist-aller; Wild Elder; Winlin-berry; Xiiksh (applied to *Sambucus mexicana*, Mixe-Zoque: Mixe)[140]; Xometl <azumiatl, azu-miatl, xomét> (applied to *Sambucus mexicana*, Uto-Aztecan: Náhuatl, San Luis Potosí, Veracruz)[140]; Xsa:wk (applied to *Sambucus mexicana*, Yuman: Cocopah)[140]; Yutnucate (applied to *Sambucus mexicana*, Oto-Manguean: Mixtec)[140]. DESCRIPTION: Terrestrial perennial drought-deciduous (nearly evergreen) shrub or tree (erect stems 6 to 36 feet in height with a compact rounded crown 8 to 26 feet in width; one tree was observed and described as being 10 feet in height with a crown 13 feet in width, one tree was observed and described as being 12 feet in height with a crown 10 feet in width and a trunk diameter of 4 inches, one plant was observed and described as being 13 feet in height with a crown 16½ feet in width); the bark may be light brown, dark brown, gray or grayish; the branches are gray-brown; the twigs are light green or green; the leaves may be bright green, dark green or yellow green with 3 to 5 leaflets (subsp. *canadensis*) or with 5 to 9 leaflets (subsp. *cerulea*); the flowers (between 1/8 to 1/4 inch in diameter in many-branched clusters 1½ to 10 inches in width) may be buff, pale cream, cream, creamy-white, creamy-white-yellowish, creamy-yellow, golden-ivory, pale green, white, white-cream, white-pink, pale yellow, yellow, yellow-cream, yellow-green, yellow-white, yellowish or yellowish-white; the anthers are cream-yellow; flowering generally takes place between mid-March and late October (additional records: one for mid-February, two for late February, two for late November and one for mid-December); the mature berrylike fruits (between 1/8 to 1/4 inch in diameter in clusters) are black, blackish, blue, dark blue, blue-black, blue-gray, dark blue-purple, purple, dark purple or purple-black. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; plateaus; rock walls; clayey cliffs; cliff ledges; bases of cliffs; rocky canyons; along bouldery-gravelly-sandy and sandy-silty canyon bottoms; rocky talus slopes; rocky bluffs; buttes; along ridges; clearings and openings in forests; meadows; foothills; bouldery and rocky hills; hilltops; bouldery, rocky, rocky-humusy-loamy, cobbly-loamy and clayey hillsides; rocky escarpments; bouldery, rocky, rocky-sandy, shaley, cobbly-sandy-loamy, sandy and loamy-clayey slopes; rocky-sandy-loamy alluvial fans; amongst boulders and rocks; bases of rocks; sheltered spring nooks; rocky banks; plains; flats; uplands; basins; gravelly-sandy and silty valley floors; valley bottoms; railroad right-of-ways; railroad beds; along rocky-gravelly roadsides; along and in arroyos; along bottoms of arroyos; within draws; gulches; gullies; along gravelly-sandy ravines; seeps; springs; along bouldery streams; rocky and gravelly-sandy streambeds; along creeks; creekbeds; along rivers; silty riverbeds; along and in gravelly, sandy and loamy washes; along and in drainages; drainage ways; watercourses; playas; ciénegas; marshes; sloughs; along (rocky and sandy-clayey-loamy) banks of streams, streambeds, creekbeds and rivers; along (sandy-silty and clayey) edges of creeks and rivers, washes and marshes; along (rocky-sandy and sandy) margins of washes, creeks and playas; shorelines of lakes; sandy beaches; sandy benches; sandy terraces; sandy and silty bottomlands; sandy floodplains; mesquite bosques; along fencerows; along canal banks; along ditches; along ditch banks; sandy canal banks; gravelly-sandy and sandy

riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-humusy loam, cobbly loam, cobbly-sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; gravelly clay, sandy clay, loamy clay, humusy clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 11,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: A plant with EXOTIC and NATIVE subspecies. The native subspecies may be attractive components of a restored native habitat, and valuable in controlling erosion and in stabilizing the banks of streams. This plant, *Sambucus nigra* including *Sambucus nigra* subsp. *canadensis* and *Sambucus nigra* subsp. *cerulea*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage (subsp. *canadensis*), spice (subsp. *cerulea*), and/or dye (black, orange, purple and yellow dyes - subsp. *canadensis*) crop; it was also noted as having been used as a fuel (subsp. *cerulea*), as tools, for making musical instruments (clappers, flutes, music sticks and whistles), as a toy or in games, as a drug or medication and as an insecticide (inner bark of young shoots used to repel flies and insects - subsp. *canadensis*). The Blue Elderberry has been reported to be fairly easy to establish from direct seeding and planting of cuttings, rootstock and seedlings and older plants stock. The flowers may be fragrant. The Blue Elderberry produces valuable cover and food for wildlife as well as perching and nesting sites for birds. The Blue Elderberry provides nesting habitat for the Dusky Flycatcher (*Empidonax oberholseri*), Broad-tailed Hummingbird (*Cynanthus latirostris*), Lincoln Sparrow (*Melospiza lincolnii*), White-crowned Sparrow (*Zonotrichia leucophrys*), MacGilllivray's Warbler (*Oporornis tolmiei*) and Orange-crowned Warbler (*Vermivora celata*); the foliage is browsed by Black Bear (*Ursus americanus*), Elk (*Cervus elaphus*), Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Pronghorn (*Antilocapra americana*) and other animals; hummingbirds have been observed visiting the flowers for nectar, and the fruits are eaten by many species of birds, including among others: bluebirds, Green-tailed Towhees (*Pipilo chlorurus*), grosbeaks, grouse, House Finches (*Carpodacus mexicanus*), magpies, pheasant, quail, Townsend Solitaires (*Myadestes townsendi*), Warbling Vireos (*Vireo gilvus*), Western Tanagers (*Piranga ludoviciana*) and woodpeckers. One tree (now deceased) was seen in a residential fence line in Barrio Anita in May 2005. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Desert Elderberry has been EXTIRPATED from this township. *Sambucus nigra* subsp. *cerulea* is native to west-central and southern North America. *Sambucus nigra* C. Linnaeus subsp. *cerulea* (C.S. Rafinesque-Schmaltz) R. Bolli and *Sambucus nigra* C. Linnaeus subsp. *canadensis* (C. Linnaeus) R. Bolli are the native Arizona subspecies. *Sambucus nigra* C. Linnaeus subsp. *nigra* (European Black Elderberry) is native to northeastern North America; northern, central, eastern and southern Europe; western Asia, and northern Africa and is not known to occur in Arizona. *5, 6, 18, 43 (012510), 44 (062811 - color photograph), 46 (recorded as *Sambucus neomexicana* Wooten, *Sambucus mexicana* Presl and *Sambucus coerulea* Raf., Pages 813-814), 48 (genus), 52 (recorded as *Sambucus coerulea* and *Sambucus mexicana*, color photographs), 63 (071812 - color presentation), 80 (Species of the genus *Sambucus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "This tall shrub is reported poisonous to livestock and humans but the cooked berries are harmless."), 85 (071912 - color presentation), 124 (062711), 127, 140 (recorded as *Sambucus nigra* Linnaeus subsp. *cerulea* (Rafinesque-Schmaltz) R. Bolli [*Sambucus mexicana* C. Presl ex DeCandolle], Pages 107-109 & 289), **WTK** (May 2005)*

Sambucus nigra C. Linnaeus subsp. *canadensis* (C. Linnaeus) R. Bolli: American Black Elderberry

SYNONYMY: *Sambucus caerulea* C.S. Rafinesque-Schmaltz var. *mexicana* (C.B. Presl ex A.P. de Candolle) L.D. Benson, orth. var. (alternate spelling: *Sambucus cerulea* C.S. Rafinesque-Schmaltz var. *mexicana* (C.B. Presl ex A.P. de Candolle) L.D. Benson); *Sambucus canadensis* C. Linnaeus; *Sambucus mexicana* C.B. Presl ex A.P. de Candolle. COMMON NAMES: Alcanfor (Hispanic); American Black Elderberry; American Elder; American Elder Tree; American Elderberry; Arizona Blueberry Elder; Arizona Blue Elder; Arizona Elder; 'Atsiniltł'ish 'Ii'tąą' <ʔacinɬ̓iš ʔilt'ąʔí> (applied to *Sambucus mexicana*, Athapascan: Navajo)[140]; Azumate (en Mich); Azumatl (en Mich); Baaduʔ <páru> (applied to *Sambucus mexicana*, Hokan: Washo)[140]; Bapoki Hi ("Popping Blackhaw Plant", Osage); Bixhumí (applied to *Sambucus mexicana*, Oto-Manguean: Zapotec)[140]; Black Elder; Black-berry Elder; Black-berried Elder; Blueberry Elder; Bore Tree; Bore-tree; Bottery Tree; Bottery-tree; Canadian Elderberry; Canadian Red-berry Elder; Canadian Red-berried Elder; Canadische Hollunder (German); Capiro (applied to *Sambucus mexicana*, Spanish)[140]; Chaputa (Dakota); Chaputa-hu ("Elder Bush", Dakota); Ch'ił Bitsiin Łizhin <č'il

bicin łižin> (applied to *Sambucus mexicana*, Athapascan: Navajo)[140]; Ch'ilhazhé <suul> (applied to *Sambucus mexicana*, Athapascan: Western Apache)[140]; Common Elder (a name also applied to the species); Common Elderberry (a name also applied to the species); Coyapa (Chiapas); Coyapa (applied to *Sambucus mexicana*, Mixe-Zoque: Zoque)[140]; Cumdemba <cumdumba, cumtempa, condumbo> (applied to *Sambucus mexicana*, Tarascan: Purépecha)[140]; Dahapdam (applied to *Sambucus mexicana*, Uto-Aztecan: Akimel O'odham)[140]; Desert Elderberry (a name also applied to the species); [Blue-] Desert Elderberry (applied to *Sambucus mexicana*, English)[140]; Elder (a name also applied to the species, to other species and to the genus *Sambucus*); Elder Berry (a name also applied to the species, to other species and to the genus *Sambucus*); Elder Bush; Elder Flowers; Elder Rob (a name given to the juice of the berries); Elder-berry (a name also applied to the species, to other species and to the genus *Sambucus*); Elder-blow; Elder-blows; Elder-flowers; Elderberry (a name also applied to the species, to other species and to the genus *Sambucus*); Flor de Sauco (Hispanic); Florida Elder; Florida Elderberry; Guarico (Hispanic); Hauk U'usi <hauk u'ushi> (applied to *Sambucus mexicana*, Uto-Aztecan: Mountain Pima)[140]; Hubu' <hub·ú> (applied to *Sambucus mexicana*, Uto-Aztecan: Northern Paiute)[140]; Hungwat <hun-kwat> (applied to *Sambucus mexicana*, Uto-Aztecan: Cahuilla)[140]; Huvúhya (applied to *Sambucus mexicana*, Uto-Aztecan: Mono)[140]; Huvúi (applied to *Sambucus mexicana*, Uto-Aztecan: Western Paiute)[140]; Ita Tindo (Yuku en Oax); Ita Tindoo (yaa Mixteco en Oax); Jiłhazhí (applied to *Sambucus mexicana*, Jiłhazí is a name that may also be applied to *Celtis palida* and *Celtis reticulata*, Athapascan: Navajo)[140]; Joday Kanadese Vlier (Afrikaans); Kēwēmäm <kíwimám, kiwimöm, kiwi> (applied to *Sambucus mexicana*, Yuki: Yuki)[140]; Kondembasi (Tarasco); Kopáhl (applied to *Sambucus mexicana*, Yuman: Kumiai)[140]; Kuhupïl <kuhup-ł-l> (applied to *Sambucus mexicana*, Uto-Aztecan: Tübatulabal)[140]; Kunugívū (Uto-Aztecan: Mono)[140]; Kunuki(ppüh) (applied to *Sambucus mexicana*, Uto-Aztecan: Panamint)[140]; Kunuvug-ł (applied to *Sambucus mexicana*, Uto-Aztecan: Kawaiisu, the berry is called kunuvugu'ivi)[140]; Ku:ta (applied to *Sambucus mexicana*, Uto-Aztecan: Luiseño)[140]; Kuuhuut-ł (applied to *Sambucus mexicana*, Uto-Aztecan: Serrano)[140]; Kúūt (applied to *Sambucus mexicana*, Uto-Aztecan: Cupeño)[140]; Llochic (Tepehuano en Nayarit); Má' Ma Joo (Hispanic); Mexican Elder; Mexican Elder (applied to *Sambucus mexicana*, English)[140]; Mexican Elderberry; Ne Ho (en Oax); New Mexican Blueberry; New Mexico Blueberry Elder; Nttzirza (applied to *Sambucus mexicana*, Oto-Manguean: Otomí)[140]; Ocoquihui (Chiapas); Ocoquihui (applied to *Sambucus mexicana*, Spanish)[140]; Pa'gonogwĭp [Pa'go-nogĭp] (applied to *Sambucus mexicana*, Uto-Aztecan: Shoshoni)[140]; Pipigwe-minan (Chippewa); P-ł-gūbūxia, Hūbű̄xia, Saíinoiya^{a}, Sainő̄waiyu^{u} (applied to *Sambucus mexicana*, Uto-Aztecan: Northern Paiute)[140]; Qayas (applied to *Sambucus mexicana*, Chumash: Chumash)[140]; Road Berry (Ohio); Rotosí (applied to *Sambucus mexicana*, Uto-Aztecan: Tarahumara)[140]; Sambucus (a name also applied to the genus *Sambucus*); Sau (applied to *Sambucus mexicana*, Uto-Aztecan: Mountain Pima)[140]; Sauce (Hispanic); Sauce Chico (Hispanic); Sauco (Spanish); S'auco (Zoque-popoluca en Veracruz); Saúco [Azul] <sauco> (applied to *Sambucus mexicana*, "[Blue] Elder", Spanish: California, Chihuahua, Sonora south)[140]; Sauco Grande (Hispanic); Sauko [Saokó] (applied to *Sambucus mexicana*, Uto-Aztecan: Guarijío)[140]; Sauzo Tapiro (Hispanic); Skirariu (Pawnee); Sureau du Canada (French); Sweet Elder; Tahapidam (applied to *Sambucus mexicana*, Uto-Aztecan: Hiá Ced̠ O'odham, Tohono O'odham)[140]; Tal Tal (applied to *Sambucus mexicana*, Yuma: Paipai)[140]; Tapiro (Hispanic: New Mexico); Tápiro (applied to *Sambucus mexicana*, Spanish: Arizona, Sonora)[140]; Tapiro Sauco (Hispanic); Tóisavui (applied to *Sambucus mexicana*, Uto-Aztecan: Western Paiute)[140]; Toxem o Toxeem (Mixe en Oax); Toxiwua (en Michoacán); Tsizoł (applied to *Sambucus mexicana*, Athapascan: Chiricahua and Mescalero Apache)[140]; Wagathahashka (Omaha-Ponca); Wagathahashka-hi ("Elder Bush", Omaha-Ponca); Xiiksh (applied to *Sambucus mexicana*, Mixe-Zoque: Mixe)[140]; Xometl <azumiatl, azu-miatl, xomét> (applied to *Sambucus mexicana*, Uto-Aztecan: Náhuatl, San Luis Potosí, Veracruz)[140]; Xsa:wk (applied to *Sambucus mexicana*, Yuman: Cocopah)[140]; Yutnucate (applied to *Sambucus mexicana*, Oto-Manguean: Mixtec)[140]. DESCRIPTION: Terrestrial perennial drought-deciduous or nearly evergreen shrub or tree (erect stems 7 to 36 feet in height with a compact rounded crown 8 to 26 feet in width; one tree was observed and described as being 12 feet in height with a crown 10 feet in width and a trunk diameter of 4 inches); the bark is light brown or gray; the twigs are light green; the leaves are bright green with 3 to 5 leaflets; the flowers (between 1/8 to 1/4 inch in diameter in many-branched clusters 2 to 8 inches in width) may be buff, pale cream, cream, creamy-white, creamy-white-yellowish, creamy-yellow, pale green, white, white-cream, pale yellow, yellow, yellow-cream or yellowish-white; the anthers are cream-yellow; flowering generally takes place between mid-March and early October (additional records: one for late February, one for late October and one for late November); the mature berry-like fruits (between 1/8 to 1/4 inch in diameter in clusters) are black, blackish, blue, dark blue, blue-black, blue-gray or dark blue-purple. HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; along bouldery-gravelly-sandy and sandy-silty canyon bottoms; talus slopes; bluffs; openings in forests; meadows; foothills; bouldery hills; hilltops; bouldery, rocky, cobbly-loamy and clayey hillsides; bouldery, rocky-sandy, cobbly-sandy-loamy, sandy and loamy-clayey slopes; rocky-sandy-loamy alluvial fans; amongst boulders and rocks; rocky banks; plains; flats; basins; gravelly-sandy valley floors; railroad right-of-ways; along rocky-gravelly roadsides; along and in arroyos; along bottoms of arroyos; within draws; gulches; gullies; along gravelly-sandy ravines; seeps; springs; along bouldery streams; gravelly-sandy streambeds; along creeks; creekbeds; riverbeds; along and in sandy and loamy washes; drainage ways; watercourses; playas; ciénegas; marshes; sloughs; (sandy-clayey-loamy) banks of streams and rivers; (sandy-silty) edges of rivers, washes and marshes; (sandy) margins of washes and playas; sandy beaches; sandy benches; sandy terraces; bottomlands; sandy floodplains; mesquite bosques; sandy canal banks; along ditches; along ditch banks; gravelly-sandy and sandy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, cobbly loam, cobbly-sandy loam, gravelly loam, sandy loam, sandy-clayey loam and loam ground; loamy clay, humusy clay and clay ground, and sandy silty ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or

commercial food, beverage and/or dye (black, orange, purple and yellow dyes) crop; it was also noted as having been used as tools, for making musical instruments (whistles), as a toy or in games, as a drug or medication and as an insecticide (inner bark of young shoots used to repel flies and insects). The tree is covered with bright green leaves during the cooler months, but is nearly deciduous during the hot summer months, the flowers may be fragrant. Hummingbirds have been observed visiting the flowers for nectar, the fruits are eaten by birds and the foliage is browsed by deer. One plant was reported as an adventive to wet, disturbed ground at the University of Arizona Desert Laboratory in 1984. The Desert Elderberry has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). *Sambucus nigra* subsp. *canadensis* is native to central and southern North America and Central America. *5, 6, 13 (recorded as *Sambucus caerulea* Raf. var. *mexicana* (Presl) L. Benson), 15 (recorded as *Sambucus mexicana* Presl ex DC.), **16** (recorded as *Sambucus mexicana* Presl), 18 (recorded as *Sambucus* spp.), 26 (recorded as *Sambucus mexicana*, color photograph), 28 (recorded as *Sambucus mexicana*, color photograph), 30 (recorded as *Sambucus mexicana*), 43 (012510), 44 (062811 - no listing records under Common Names - subspecies does not occur in California), 46 (recorded as *Sambucus mexicana* Presl, Page 814), 48 (recorded as *Sambucus mexicana*), 52 (recorded as *Sambucus mexicana* Presl), 53 (recorded as *Sambucus mexicana* Presl), 58 (recorded as *Sambucus mexicana* Presl), 63 (071812 - color presentation), **77** (recorded as *Sambucus mexicana* Presl), 80 (Species of the genus *Sambucus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “This tall shrub has been reported poisonous to livestock and humans but the cooked berries are harmless.”), **85** (071912 - color presentation of dried material), **89** (reported as being a tree located on the Santa Cruz Flood-plain, recorded as *Sambucus mexicana* Presl), 115 (color presentation), 115 (color presentation), 124 (062711), 127, 140 (recorded as *Sambucus nigra* Linnaeus subsp. *cerulea* (Rafinesque-Schmaltz) R. Bolli [*Sambucus mexicana* C. Presl ex DeCandolle], Pages 107-109 & 289)*

Caryophyllaceae: The Pink Family

Herniaria cinerea (see *Herniaria hirsuta* subsp. *cinerea*)

***Herniaria hirsuta* C. Linnaeus (subsp. *cinerea* (A.P. de Candolle) A.X. Coutinho is the subspecies reported as occurring in Arizona): Hairy Rupturewort**

SYNONYMY: (for *H.s*. subsp. *cinerea*: *Herniaria cinerea* A.P. de Candolle). COMMON NAMES: Burstwort (a name that is also applied to the genus *Herniaria*), Hairy Herniaria; Hairy Herniawort; Hairy Rupture Wort; Hairy Rupture-wort; Hairy Rupturewort; Luddknytling (Swedish). DESCRIPTION: Terrestrial annual forb/herb (prostrate and/or ascending stems 2 to 8 inches in length); the foliage is gray-green; the minute flowers are greenish; flowering generally takes place between early March and mid-July (additional records: one for mid-January and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; gravelly, gravelly-sandy and sandy mesas; rocky canyons; bouldery-gravelly-sandy and rocky-sandy canyon bottoms; gorges; rocky hills; stony-loamy hilltops; rocky hillsides; rocky-sandy and gravelly slopes; bajadas; rocky outcrops; plains; gravelly, gravelly-sandy, sandy and clayey flats; sandy-silty valley floors; roadbeds; along roadsides; along arroyos; bottoms of arroyos; in sand along creeks; riverbeds; along gravelly and sandy washes; drainage ways; along edges of rivers; shores of lakes; floodplains; edges of stock tanks; riparian areas, and disturbed areas growing in moist and dry bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; stony loam ground; bouldery clay and clay ground, and sandy silty ground, occurring from 100 to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Plant. *Herniaria hirsuta* is native to central and southern Europe and islands in the Mediterranean Sea; western, central and southern Asia, and northern Africa. *5, 6, 43 (012610), 44 (072412), 46 (recorded as *Herniaria cinerea* DC., Page 300), 63 (072412), **85** (072412 - color presentation), 124 (072412 - no record of species or species)*

***Herniaria hirsuta* C. Linnaeus subsp. *cinerea* (A.P. de Candolle) A.X. Coutinho: Hairy Rupturewort**

SYNONYMY: *Herniaria cinerea* A.P. de Candolle. COMMON NAMES: Burstwort (a name that is also applied to the species and genus *Herniaria*); Hairy Rupturewort (a name also applied to the species). DESCRIPTION: Terrestrial annual forb/herb (prostrate stems 2 to 8 inches in length); the foliage is gray-green; the minute flowers are greenish; flowering generally takes place between mid-March and mid-July (additional records: one for mid-January and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; gravelly, gravelly-sandy and sandy mesas; rocky canyons; bouldery-gravelly-sandy and rocky-sandy canyon bottoms; rocky hills; stony-loamy hilltops; rocky hillsides; rocky-sandy and gravelly slopes; bajadas; rocky outcrops; plains; gravelly, gravelly-sandy and clayey flats; sandy-silty valley floors; along roadsides; along arroyos; bottoms of arroyos; in sand along creeks; riverbeds; along gravelly and sandy washes; drainage ways; along edges of rivers; shores of lakes; floodplains; edges of stock tanks; riparian areas, and disturbed areas growing in moist and dry bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; stony loam ground; bouldery clay and clay ground, and sandy silty ground, occurring from 100 to 7,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Plant. *Herniaria hirsuta* subsp. *cinerea* is native to central and southern Europe; western, central and southern Asia, and northern Africa. *5, 6, **16** (recorded as *Herniaria cinerea* DC.), 43 (012610 - *Herniaria hirsuta* C. Linnaeus var. *cinerea* (DC.) Loret & Barrandon), 44 (072412 - no records listed under Common Names), 46 (recorded as *Herniaria cinerea* DC., Page 300), 63 (072412), **77** (recorded as *Herniaria cinerea* DC.), **85** (072412), 124 (072412 - no record of species or species)*

Loeflingia pusilla (see footnote 89 under *Loeflingia squarrosa*)

***Loeflingia squarrosa* T. Nuttall: Spreading Pygmyleaf**

COMMON NAME: California Loeflingia; Loeflingia (a name also applied to the genus *Loeflingia*); Sage-like Loeflingia (var. *artemisiarum*); Sagebrush Loeflingia (var. *artemisiarum*); Sagebrush Pygmyleaf (var. *artemisiarum*); Spreading Loeflingia; Spreading Pygmy-leaf; Spreading Pygmyleaf. DESCRIPTION: Terrestrial annual forb/herb (stems ½ to 4¾ inches in height); the flowers are inconspicuous; flowering generally takes place between early March and early June (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; sandy ridges; rocky ridgetops; foothills; bouldery, rocky hills; rocky, cobbly-sandy, sandy and clayey slopes; rocky, gravelly, gravelly-sandy and sandy alluvial fans; gravelly gravelly-sandy bajadas; amongst gravels; sand dunes; blow-sand deposits; gravelly-sandy and sandy plains; gravelly, gravelly-sandy and sandy flats; sandy valley floors; roadbeds; along bouldery-gravelly and sandy roadsides; sandy seeps; along and in sandy washes; clayey depressions; silty-loamy swales; banks of rivers; along edges of rivers; benches; sandy terraces; sandy and loamy bottomlands; sandy floodplains, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, rocky, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, silty loam and loam ground, and clay ground, occurring from sea level to 7,000 feet in elevation in the forest, woodlands, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Loeflingia squarrosa* is native to south-central and southern North America. *5, 6, 15, **16**, 43 (012610), 44 (072412), 46 (Page 300), 58, 63 (072412), **77**, **85** (012610 - color presentation of dried material), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Loeflingia pusilla* Curran), 124 (072412)*

***Silene antirrhina* C. Linnaeus: Sleepy Silene**

COMMON NAMES: Alfinetes-da-terra-miúdo (Portuguese: Brazil); Annual Catchfly; Campion (a name also applied to other species and the genus *Silene*); Campion (English)[140]; Catchfly (a name also applied to other species and the genus *Silene*); Desert Sleepy Catchfly; Gartner-pink (English: South)[140]; Oi'tcuyo (Uto-Aztecan: Shoshoni)[140]; Silene (a name also applied to the genus *Silene*); Silene (Spanish)[140]; Silène Muflier (French); Sleepy Campion; Sleepy Cat; Sleepy Catch-fly; Sleepy Catchfly; Sleepy Silene; Sleepy [Silene] Catchfly [Silene] (English)[140]; Snapdragon Campion; Snapdragon Catchfly; Snapdragon Catchfly (English: Massachusetts)[140]; Tarry Cockle; Tjärglim (Swedish). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 4¾ inches to 3 feet in height); the stems may be purple; the flowers may be lavender, magenta, magenta-pink, pink, pinkish-whitish, purple, purple-pink, purplish, red, rose, white, white with pink or dark purple-tipped lobes or white fading to deep pink; flowering generally takes place between mid-February and early August (additional records: one for late August, three for mid-September and one for early November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; rims of canyons; rocky canyons; sandy canyon bottoms; gorges; talus slopes; crevices in rocks; bluffs; buttes; bouldery and rocky ledges; shaley ridges; cobbly-sandy-loamy ridgetops; granite balds; clearings and openings in forests and woodlands; rocky and sandy meadows; foothills; rocky hills; rocky hillsides; along bedrock, bouldery-silty-clayey, rocky, cobbly, gravelly, sandy-loamy, loamy, loamy-clayey and clayey slopes; rocky-sandy alluvial fans; gravelly bajadas; rocky and cindery outcrops; bases of rocky outcrops; amongst rocks; rock beds; volcanic flows; loamy and loamy-clayey banks; loamy, loamy-clayey, silty-loamy-clayey prairies; plains; rocky, gravelly and sandy flats; rocky, gravelly-silty-loamy, loamy and loamy-clayey, uplands; basins; roadcuts; along gravelly and gravelly-loamy roadsides; rocky arroyos; rocky and rocky-sandy draws; clayey gulches; ravines; seeps; in sand along streams; along rocky, rocky-sandy and sandy streambeds; in sand along creeks; along and in creekbeds; along rivers; along and in rocky, gravelly-sandy and sandy washes; along and in drainages; swales; (gravelly-sandy and sandy) banks of washes; (rocky and rocky-gravelly) edges of streams, streambeds, rivers and ponds; (sandy-loamy) margins of streambeds and rivers; gravelly-sand bars; benches; shelves; terraces; sandy and loamy bottomlands; floodplains; mesquite bosques; clayey catchments; along ditches; gravelly-sandy, gravelly-sandy-loamy and sandy riparian areas; waste places, and recently burned areas in forests, woodlands and chaparral growing in wet, moist and dry rimrock pavement; cryptogamic soil; bouldery, rocky, rocky-gravelly, rocky-sandy, cobbly, shaley, cindery,

gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; bouldery-silty clay, loamy clay, silty-loamy clay and clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Silene antirrhina* is native to central and southern North America. *5, 6, 15, **16**, 28 (color photograph 587), 43 (012610), 44 (072412), 46 (Page 302), **56**, **57**, 58, 63 (072412 - color presentation), 77, **85** (072512 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill), 101 (note under *Silene alba*), 115 (color presentation), 124 (072412), 140 (Pages 109-110 & 289)*

***Silene gallica* C. Linnaeus: Common Catchfly**

COMMON NAMES: Alfinetes da Terra (Potuguese: Brazil); Alfinete-francês (Portuguese: Brazil); Calabacilla; Common Catch-fly; Common Catchfly; English Catch-fly; English Catchfly; Five-wound Catchfly; Flor Roxa; Forked Catchfly (Forked Catch-fly is a name also applied to other species); Franskglim (Swedish); Französisches Leimkraut (German); French Campion; French Catch-fly; French Catchfly; French Silene; French Windmill Pink; Gallic Catchfly; Gunpowder Weed; Lychnis Vulgaire (French); Nariz de Zorra (Portuguese); Ranskankohokki (Finnish); Silène de France (French); Small Catchfly; Small Flowered Campion; Small-flower Catchfly; Small-flowered Campion; Small-flowered Campions; Small-flowered Catchfly; Small-flowered Catch Fly; Small-flowered Catch-fly; Small-flowered Catchfly; Small-flowered Silene; Windmill Catchfly; Windmill Pink (a name also applied to other species). DESCRIPTION: Terrestrial annual or biennial forb/herb (decumbent to erect stems 4 inches to 2 feet in height; one plant was observed and described as being 12 inches in height and 10 inches in width); the flowers may be cream, greenish, lavender, pale pink, pink, pink fading to white, pinkish, pink-white, light purple, white, whitish or yellow; flowering generally takes place between mid-February and mid-June (additional records: one for mid-January, one for late September and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy-clayey mesas; clayey plateaus; stony canyons; bouldery-gravelly-sandy canyon bottoms; bluffs; ridgetops; meadows; foothills; hilltops; hillsides; rocky-loamy, rocky-clayey, rocky-clayey-loamy, cobbly-clayey and clayey-loamy slopes; gravelly alluvial fans; amongst rocks; sand dunes; prairies; cobbly-clayey, sandy, sandy-loamy and clayey flats; sandy valley floors; coastal prairies; coastal plains; gravelly roadbeds; along rocky, gravelly, sandy and clayey roadsides; arroyos; rocky bottoms of ravines; seeps; along streambeds; rocky creekbeds; riverbeds; in sandy washes; drainages; vernal poolbeds; depressions; along banks of streams and riverbeds; along fencelines; in ditches; bouldery-gravelly-sandy riparian areas; waste places; recently burned areas in woodlands and chaparral, and disturbed areas growing in muddy and wet, moist and dry bouldery-gravelly-sandy, rocky, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, sandy loam and clayey loam ground, and rocky clay, cobbly clay and clay ground, occurring from sea level to 6,600 feet in elevation in the forest (coastal redwood), woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Silene gallica* is native to northern, central, eastern and southern Europe and islands in the Mediterranean Sea; western and southern Asia, and northern Africa and islands in the North Atlantic Ocean. *5, 6, 43 (012710), 44 (072612), 46 (Page 302), 63 (072612 - color presentation), 85 (072612 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 124 (072612 - no record of species; genus record)*

Chenopodiaceae: The Goosefoot Family

***Atriplex* C. Linnaeus: Saltbush**

COMMON NAMES: Atriplex; Goose-weeds; Orach; Orache; Salt Bush; Salt-bush; Saltbush; Salt Sage; Salty Sage; Salt-sage; Saltsage. *43 (051710), 44 (021911), 46 (Pages 254-260), 63 (012710 - color presentation), **89** (reported as being a shrub located on the Mesa-like Mountain Slopes), 124 (021911)*

***Atriplex* C. Linnaeus: Saltbush**

COMMON NAMES: Atriplex; Goose-weeds; Orach; Orache; Salt Bush; Salt-bush; Saltbush; Salt Sage; Salty Sage; Salt-sage; Saltsage. *43 (051710), 44 (021911), 46 (Pages 254-260), 63 (012710 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 124 (021911)*

Atriplex bracteosa (see *Atriplex serenana* var. *serenana*)

***Atriplex canescens* (F.T. Pursh) T. Nuttall: Fourwing Saltbush**

COMMON NAMES: Atahi'xp (Seri); Buckwheat Shrub (English)[140]; Bushy Atriplex; Bushy Salt-sage; Bushy Saltsage; Caleb Saltbush (var. *laciniata*); Ceniso <cenizo> ("Ashy One", Spanish: Baja California, Chihuahua, Sonora)[140]; Cenizo (Spanish); Chamere (Spanish); Chamiso (a name also applied to other species and to other species, Spanish: Mexico); Chamiso <chamiza> (preferred over Chamise, Spanish: Baja California, Chihuahua, Sonora, New Mexico)[140]; Chamiso Cenizo [Blanco] ("Ashy [White] Chamiso", Spanish: Mexico)[140]; Chamiza (a name also applied to other species); Chamizo (a name also applied to other species, Spanish); Cïw'wïïbïl (Uto-Aztecan: Tübatulabal)[140]; Costilla de Vaca ("Cow's Rib", Spanish: Zacatecas)[140]; Ḍasilk (Yuman: Walapai)[140]; Diwoozhii Ibehi (Navajo); Díwózhiiłbeii <dóy^{w}ółbáʔí, tiwójiiłpáih> ("Grey Greasewood", Athapascan: Navajo)[140]; Dzi'cûp (Uto-Aztecan: Shoshoni)[140]; Four Wing Saltbush; Four Winged Salt Bush; Four Winged Shadscale; Four-wing Salt Bush; Four-wing Salt-bush; Four-wing Saltbush; Four-wing Shadscale; Four-wing Shad-scale; Four-winged Salt Bush; Four-winged Salt-bush (English)[140]; Four-winged Saltbush; Four-winged Shadscale; Fourwing

Saltbush; Fourwing Shadscale; Fourwinged Saltbush; Giant Four-wing Saltbush (var. *gigantea*); Grease-wood (a name also applied to other species); Greasewood; Grey Grease Winter Chamiso; Grease-wood (English)[140]; Grey Sage Brush; Hataj-isijc ("Immature Vulva", Hokan: Seri)[140]; Hataj-ixp ("White Vulva", Hokan: Seri)[140]; Hoary Saltbush; Hoary Wingscale; Ke'ma:we (Zuni - "salt weed" refers to the salty taste of the flowers); Ke'mwe (Language Isolate: Zuni)[140]; Koksvul Sha'i ("Cocoon Bush", Uto-Aztecan: Akimel O'odham)[140]; Lynndyl Saltbush (var. *gigantea*); Mu'kwapt (Yuman: Paipai)[140]; Murunavɨ (Uto-Aztecan: Kawaiisu)[140]; Narrow-leaf Saltbush; Narrowleaf Wingscale; 'Onk 'I:vagi, 'Onk 'I:vakĭ ("Salty Greens", Uto-Aztecan: Hiá Ceḍ O'odham)[140]; 'Onk 'I:wagi <teu'ari> ("Salty Greens", Uto-Aztecan: Tohono O'odham)[140]; Orache (a name also applied to the genus *Atriplex*); [Salt, Wafer]-sage (English)[140]; Sage Brush; Sagebrush; Saladillo ("Little Salty One", Spanish: Baja California, Chihuahua)[140]; Sha'ashkachk Iibatkam (River Pima); Sha'ashkadk Iibadkam ("It Has Rough Fruit", Uto-Aztecan: Akimel O'odham)[140]; Shad Scale; Shad-scale (English)[140]; Shadscale; Suwvi <cüovi, súovi> (Uto-Aztecan: Hopi)[140]; Taʾibi [tónova] (Uto-Aztecan: Northern Paiute)[140]; Ta'ªñaeŋ (Kiow Tanoan: Tewa)[140]; Thinleaf Fourwing Saltbush; Wheel-scale; White Greasewood; Wing-scale; [Wheel-] Wing-scale (English)[140]; Wngscale; Wingscale Saltbush; Yup (Seri); 4-Winged Salt-bush. DESCRIPTION: Terrestrial perennial evergreen (winter-deciduous in cold climates) shrub (erect stems 1 to 10 feet in height; one plant was observed and described as being 4½ feet in height and 4½ feet in width, one plant was observed and described as being 40 inches in height and 5 feet in width, one plant was observed and described as being 5 feet in height and width, one plant was observed and described as being 5 feet in height and 6½ feet in width, plants were observed and described as being 6½ feet in height and width, one plant was observed and described as being 7 feet in height and 13 feet in width, plants were observed and described as being 8 feet in height and 15 feet in width); the branches are gray; the stems may be white; the leaves are gray, gray-green, light green or green; the flowers (male and female flowers are usually borne on separate plants; however, this plant has been known to change sexes if stressed) are brown (rarely), cream, green, greenish, greenish-white, greenish-yellow, white-brown, pale yellow, yellow or yellowish; flowering generally takes place between early February and early December (additional record: one for mid-January); the mature four-winged fruits (0.4 to 1 inch square bracts) are green or yellow-green drying to pale brown or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky plateaus; along rocky, rocky-sandy and sandy rims; cliffs; rocky, sandy and clayey canyons; sandy canyon walls; sandy and clayey canyon bottoms; rocky narrows; rincons; gorges; rocky scree; talus slopes; along gravelly-sandy bluffs; knolls; rocky ledges; rocky and gravelly ridges; rocky-sandy, rocky-loamy and sandy ridgetops; gravelly-chalky openings in sagebrush; meadows; foothills; rocky, rocky-clayey, gravelly-sandy, clayey and silty-loamy hills; rocky-gravelly hilltops; bouldery, rocky, gravelly and clayey hillsides; bedrock, bouldery, rocky, rocky-sandy, rocky-loamy, shaley, stony-loamy, cindery, gravelly, gravelly-sandy-loamy, sandy, sandy-loamy, sandy-loamy-silty-powdery, sandy-clayey, sandy-silty, clayey, clayey-loamy and silty-loamy slopes; alluvial fans; sandy bajadas; rocky and gypsum outcrops; amongst boulders and rocks; sandy lava flows; sand hills; sand dunes; blow-sand deposits; bouldery debris flows; prairies; sandy, sandy-loamy and sandy-silty plains; rocky, gravelly, gravelly-loamy, sandy, sandy-loamy and clayey flats; uplands; basins; gravelly-sandy, sandy and sandy-loamy valley floors; coastal dunes; sandy coastal plains; coastal flats; coastal beaches; coastal saltmarshes; along rocky, gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; sandy arroyos; bottoms of arroyos; draws; gulches; ravines; seeps; around springs; streambeds; along creeks; along sandy creekbeds; in sand along rivers; sandy riverbeds; along rocky, gravelly, gravelly-sandy and sandy washes; along and in drainages; lakebeds; playas; freshwater and saltwater marshes; around and in swamps; depressions; clayey pans; sinks; swales; along (gravelly-sandy, sandy and clayey) banks of arroyos, rivers and drainages; borders of washes; (cindery) edges of washes, ponds, lakes and salt marshes; margins of drainages; gravel bars; beaches; sandy and clayey benches; sandy-loamy terraces; sandy bottomlands; gravelly, gravelly-sandy and sandy floodplains; (Galleta) lowlands; mesquite bosques; ditches; sandy riparian areas; waste places, and disturbed areas growing in muddy and moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, sandy clay and clay ground; rocky silty, sandy silty and silty ground; gravelly chalky ground, and sandy-loamy-silty powdery ground, occurring from sea level to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent (ashes used in place of baking soda and also to give a greenish-blue color to dough), spice and/or dye crop; it was also noted as having been used as tools, as a drug or medication, to make ceremonial items (including prayer sticks - pahos) and as a commodity used in personal hygiene. The life span of the Fourwing Saltbush has been reported to be from 29 to over 100 years of age. Fourwing Saltbush may be useful in controlling erosion. Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), Black-tailed Jackrabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*) and Bighorn Sheep (*Ovis canadensis*) and other small mammals browse this plant, and Masked Bobwhite (*Colinus virginianus* subsp. *ridgwayi*), Deer, Grouse, Gray Partridge (*Perdis perdix*), Pronghorn (*Antilocapra americana*), Gambel's Quail (*Callipepla gambelii*), Scaled Quail (*Callipepla squamata*) and other birds as well as Kangaroo Rats, Pocket Mice and other small rodents feed on the fruits and seeds. This plant is a larval food plant for the Pygmy Blue (*Brefidium exile*). Possible predation was reported by the exotic Puncturevine Seed Weevil (*Microlarinus lareynii*). The keying out of Four-wing Saltbushes may be difficult due to intraspecific variation and introgression with other saltbush species. *Atriplex canescens* is native to west-central and southern North America. *5, 6, 13 (Pages 164-166), 15, **16**, 18, 26 (color photograph), 28 (color photograph 490), 43 (012710), 44 (062811 - color photograph), 46 (Page 259), 48, 63 (082512 - color presentation), 77, 82, **85** (082812 - color presentation including habitat), **89** (reported as being a shrub located on the Santa Cruz Floodplain, recorded as *Atriplex canescens* (Pursh) James), 91 ("As a secondary or facultative absorber of selenium, *Atriplex canescens* can be mildly poisonous

to livestock where selenium occurs in the soil.", Pages 100-103), 115 (color presentation), 124 (082512), 127, 140 (Pages 111-112 & 289)*

Atriplex canescens subsp. *canescens* (see *Atriplex canescens* var. *canescens*)

Atriplex canescens subsp. *linearis* (see *Atriplex canescens* var. *linearis*)

***Atriplex canescens* (F.T. Pursh) T. Nuttall var. *canescens*: Fourwing Saltbush**

SYNONYMY: *Atriplex canescens* (F.T. Pursh) T. Nuttall subsp. *canescens*. COMMON NAMES: Atahi'xp (a name also applied to the species, Seri); Cenizo (a name also applied to the species, Spanish); Chamiso (a name also applied to the species and to other species, Spanish); Chamiso Cenizo (a name also applied to the species); Chamiza (a name also applied to the species and to other species); Chamizo (a name also applied to the species and to other species, Spanish); Chamizo Cenizo (a name also applied to the species, Spanish); Costilla de Vaca (a name also applied to the species); Typical Four-wing Salt-bush; Typical Four-wing Saltbush; Typical Four-wing Saltbush; Orache (a name also applied to the species and genus *Atriplex*); Saladillo (a name also applied to the species); Sha'ashkachk Iibatkam (Pima); Wngscale (a name also applied to the species); Yup (a name also applied to the species, Seri). DESCRIPTION: Terrestrial perennial evergreen (winter-deciduous in cold climates) shrub (1 to 8 feet in height, one plant was reported to be 5 feet in height and 5 feet in width); the leaves are gray, gray-green or green; the flowers (male and female flowers are usually borne on separate plants) are cream, green or yellow; flowering generally takes place between mid-April and early October (additional record: one for late October); the mature four-winged fruits (0.4 to 1 inch square bracts) are green drying to pale brown or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky, rocky-sandy and sandy rims; rocky canyons; canyon bottoms; rocky narrows; talus; rocky ledges; ridges; gravelly-chalky openings in sagebrush; foothills; hills; rocky hillsides; rocky and cindery slopes; amongst boulders; sand hills; sand dunes; gravelly, sandy and sandy-clayey flats; basins; coastal bluffs; coastal dunes; roadsides; arroyos; bottoms of arroyos; ravines; seeps; around springs; streambeds; along creeks; creekbeds; along rivers; sandy riverbeds; along sandy washes; within drainage ways; swales; gravelly-sandy and sandy banks; edges of ponds and lakes; margins of creeks and drainages; gravel bars; terraces; floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, clay loam and loam ground; sandy clay ground; silty ground, and gravelly chalky ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Atriplex canescens*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent (ashes used in place of baking soda and also to give a greenish-blue color to dough), spice and/or dye crop; it was also noted as having been used as tools, as a drug or medication, to make ceremonial items (including prayer sticks - pahos) and as a commodity used in personal hygiene. The life span of the Fourwing Saltbush has been reported to be from 29 to over 100 years. Fourwing Saltbush may be useful in controlling erosion. Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), Black-tailed Jackrabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*), and Bighorn Sheep (*Ovis canadensis*); as well as, other small mammals browse this plant, and Grouse, Gray Partridge (*Perdis perdix*), Scaled Quail (*Callipepla squamata*) and other birds as well as Kangaroo Rats, Pocket Mice and other small rodents feed on the seeds. This plant is a larval food plant for the Pygmy Blue (*Brefidium exile*). The keying out of Four-wing Saltbushes may be difficult due to intraspecific variation and introgression with other saltbush species. *Atriplex canescens* var. *canescens* is native to west-central and southern North America. *5, 6, 13, 18 (species), 26 (color photograph of species, species), 28 (species, color photograph 490 of species), 43 (012710), 44 (082612), 46 (species, Page 259), 48 (species), **56**, **57**, 58, 63 (082512), 82, 85 (082812 - color presentation), 91 ("As a secondary or facultative absorber of selenium, *Atriplex canescens* can be mildly poisonous to livestock where selenium occurs in the soil."), 115 (color presentation of the species), 124 (082512), 127 (species)*

***Atriplex canescens* (F.T. Pursh) T. Nuttall var. *linearis* (S. Watson) P.A. Munz: Thinleaf Fourwing Saltbush**

SYNONYMY: *Atriplex canescens* (F.T. Pursh) T. Nuttall subsp. *linearis* (S. Watson) H.M. Hall & F.E. Clements; *Atriplex linearis* S. Watson. COMMON NAMES: Four-wing Saltbush; Narrow-leaf Saltbush; Narrow-leaf Four-wing Saltbush; Narrow-leaf Shadscale; Narrow-leafed Salt Bush; Narrow-leaved Saltbush; Narrowleaf Saltbush; Narrowleaf Wingscale, Slender-leaf Saltbush; Slender-leaved Saltbush; Slenderleaf Saltbush; Thinleaf Fourwing Saltbush. DESCRIPTION: Terrestrial perennial evergreen shrub (1 to 7 feet in height, one plant was reported to be 20 inches in height and 30 inches in width, plants were reported that were 6 feet in height and 8 feet in width); the stems may be yellowish; the leaves are gray or gray-green; the flowers (male and female flowers are usually borne on separate plants) are dull gold-yellow, greenish or yellow; flowering generally occurs between mid-March and late October; the mature four-winged fruits (0.4 to 1 inch square bracts) are green drying to pale brown, straw or tan. HABITAT: Within the range of this species it has been reported from mesas; sand hills; sandy flats; coastal plains; roadsides; riverbeds; along and in washes; banks; sandy terraces; floodplains; in sand along canals; riparian areas, and disturbed areas growing in dry sandy ground and silty ground, occurring from sea level to 3,300 feet in elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Atriplex canescens*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent (ashes used in place of baking soda and also to give a greenish-blue color to dough), spice and/or dye crop; it was also noted as having been used as tools, as a drug or medication, to make ceremonial items (including prayer sticks - pahos) and as a commodity used in personal hygiene.

The life span of the Fourwing Saltbush has been reported to be from 29 to over 100 years. Fourwing Saltbush may be useful in controlling erosion. Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), Black-tailed Jackrabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*), and Bighorn Sheep (*Ovis canadensis*); as well as, other small mammals browse this plant, and Grouse, Gray Partridge (*Perdis perdix*), Scaled Quail (*Callipepla squamata*) and other birds as well as Kangaroo Rats, Pocket Mice and other small rodents feed on the seeds. This plant is a larval food plant for the Pygmy Blue (*Brefidium exile*). The keying out of Four-wing Saltbushes may be difficult due to intraspecific variation and introgression with other saltbush species. *Atriplex canescens* var. *linearis* is native to southwest-central and southern North America. *5, 6, 13 (*Atriplex canescens* (Pursh) Nutt. var. *macilenta* (Jepson) Munz - "This variety is restricted to more alkaline soils than is var. *canescens* and is associated often with *Atriplex polycarpa*."), 18 (species), 26 (color photograph of species, species), 28 (species, color photograph 490 of species), 43 (012710 - *Atriplex canescens* (Pursh) Nutt. var. *linearis* Munz, *Atriplex canescens* (Pursh) Nutt. subsp. *linearis* H.M. Hall & Clem.), 44 (082612), 46 (*Atriplex linearis* Wats.), 48 (species), **56**, **57**, 63 (082512), 77, 82, **85** (082812), 91 ("As a secondary or facultative absorber of selenium, *Atriplex canescens* can be mildly poisonous to livestock where selenium occurs in the soil."), 115 (color presentation of the species), 124 (082512 - no record of species; genus record), 127 (species), **WTK** (February 2, 2013)*

***Atriplex elegans* (C.H. Moquin-Tandon) D.N. Dietrich: Wheelscale Saltbush**

COMMON NAMES: Chamiso Cenizo (a name also applied to other species, Spanish); Fasciculata Saltbush (var. *fasciculata*); Mecca Orach (var. *fasciculata*); Mecca Orache (var. *fasciculata*); Salton Fasciculata Saltbush (var. *fasciculata*); Wheel-scale; Wheel-scale Orach; Wheel-scale Saltbush; Wheelscale; Wheelscale Orach; Wheelscale Saltbush; White-scale Saltbush. DESCRIPTION: Terrestrial annual or perennial forb/herb (procumbent, ascending to erect stems 2 inches to 3 feet in height, plants (smooth and round) were observed that were 8 inches in height and width); the foliage is gray-blue, gray-green or green; the small flowers are greenish; flowering generally takes place between early March and mid-October; the fruits (bracteols are 1/8 inch in diameter) are grayish, greenish or green-yellow. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; rocky ledges; foothills; rocky hills; rocky hillsides; rocky, gravelly-loamy and clayey-loamy slopes; rocky outcrops; alluvial fans; sand dunes; sandy plains; gravelly, sandy and clayey flats; basins; along sandy and clayey valley floors; rutted roadbeds; along gravelly and sandy roadsides; sandy arroyos; draws; sandy riverbeds; along and in gravelly washes; along and in drainages; clayey dry lakebeds; playas; depressions; (clayey) banks of rivers; edges of dry lakes; gravelly-sand bars; benches; along clayey bottomlands; sandy-loamy floodplains; mesquite bosques; margins of stock tanks; along canals; canal banks; ditches; silty edges of ditches; gravelly and sandy riparian areas; waste places, and disturbed areas growing in moist and dry desert pavement; rocky, stony, gravelly, gravelly-sandy and sandy ground; gravelly clay and clay ground; gravelly loam, sandy loam and clay loam ground, and silty ground, occurring from sea level to 5,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop. Wheelscale Saltbush is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets. *Atriplex elegans* is native to southwest-central and southern North America. *5, 6, **16**, 43 (071309), 44 (082812), 46 (Page 258), **56**, **57**, 63 (082812), 68, 85 (082912 - color presentation), **89** (reported as being a long-lived annual herb located on the Mesa-like Mountain Slopes), 124 (082812 - no record of species; genus record), 127, **WTK** (August 3, 2010)*

Atriplex elegans subsp. *elegans* (see *Atriplex elegans* var. *elegans*)

***Atriplex elegans* (C.H. Moquin-Tandon) D.N. Dietrich var. *elegans*: Wheelscale Saltbush**

SYNONYMY: *Atriplex elegans* (C.H. Moquin-Tandon) D.N. Dietrich subsp. *elegans*. COMMON NAMES: Chamiso Cenizo (a name also applied to the species and to other species, Spanish); Typical Wheel-scale; Typical Wheel-scale Orach; Typical Wheel-scale Saltbush; Typical Wheelscale; Typical Wheelscale Orach; Typical Wheelscale Saltbush; Typical White-scale Saltbush. DESCRIPTION: Terrestrial annual or perennial forb/herb (procumbent, ascending to erect stems 2 inches to 3 feet in height); the foliage is blue-gray or green; the small flowers are greenish; for the species flowering generally takes place between early March and mid-October; the fruits (bracteols are 1/8 inch in diameter with typically smooth facings) are grayish or greenish. HABITAT: Within the range of this species it has been reported from rocky canyons; rocky hillsides; rocky slopes; plains; gravelly and gravelly-sandy flats; along gravelly-sandy roadsides; sandy arroyos; within drainages; floodplains; mesquite bosques; margins of stock tanks; clayey-silty ditch banks; gravelly riparian areas, and disturbed areas growing in moist and dry rocky, gravelly and gravelly-sandy ground and clayey silty ground, occurring from 100 to 5,400 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: The species, *Atriplex elegans*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop. Wheelscale Saltbush is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets. *Atriplex elegans* var. *elegans* is native to southwest-central and southern North America. *5, 6, 58, 43 (071309), 44 (082812), 46 (species, Page 258), 58 (*Atriplex elegans* (Moq.) D. Dietr. subsp. *elegans*), 63 (082812- color presentation of dried materials), 68 (species), 77 (*Atriplex elegans* (Moq.) D. Dietr. subsp. *elegans*), **85** (082912 - color presentation of dried material), 124 (082812 - no record of variety or species; genus record), 127 (species)*

***Atriplex elegans* (C.H. Moquin-Tandon) D.N. Dietrich var. *thornberi* M.E. Jones: Wheelscale Saltbush**

SYNONYMY: *Atriplex thornberi* (M.E. Jones) P.C. Standley. COMMON NAMES: Chamiso Cenizo (a name also applied to the species and to other species, Spanish); Wheelscale (a name also applied to the species); Wheelscale Saltbush (a

name also applied to the species); White-scale Saltbush (a name also applied to the species). DESCRIPTION: Terrestrial annual or perennial forb/herb (procumbent, ascending to erect stems 2 inches to 3 feet in height); the foliage is green; the small flowers are greenish; for the species flowering generally takes place between early March and mid-October; the fruits (bracteols are 1/8 inch in diameter with prominent crests on the facings) are grayish or greenish. HABITAT: Within the range of this species it has been reported from mountains; rocky hillsides; rocky slopes; plains; gravelly and clayey flats; along roadsides; along and in washes; floodplains; around stock tanks; ditches; waste places, and disturbed areas growing in moist and dry rocky and gravelly ground and clay ground, occurring from 100 to 3,500 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: The species, *Atriplex elegans*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop. Wheelscale Saltbush is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets. *Atriplex elegans* var. *thornberi* is native to southwest-central North America. *5, 6, 15, 43 (071309), 44 (082812 - no record of variety; species and genus records), 46, 63 (082812 - color presentation), 68 (species), **85** (082912 - color presentation of dried material, *Atriplex elegans*), 124 (082812 - no record of variety or species; genus record), 127 (species)*

Atriplex linearis (see *Atriplex canescens* var. *linearis*)

***Atriplex polycarpa* (J. Torrey) S. Watson: Cattle Saltbush**

COMMON NAMES: Alkali Saltbush; All Scale; All-scale; Allscale; Allscale Saltbush; Cattle Saltbush; Cattle Spinach; Cattle-spinach; Cattle-spinach Saltbush; Cenizo (a name also applied to other species, Spanish); Chamizo (a name also applied to other species, Spanish); Chamiso Cenizo (a name also applied to other species, Spanish); Cow Spinach; Desert Sage; Desert Saltbush (a name also applied to other species); Desert Salt-bush; Kokomaki Sha'l (Pima); Little Leaf Saltbush; Little-leaf Saltbush; Littleleaf Saltbush; Many-fruit Saltbush; Many-fruited Saltbush; Sage (a name also applied to other species); Sagebrush (a name also applied to other species); Shadscale. DESCRIPTION: Terrestrial perennial deciduous shrub (spreading erect stems 1 to 6½ feet in height; one plant was observed and described as being a round bush 2 feet in height, plants were observed and described as being 5 feet in height and 6½ feet in width); the leaves are gray, gray-green, gray-white, silvery, silvery-gray or silvery-green; the inconspicuous flowers (male and female flowers may be borne on separate plants) may be greenish, greenish-white, yellow or yellowish; the anthers are yellow; flowering generally takes place between early September and mid-November (additional records: two for early January, one for late January, two for early February, two for mid-February, one for late February, one for mid-March, one for late March, two for early April, one for mid-April, two for late April, one for late May, four for late June, one for early July, two for early August and one for late December; flowering beginning in spring and continuing through fall has also been reported); the ripe fruits are orange. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; foothills; rocky canyons; along sandy canyon bottoms; talus slopes; foothills; hills; hilltops; hillsides; bedrock, rocky, gravelly, gravelly-loamy, sandy and sandy-loamy slopes; alluvial fans; gravelly and gravelly-sandy bajadas; amongst rocks; sand dunes; sand hummocks; sandy plains; gravelly and sandy flats; gravelly-sandy valley floors; valley bottoms; coastal dunes; coastal plains; coastal beaches; along railroad right-of-ways; along gravelly, gravelly-sandy and silty roadsides; bottoms of arroyos; silty springs; along creeks; along rivers; riverbeds; along and in gravelly, gravelly-sandy, gravelly-loamy and sandy washes; along drainages; clayey playas; sinks; on (gravelly-loamy and sandy) banks of washes; borders of washes; edges of washes and playas; (gravelly and sandy) margins of seeps, washes and playas; along shores of lakes; rocky benches; terraces; bottomlands; sandy floodplains; canal right-of-ways; sandy riparian areas; waste places, and disturbed areas growing in wet and dry rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and silty loam ground; clay ground, and rocky silty and silty ground, occurring from sea level to 6,100 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it is relatively drought resistant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Atriplex polycarpa* is native to southwest-central and southern North America. *5, 6, 13 (Pages 170 &171), 18, 28 (note under *Atriplex canescens*), 43 (012810 - *Atriplex polycarpa* S. Watson), 44 (021911 - color photograph), 46 (Pages 258-259), 48, **56**, **57**, 63 (082912 - color presentation including habitat), **77**, **85** (083012 - color presentation including habitat), **89** (reported as being a shrub located on the Santa Cruz Flood-plain), 91 (Pages 107-109), 124 (040111 - no record of species; genus record), 127, 135*

***Atriplex serenana* A. Nelson var. *serenana*: Bractscale**

SYNONYMY: *Atriplex bracteosa* S. Watson. COMMON NAMES: Typical Bracteate Orach; Typical Bractscale; Typical Stinking Orach. DESCRIPTION: Terrestrial annual forb/herb (sprawling ascending and/or erect stems 16 inches to 6½ feet in height and 1 to 5 feet in width; plants were observed and described as being 16 inches in height and 40 inches in width); the stems may be reddish; the leaves may be slightly canescent (gray and hoary); flowering generally takes place between mid-June and mid-October (additional records: one for early May and one for late May). HABITAT: Within the range of this species it has been reported from sandy mesas; slopes; silty plains; flats; sandy-loamy and silty-loamy valley floors; marshes; drainages; swales; clayey-loamy edges of poolbeds (dried mudholes); floodplains; in ditches; riparian areas; recently burned areas in woodlands, coastal sage scrub and chaparral, and disturbed areas growing in dry sandy ground; sandy loam, clayey loam and silty loam ground, and silty ground, occurring from 200 to 4,500 feet in elevation in the woodland, scrub and wetland ecological formations. NOTES: EXOTIC Plant. The species, *Atriplex serenana*, was reported to have been utilized by native peoples of North America; it was noted as having been used as food, cooking agent and spice. The foliage reportedly has a foul, rank fishy

odor (smells rotten). This plant is recorded in the J.J. Thonber 1909 listing; however, this plant was not known to occur in Arizona. *Atriplex serenana* var. *serenana* is native to southwest-central and southern (Baja California) North America. *43 (012710 - *Atriplex serenana* A. Nelson ex Abrams), 44 (083112), 63 (083112 - mapping shows *Atriplex serenana* var. *serenana* as occurring in Arizona), 85 (083112), **89** (reported as being a long-lived annual herb located on Santa Cruz Flood-plain, recorded as *Atriplex bracteosa* Wats.), 95 (Personal Communication - May 22, 2006, *Atriplex serenana* A. Nelson: this plant does not occur in Arizona), 124 (083112 - no record of variety or species; genus record), 127 (species), 133*

***Atriplex texana* S. Watson: Texas Saltbush**

COMMON NAME: Texas Saltbush. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 4 to 16? inches in height). HABITAT: Within the range of this species it has been reported from clayey fields; roadsides, and along streams growing in clayey ground. NOTES: EXOTIC. The Texas Saltbush is not known to occur in Arizona, this species was probably misidentified, and it is not known which species might have been observed. *Atriplex texana* is native to southwest-central and southern North America. *5, 6, 43 (012810), 44 (090112 - no record of species; genus record), 46 (no record), 63 (090112), 85 (090112), **89** (reported as being a long-lived annual herb located on the Mesa-like Mountain Slopes), 95 (Personal Communication - 052206), 124 (090112 - no record of species; genus record)*

Atriplex thornberi (see *Atriplex elegans* subsp. *thornberi*)

***Atriplex wrightii* S. Watson: Wright's Saltbush**

COMMON NAMES: Wright Saltbush; Wright's Orach; Wright's Salt Bush; Wright's Saltbush. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 6 inches to 6 feet in height); the stems are reddish; the leaves are bright green above and silvery beneath; the flowers are inconspicuous; flowering generally takes place between early June and mid-September (additional record: one for late April). HABITAT: Within the range of this species it has been reported from mountains; canyons; hills; rocky and clayey-loamy slopes; valley floors; along railroad right-of-ways; along rocky roadsides; draws; springs; along rivers; along riverbeds; along washes; clayey playas; sandy depressions; (sandy) banks of rivers; terraces; bottomlands; floodplains; ditches; clayey-loamy ditch banks; riparian areas; waste places, and disturbed areas growing in damp and dry rocky and sandy ground; clayey loam ground, and clay ground, occurring from sea level to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop. This plant reportedly provides food for Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Antelope and Quail. *Atriplex wrightii* is native to southwest-central and southern North America. *5, 6, 43 (070209), 44 (062911 - no species record; genus record), 46 (Page 258), **56**, **57**, 63 (090112), 68, **85** (090112 - color presentation), 124 (062911 - no species record; genus record), 127*

***Chenopodium album* C. Linnaeus: Lambsquarters**

COMMON NAMES: Ançarinha-branca (Portuguese); Anserina-branca (Portuguese); Ansérine Blanche (French); Armuelle (Spanish); Bacon Weed; Bacon-weed; Baconweed; Black Weed (stains fingers black, Eastern Long Island); Blackweed (stains fingers black, Eastern Long Island); Calite (New Mexico); Canxlogan Ingkpa Gmigmela (small end rounded weed, Lakota); Cenizo Blanco (Spanish); Chou Grass; Chual (Spanish); Common Frost-blite; Common Lamb's Quarters; Common Lambs' Quarter; Common Lamb's-quarter; Common Lamb's-quarters; Common Lambsquarter; Common Lambsquarters; Dirty Dick; Dirty-Dick; Dirtweed; Dung Weed; Dung-weed; Dungweed; Erva-formigueira-branca (Portuguese: Brazil); Falsa-erva-de-Santa-Maria (Portuguese: Brazil); Farinello Comune; Fat Hen (a name also applied to other species); Fat-hen (a name also applied to other species); Fathen (a name also applied to other species); Forst Bite; Frost Bite; Frost Blight; Frost-blight; Frostblight; Goosefoot (a name also applied to the genus *Chenopodium* and the Chenopodiaceae); Giant Fat-hen; Green Pig-weed; Green Pigweed; Iwa-akaza (Japanese Rōmaji); Kitsarius (green juice, Pawnee); Lamb's Quarters (a name also applied to other species and the genus *Chenopodium*); Lambs' Quarter (a name also applied to other species); Lamb's-quarter (a name also applied to other species); Lamb's-quarters (a name also applied to other species); Lambs-quarters; Lambsquarter (a name also applied to the genus *Chenopodium*); Lambsquarters (a name also applied to other species); Lambsquarters Goosefoot; Lateflowering Goosefoot (var. *striatum*); Li (transcribed Chinese); Mails; Meal Weed; Meals; Meal-weed; Mealweed; Meld Weed; Meld-weed; Meldweed; Melge; Midden Myles; Miles; Missouri Lambsquarters (var. *missouriense*); Motton-tops; Mutton Tops; Mutton-tops; Narrowleaf Goosefoot (*C.a.* var. *leptophyllum*; *C. leptophyllum*); Netseed Lambsquarters; Pig-weed (Pig Weed is a name that is also applied to other species and the genus *Chenopodium*); Pigweed (a name also applied to other species and the genus *Chenopodium*); Pitseed Goosefoot (*C.a.* var. *berlandieri*; C. *berlandieri* var. *berlandieri*); Rag-jag; Ragjag; Rukab al-Gamal (Arabic); Seaport Goosefoot (*C.a.* var. *viride*; *C. opulifolium*); Shawlah (Arabic); Stevens' Lambsquarters (var. *stevensii*); Stevens's Lambsquarters (var. *stevensii*); Svinmålla (Swedish); Wah'pe Toto (greens, Dakota); Weisser Gänsefuss (German) Weißer Gänsefuß (German); Weraq (Arabic); White Goose Foot; White Goose's Foot; White Goose-foot; White Goosefoot; White Lamb's Quarters; White Lamb's-quarters; White Lambs Quarter; White Lambs-quarter; White Lambs Quarters; White Lambs-quarters; White Lambsquarter; White Lambsquarters; White Meld Weed; White Meld-weed; White Meldweed; White Pigweed (a name also applied to other species); Wild Spinach (a name also applied to other species); Yamā-akaza (Japanese Rōmaji). DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 10 feet in height, plants were reported that were 10 inches in height and width); the leaves are gray-green or green with a purple underside; the inconspicuous flowers are gray-green, green, greenish, pink, white, whitish-green or yellow-green; flowering generally takes place between

mid-March and mid-November (additional records: one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from rocky mountains; mesas; cliffs; bases of cliffs; sandy canyons; canyon bottoms; bluffs; clearings and openings in forests; humic meadows; foothills; hillsides; escarpments; rocky-sandy, rocky-clayey, loamy and clayey slopes; sandy breaklands; loamy steppes; prairies; rocky and clayey flats; basins; valley floors; along railroad right-of-ways; along stony, gravelly-sandy and sandy roadsides; within clayey arroyos; gravelly sandy bottoms of gulches; seeps; sandy streambeds; in sand along creeks; sandy creekbeds; in sand along rivers; rocky-cobbly-sandy and sandy riverbeds; within gravelly-sandy and sandy washes; along drainages; silty pondbeds; clayey lakebeds; ciénegas; depressions; (sandy) banks of creeks; margins of washes; clayey floodplains; along fencelines; levees; edges of beaver ponds; catchment basins; stock tanks; along canals; ditches; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry rocky, rocky-cobbly-sandy, rocky-sandy, stony, cindery, gravelly-sandy and sandy ground; gravelly loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky clay, sandy clay and clay ground, and silty ground, occurring from sea level to 9,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXOTIC invasive plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as a spice, as a drug or medication and as a paint (used on bows and arrows). There is little agreement as to the areas that *Chenopodium album* is native; however, none of the varieties of *Chenopodium album* have been shown as being native to Arizona. *5, 6, 43 (012810), 44 (090212), 46 (Page 254), 63 (090312 - color presentation), 68, 80 (This species is considered to be a Rarely Poisonous and Suspected Poisonous Range Plant. "This annual herb frequently contains dangerous concentrations of nitrate but losses have not been reported in Arizona."), 85 (090312 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (note under *Chenopodium berlandieri*), 124 (090212), 127*

Chenopodium album var. *leptophyllum* (see *Chenopodium leptophyllum*)

Chenopodium arizonicum (see *Chenopodium neomexicanum* var. *neomexicanum*)

***Chenopodium berlandieri* C.H. Moquin-Tandon: Pitseed Goosefoot**

COMMON NAMES: Belle Dame Sauvage (French: Louisiana)[140]; Berlandier Goosefoot; Berlandier's Goosefoot; Berlandiers Gänsefuß (German); Berlandier Netseed; Bledo (Spanish)[140]; Bledo Extranjero (applied to subsp. *nuttalliae*, Spanish); Cual (Uto-Aztecan: Tohono O'odham)[140]; Cuatztli (Uto-Aztecan: Náhuatl)[140]; Choupichoul (Gulf: Natchez)[140]; Chuale <chual, choale, guate> (Spanish: Mexico)[140]; Cotasula (Uto-Aztecan: Guarijío)[140]; Čuá <činaka, čuaka, chu-aka, chu-ya> (Uto-Aztecan: Tarahumara)[140]; Dích'íí 'Ik'eht'ąą' <dokó□z ʔikt'ą'í> (Athapascan: Navajo)[140]; Hdhpši (Yuman: Cocopa)[140]; Ho:ohal (Uto-Aztecan: Tübatulabal)[140]; Höhöla (Uto-Aztecan: Hopi)[140]; Huaquilitl (Uto-Aztecan: Náhuatl)[140]; Huauthli (applied to subsp. *nuttalliae*, Spanish: Mexico); Huauzontle (applied to subsp. *nuttalliae*, Spanish: Mexico); Huauzontle <guausoncles, guauzoncles, huauzontl, huauzontli, huanzoncle> (Uto-Aztecan: Náhuatl)[140]; I'ûpi (Uto-Aztecan: Shoshoni; other species with different names)[140]; It'ąą Dit'ógé, It'ąą Nch'ii'é <it'ą inkozee> (Athapascan: Western Apache)[140]; Ita ("Leaf", Athapascan: Chiricahua and Mescalero Apache)[140]; Iwagi <ihwagi> (Uto-Aztecan: Tohono O'odham)[140]; Kapa (Uto-Aztecan: Yaqui)[140]; Ki'awet <kehawut, keit, kit> (Uto-Aztecan: Cahuilla)[140]; Kia'tsanna (Language Isolate: Zuni)[140]; Kö 'Yo (Uto-Aztecan: Northern Paiute)[140]; Kobu <cobu> (Uto-Aztecan: Nevome)[140]; Kokoncher <kokeynchár> (Uto-Aztecan: Mountain Pima)[140]; Koovi (Uto-Aztecan: Kawaiisu)[140]; Kovĭ (Uto-Aztecan: Akimel O'odham)[140]; Kwa'thami <quoth ah me> (Yuman: Mohave)[140]; Łibá'ígí <łabáʔígí> (Athapascan: Navajo)[140]; Łichíí' <łčíʔ> ("The One That Is Red", Athapascan: Navajo)[140]; Michihuatli (Uto-Aztecan: Náhuatl)[140]; Net-seeded Lamb's Quarters; Netseed Lambsquarters; Nuttalls Gänsefuß (German - applied to subsp. *nuttalliae*); 'Onk I:wagi ("Salty Edible Greens", Uto-Aztecan: Tohono O'odham)[140]; Pigseed Goosefoot; Pigweed (a name also applied to other species and the genus *Chenopodium*); Pit-seed Goosefoot (English)[140]; Pit-seeded Goosefoot; Pitseed Goosefoot; Pitted Goosefoot; Quelite [Cenizo, Salado] ("[Ashy, Salty] Greens", Spanish: Mexico)[140]; Sirwa (Uto-Aztecan)[140]; Síswa (Uto-Aztecan: Hopi)[140]; Southern Huauzontle (applied to subsp. *nuttalliae*); Stinking Lamb's-quarters; Ṣu:'uwaḍ (Uto-Aztecan: Tohono O'odham)[140]; Ṣu:'uwaḍ <šu'awat> (Uto-Aztecan: Onavas Pima)[140]; Teksasinsavikka; Tł'ohdeeí [Ts'oh, Ts'yaa] <y'oh de' [c'o's, ci'yah]> (Athapascan: Navajo)[140]; Tł'oh Łigai <tł'oh łigaii> (Athapascan: Navajo)[140]; Uauhquilitl (Uto-Aztecan: Náhuatl)[140]; Uauhtli (Uto-Aztecan: Náhuatl; name of *Chenopodium* seed)[140]; Uha (Uto-Aztecan: Onavas Pima)[140]; Waha <waja, wakk> (Uto-Aztecan: Mountain Pima)[140]; We'lel (Chumash: Barbareño Chumash)[140]; Welel (Chumash: Ineseño Chumash)[140]; Wɨtā <wa·'ta'> (Uto-Aztecan: Northern Paiute)[140]; Wiwida <guiguida> (to plant goosefoot or to scatter salt on food, Uto-Aztecan: Mountain Pima)[140]. DESCRIPTION: Terrestrial annual forb/herb (ascending to erect stems 4 inches to 6 feet in height); the stems are often reddish; the foliage is green; the inconspicuous flowers are light green, green, greenish-gray, greenish-white, white or yellow-green; flowering generally takes place between early April and late October (additional records: one for late January, one for mid-February, one for late February and two for late November). HABITAT: Within the range of this species it has been reported from mountains; gravelly-loamy mountainsides; bases of mountains; sandy mesas; cliffs; bases of cliffs; rocky canyons; rocky and rocky-sandy and sandy canyon bottoms; sandy and loamy ridges; meadows; bouldery foothills; hills; hilltops; clayey hillsides; bouldery, rocky, gravelly-loamy, sandy, sandy-loamy, clayey and silty-clayey slopes; alluvial fans; rocky outcrops; amongst boulders; boulder fields; dunes; sandy hummocks; steppes; rocky and sandy prairies; silty plains; clayey, silty-loamy and silty-clayey flats; uplands; basins; silty-loamy valley floors; silty-loamy valley bottoms; coastal saltwater marshes; along sandy coastlines; along railroad right-of-ways; in sandy roadbeds; along gravelly; gravelly-loamy and sandy roadsides; arroyos; clayey draws; gulches; seeps; springs; bouldery-stony-gravelly-sandy and sandy soils along streams; streambeds; along creeks; along and in sandy creekbeds; in sandy soil along rivers; along and in riverbeds; along and in rocky, rocky-gravelly-sandy and sandy washes; along drainages; drainage ways; poolbeds; muddy lakebeds; bogs; freshwater marshes; clayey depressions;

swales; along (sandy) banks of creeks, rivers and washes; edges of salt marshes; along (sandy) margins of creeks, washes; pools, ponds, lakes and marshes; along (muddy) shorelines of lakes; mudflats; sandbars; sandy beaches; cobbly-sandy and sandy benches; cobbly-sandy and sandy terraces; sandy and clayey bottomlands; sandy and clayey floodplains; along fencelines; dams; stock ponds; along and in ditches; ditch banks; rocky, gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in muddy and moist and dry bouldery, bouldery-stony-gravelly-sandy rocky, rocky-gravelly-sandy, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; silty clay and clay ground, and silty ground, occurring from sea level to 10,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The foliage is browsed by Brush Rabbits (*Sylvilagus bachmani*). Pitseed Goosefoot is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets. *Chenopodium berlandieri* is native to northwestern, northern, central and southern North America. *5, 6, 15, 43 (070209), 44 (063011 - color photograph), 46 (Page 253), 63 (090312), **77**, **85** (090312 - color presentation), 101 (color photograph), 124 (063011), 140 (recorded as *Chenopodium berlandieri* Moquin-Tandon [*Chenopodium murale* of literature], Pages 112-114 & 289)*

Chenopodium fremontii S. Watson: Fremont's Goosefoot

COMMON NAMES: Fremont Goosefoot; Frémont Goosefoot; Fremont's Goosefoot; Frémont's Goosefoot; Goosefoot (a name also applied to the genus *Chenopodium* and the Chenopodiaceae); Mealy Goosefoot (*C.f.* var. *incanum*; *C. incanum* var. *incanum*). DESCRIPTION: Terrestrial annual forb/herb (spreading to erect stems 4 to 64 inches in height); the stems are often purple or red; the foliage is grayish, green or yellow-green; the inconspicuous flowers may be green, greenish, greenish-white, greenish-yellow or white; flowering generally takes place between mid-May and late October (additional record: one for mid-April). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mountainsides; sandy mesas; rocky plateaus; along canyon rims; cliffs; bases of cliffs; along sandy canyons; along sandy canyon bottoms; scree; talus slopes; crevices in rocks; ridges; loamy ridgetops; sandy openings in forests; meadows; foothills; clayey hills; rocky hillsides; along bouldery, bouldery-sandy, rocky, rocky, rocky-sandy, cindery, gravelly, gravelly-clayey-loamy, sandy and sandy-loamy slopes; sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; rocky lava flows; sand dunes; plains; gravelly and sandy flats; basins; stony-loamy hollows; rocky roadcuts; along rocky, stony-loamy, gravelly-sandy and sandy roadsides; two-tracks; within rocky and sandy arroyos; sandy, sandy-silty and clayey bottoms of arroyos; sandy draws; gulches; gullies; rocky ravines; springs; along streams; along and in bouldery-rocky and sandy streambeds; in sand along creeks; sandy creekbeds; along rivers; along riverbeds; along and in gravelly, sandy and clayey washes; loamy drainages; rocky drainage ways; lakebeds; boggy areas; along (sandy) banks of streams, creeks and rivers; (sandy) edges of streams, creeks, washes, drainages, drainage ways and swales; margins of rivers; benches; oxbows; gravelly-sandy and sandy terraces; bottomlands; silty floodplains; lowlands; mesquite bosques; along ditches; sandy-humusy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly-pebbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; stony loam, gravelly loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; sandy clay and clay ground; bouldery-silty, sandy-silty and silty ground, and sandy humusy ground, occurring from 2,100 to 10,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop; it was also noted as having been used as a cooking agent. *Chenopodium fremontii* is native to west-central and southern North America. *5, 6, 15, **16**, 43 (070209), 44 (090412), 46 (Page 253-254), 63 (090412), **85** (090512 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 124 (090412), 127, 140 (Page 289)*

Chenopodium leptophyllum (C.H. Moquin-Tandon) T. Nuttall ex S. Watson: Narrowleaf Goosefoot

SYNONYMY: *Chenopodium album* C. Linnaeus var. *leptophyllum* C.H. Moquin-Tandon. COMMON NAMES: Goosefoot (a name also applied to the genus *Chenopodium* and the Chenopodiaceae); Narrow Goosefoot; Narrow-leaf Goosefoot (a name also applied to other species); Narrow-leaved Goosefoot (a name also applied to other species); Narrowleaf Goosefoot (a name also applied to other species); Narrowleaf Lambsquarters (a name also applied to other species); Narrowleaved Goosefoot; Slender Goosefoot; Slender-leaved Goosefoot; Slim-leaf Goosefoot (a name also applied to other species); Slimleaf Goosefoot (a name also applied to other species); Slimleaf Lambsquarters (a name also applied to other species); Thin-leaved Goosefoot. DESCRIPTION: Terrestrial annual forb/herb (semi-erect and/or erect stems 4 inches to 4 feet in height); the inconspicuous flowers may be green, greenish, green-white or reddish; flowering generally takes place between early June and early October (additional records: one for early April and one for mid-April). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; rocky and sandy canyon bottoms; sandy rincons; talus slopes; crevices in rocks; along rocky ridges; ridgelines; clayey openings between shrubs; gravelly-sandy, gravelly-sandy-clayey-loamy and sandy meadows; foothills; gravelly hills; hillsides; rocky, rocky-sandy, cobbly-loamy, gravelly, gravelly-loamy, sandy, sandy-loamy, clayey and silty-clayey slopes; sandy alluvial fans; bases of rock outcrops; sandy lava flows; lava beds; sand hills; sand dunes; sandy banks; gravelly outwash fans; sandy prairies; sandy and clayey flats; uplands; sandy-clayey-loamy basins; valley floors; valley bottoms; along sandy and sandy-loamy roadsides; draws; springs; along streams; streambeds; along creeks; sandy creekbeds; sandy riverbeds; along and in sandy washes; drainages; along drainage ways; areas of water accumulation; pondbeds; sumps; banks of rivers; (gravelly) shores of lakes; sand bars; benches; oxbows; sandy terraces; bottomlands; floodplains; fencelines; drying stock ponds; along edges of shorelines of reservoirs; sandy and sandy-humusy riparian areas; waste places; recently burned areas in woodlands, and disturbed areas growing in moist and dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; cobbly loam, gravelly loam, sandy loam and sandy-clayey loam ground; silty clay and clay ground, and sandy humusy ground, occurring

from 900 to 11,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Chenopodium leptophyllum* is native to northwestern, northern, central and southern North America. *5, 6, 43 (012910), 44 (090512), 46 (Page 253), 63 (090512), 68, 80 (The species, *Chenopodium album*, is considered to be a Rarely Poisonous and Suspected Poisonous Range Plant. "This annual herb frequently contains dangerous concentrations of nitrate but losses have not been reported in Arizona."), **85** (090612 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 124 (090512), 127*

***Chenopodium murale* C. Linnaeus: Nettleleaf Goosefoot**

COMMON NAMES: Ābu 'Effein (Arabic); Australian Spinach; Australian-spinach; Chual (Spanish); Chuana Soap; Cuhal; Gatmålla (Swedish); Goosefoot (a name also applied to the genus *Chenopodium* and the Chenopodiaceae); Green Fat Hen; Green Fat-hen; Green Goosefoot (a name also applied to other species); Lamb's Quarters (a name also applied to other species); Mauer-Gänsefuß (German); Nettle Leaf Goose Foot; Nettle Leaf Goosefoot; Nettle Leaved Fat Hen; Nettle Leaved Goosefoot; Nettle-leaf Fat-hen; Nettle-leaf Goose-foot; Nettle-leaf Goosefoot; Nettle-leaved Fat Hen; Nettle-leaved Fat-hen; Nettle-leaved Fathen; Nettle-leaved Goose Foot; Nettle-leaved Goose-foot; Nettle-leaved Goosefoot; Nettle-leaved Lamb's Quarters; Nettleleaf Goosefoot; Quenopódio (Portuguese); Rauniosavikka; Round Leaved Fat Hen (a name also applied to other species); Saltgreen; Salt-green (a name also applied to other species); Shiny-leaf Goosefoot; Siim (Seri); Sowbane (a name also applied to other species); Swinebane (a name also applied to other species); Wal Goosefoot; Wall Goose-foot; Wall Goosefoot; Wall-flower Goosefoot; Wheat Bush; Zarbeeh (Arabic). DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 to 40 inches in height); the leaves are shiny dark green; the inconspicuous flowers are green, greenish or white; flowering generally takes place between early December and late July, but may continue throughout the year (additional records: flowering occurring mostly in the spring has been reported). HABITAT: Within the range of this species it has been reported from mountains; cliffs; bases of rock walls; canyons; rocky, rocky-sandy, sandy and sandy-loamy canyon bottoms; cobbly-sandy-loamy ridgetops; rocky and rocky-sandy hills; hilltops; rocky and clayey hillsides; rocky and sandy slopes; rocky slopes; rocky-sandy alluvial fans; sandy-loamy bajadas; sand dunes; in sand along edges of dunes; sand hummocks; clay mounds; prairies; plains; rocky-sandy, sandy and clayey flats; sandy basins; valley floors; coastal dunes; rocky soil at the edges of coastal beaches; coastal marshes; along railroad right-of-ways; along rocky, gravelly-loamy, sandy and clayey roadsides; arroyos; gulches; seeps; springs; along streams; along and in gravelly-sandy and clayey riverbeds; along and in bouldery, gravelly-sandy and sandy washes; along and in drainage ways; in clay around ponds; clayey freshwater marshes; saltmarshes; (clayey) banks of streams and rivers; (sandy) edges of streams and washes; sand bars; benches; cobbly and sandy floodplains; along edges of stock tanks; (muddy-sandy) shores of reservoirs; along canals; canal banks; within ditches; silty edges of ditches; muddy and sandy riparian areas; waste places; recently burned areas in woodlands, chaparral (including sage scrub) and grasslands, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly loam, sandy loam ground; loamy clay and clay ground, and silty ground, occurring from sea level to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. Nettleleaf Goosefoot is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets. *Chenopodium murale* is native to northern, central, eastern and southern Europe; western and southern Asia, and northern Africa. *5, 6, 15, **16**, 43 (012910), 44 (090612), 46 (Page 253), 63 (090712 - color presentation of seed), 68, **77**, **85** (090712 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (color photograph), 124 (090612), 127, 140 (recorded as *Chenopodium berlandieri* Moquin-Tandon [*Chenopodium murale* of literature], Pages 113 & 289)*

***Chenopodium neomexicanum* P.C. Standley (var. *neomexicanum* is the variety reported as occurring in Arizona): New Mexico Goosefoot**

SYNONYMY: (for var. *neomexicanum*: *Chenopodium arizonicum* P.C. Standley). COMMON NAMES: Choal (Spanish); Chual (Spanish); Fishy Goosefoot; Goosefoot (a name also applied to the genus *Chenopodium* and the Chenopodiaceae); New Mexico Goosefoot (species and var. *neomexicanum*); Palmer's Goosefoot (var. *palmeri*); Quelite Apestoso (Mexico: Sonora). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 4 inches to 5 feet in height); the stems are often reddish; the inconspicuous flowers are green; based on few records located, flowering generally takes place between mid-August and late October (additional records: one for mid-July and one for late July; flowering as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; rocky canyons; rocky canyon bottoms; ridgetops; meadows; edges of meadows; foothills; rocky hills; rocky hillsides; rocky, cindery and sandy slopes; rocky bajadas; amongst boulders and rocks; boulder fields; cobbly plains; gravelly and gravelly-sandy flats; valleys; along roadsides; along rocky and sandy arroyos; bottoms of arroyos; ravines; springs; streambeds; along creeks; along and in stony-sandy and sandy washes; ciénegas; bottomlands; sandy floodplains; mesquite bosques; ditches, and riparian areas growing in moist and dry bouldery, rocky, stony-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; loam ground, and bouldery silty and silty ground, occurring from 500 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may have a strong odor, similar to that of sardines or rotting fish. *Chenopodium neomexicanum* is native to southwest-central and southern North America. *5, 6, 43 (013010), 44 (090812 - no record of species; genus record), 46 (*Chenopodium arizonicum* Standl., Page 253), **57**, 63 (090812), 77, **85** (090812 - color presentation), 124 (090812 - no record of species; genus record), 140 (Page 289)*

***Chenopodium watsonii* A. Nelson: Watson's Goosefoot**

COMMON NAMES: Dakota Stinking Goosefoot; Inner-tube-air Goosefoot; Lamb's-quarters (Lamb's Quarters is a name also applied to other species and the genus *Chenopodium*); Lambsquarter (a name also applied to other species and the genus *Chenopodium*); Watson Goosefoot; Watson's Goosefoot. DESCRIPTION: Terrestrial annual forb/herb (decumbent, ascending and/or erect stems 4 inches to 2 feet in height); the leaves are blue-green; based on a few records located, flowering generally takes place between late February and mid-October (flowering records: one for late February, one for early April, one for early May, one for late May, one for early June, six for mid-June, two for late June, one for early July, five for mid-July, six for late July, five for mid-August, eight for late August, one for mid-September, five for late September, one for early October and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; ridges; meadows; cinder cones; bases of cinder cones; foothills; hills; rocky and rocky-clayey hillsides; rocky, rocky-clayey, cindery and sandy slopes; amongst boulders and rocks; breaks; boulder fields; clay hardpans; erosion breaks in prairies; sandy prairies; sandy-clayey plains; cindery and clayey flats; uplands; sandy-clayey-loamy basins; clayey valleys; along sandy roadbeds; along sandy roadsides; draws; along rivers; along and in sandy and clayey washes; within drainages; bottoms of drainages; drainage ways; swales; banks of creeks; sandy bottomlands; floodplains; lowlands; along fencerows; dams; canals; ditches; edges of ditches; waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam and sandy-clayey loam ground; rocky clay, sandy clay and clay ground, and bouldery silty, gravelly-sandy silty and silty ground, occurring from 1,000 to 10,500 feet in elevation in the forest, woodland, grassland and desertscrub ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. This plant may have a strong and unpleasant (fetid/rotten fish/rotting eggs) odor. *Chenopodium watsonii* is native to southwest-central North America. *5, 6, 43 (070209), 44 (090812), 46 (Page 253), **56**, 63 (090812), 85 (090812 - color presentation), 124 (090812), 127*

Dondia suffrutescens (see *Suaeda suffrutescens*)

Dondia torreyana (see *Suaeda moquinii*)

***Monolepis nuttalliana* (J.A. Schultes) E.L. Greene: Nuttall's Povertyweed**

COMMON NAMES: Annual Povertyweed; Monolepis (a name also given to the genus *Monolepis*); Nutall Monolepis; Nuttall Poverty Weed; Nuttall Poverty-weed; Nuttall Povertyweed; Nuttall's Monolepis; Nuttall's Poverty Weed; Nuttall's Poverty-weed; Nuttall's Povertyweed; Opon (Pima); Papago Spinach; Patata (Spanish); Patota; Patota Povertyweed; Patote; Poverty Weed (a name also given to other species and the genus *Monolepis*); Poverty-weed (a name also given to other species and the genus *Monolepis*); Povertyweed (a name also given to the genus *Monolepis*); Spear Leaved Goosefoot; Spear Leaved Povertyweed; Spear-leaved Goosefoot; Spear-leaved Povertyweed; Suolasavikka. DESCRIPTION: Terrestrial annual forb/herb (prostrate to ascending stems 2 to 20 inches in height); the inconspicuous flowers may be green, greenish, greenish-tawney or yellow; flowering generally takes place between late January and early August (additional records: two for late August, two for early September, one for late September and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; grassy mesas; plateaus; cliffs; canyons; canyon bottoms; stony-cobbly, sandy and scree; crevices in rocks; chalky bluffs; rocky, rocky-gravely-clayey and clayey buttes; hogbacks; rocky-clayey knolls; ledges; rocky, shaley, gravelly, sandy and clayey ridges; rocky, shaley, stony, stony-cobbly, sandy and clayey ridgetops; bases of ridges; clearings in forests; rocky, loamy and clayey meadows; foothills; rocky, rocky-clayey, shaley and clayey hills; clayey hilltops; hillsides; bouldery, rocky, rocky-sandy, shaley, shaley-clayey, stony, stony-cobbly, stony-sandy, gravelly, gravelly-sandy, gravelly-clayey, pebbly-clayey, sandy, sandy-loamy, sandy-clayey, loamy, clayey and silty-clayey slopes; rocky outcrops; rocky-clayey rock beds; sand dunes; shaley breaks; benches; sandy-clayey and clayey mounds; rocky clay and clay hardpans; sandy steppes; sandy prairies; clayey plains; rocky, gravelly, gravelly-sandy, sandy, sandy-loamy, sandy-clayey, loamy, clayey, silty and silty-clayey flats; uplands; basins; rocky-sandy and clayey valley floors; along railroad right-of-ways; roadbeds; along rocky-sandy, gravelly, gravelly-sandy, clayey and silty roadsides; along arroyos; clayey draws; gravelly-sandy bottoms of draws; gulches; gullies; within seeps; around springs; along streams; streambeds; along creeks; creekbeds; along rivers; rocky-sandy riverbeds; along and in gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-silty and silty washes; around and in shaley, sandy, clayey, clayey-loamy and silty-loamy drainages; poolbeds; around ponds; silty lakebeds; silty playas; in soggy mossy areas; marshes; clayey depressions; sinks; swales; (sandy, loamy and clayey-silty) banks of draws, streams, creeks and rivers; (sandy) edges of draws, springs, ponds, lakes and lakebeds; around (sandy) margins of rivers, poolbeds, ponds and lagoons; (silty-clayey) shores of lakes and lakebeds; stony-cobbly gravel and gravel bars; sandy beaches; shaley benches; terraces; sandy and clayey bottomlands; sandy-clayey, loamy and clayey floodplains; clayey lowlands; dams; clayey catchments; around and in (drying beds) stock tanks (charcos); in mud and rocks around reservoirs and in draw-down areas; canal banks; along clayey and silty ditches; sandy and sandy-clayey riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry desert pavement; bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, shaley-sandy, stony, stony-cobbly, stony-cobbly-gravelly, stony-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam, silty-loam, silty-clayey loam and loam ground; rocky clay, rocky-gravelly clay, shaley clay, gravelly clay, pebbly clay, sandy clay, silty clay and clay ground; sandy silty, clayey silty and silty ground; peaty ground, and sandy chalky and chalky ground, occurring from 100 to 11,600 feet in elevation in the tundra, forest, woodland, grassland, desertscrub and wetland

ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food, fodder and drug or medication. *Monolepis nuttalliana* is native to northwestern, northern, west-central and southern North America. *5, 6, **16**, 43 (013010), 44 (070211 - color photograph), 46 (Page 254), 58, 63 (090812 - color presentation), 68, **77**, 80 (This species is listed as a Major Poisonous Range Plant. "The toxic principle in Patota is nitrate. The accumulation of toxic quantities of nitrate in the plant varies from year to year and generally is the result of marked change in the growth pattern of the plant. ... Control of Patota on a large scale would be impractical and not necessarily desirable as this plant does provide good nutritious feed for livestock during a normal growing season." See text for additional information.), **85** (090812 - color presentation), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain), 124 (070211), 127*

Salsola australis (see *Salsola tragus*)

Salsola iberica (see *Salsola tragus*)

Salsola kali (see *Salsola tragus*)

Salsola kali subsp. *tenuifolia* (see *Salsola tragus*)

Salsola kali subsp. *tragus* (see *Salsola tragus*)

Salsola kali var. *tenuifolia* (see *Salsola tragus*)

***Salsola tragus* C. Linnaeus: Prickly Russian Thistle**

SYNONYMY: *Salsola australis* R. Brown; *Salsola iberica* (f. Sennen & C. Pau) V.P. Botschantzev ex S.K. Czerepanov; *Salsola kali* C. Linnaeus; *Salsola kali* C. Linnaeus subsp. *tenuifolia* C.H. Moquis-Tandon; *Salsola kali* C. Linnaeus var. *tenuifolia* I.F. Tausch; *Salsola kali* C. Linnaeus subsp. *tragus* (C. Linnaeus) L.J. Čelakovský. COMMON NAMES: Cardo Ruso; Chamiso; Chamiso Valador; Ci Sha Peng (transcribed Chinese); Coast Saltwort; Common Russian Thistle (a name also applied to other species); Common Russian Thistle Tumbleweed; Hari Hijikii (Japanese Rōmaji); Leap the Field; Prickly Russian Thistle (a name also applied to other species); Russian Cactus (a name also applied to other species); Russian-cactus; Russian Thistle (a name also applied to the genus *Salsola*); Russian-thistle (a name also applied to the genus *Salsola*); Russian Tumble Weed; Russian Tumble-weed; Russian Tumbleweed (a name also applied to the genus *Salsola*); Rysk Sodaört (Swedish); Soude Épineuse (French); Soude Roulante (French); Spineless Saltwort; Tumbleweed (a name also applied to other species); Tumbling Thistle; Ukraine Salzkraut (German); Volador; Wind Witch; Wind-witch; Windwitch. DESCRIPTION: Terrestrial annual forb/herb (ascending (rarely) and/or erect stems 2 inches to 7 feet in height; plants were observed and described as being 4 feet in height and 3 feet in width); the stems may be gray-green with purple longitudinal stripes or dark green; the foliage may be blue-green, gray-green, grayish-green, green, purple or red striped, reddish-purple or yellow-green; the inconspicuous flowers (without petals) may be brown, pale green, green, green-red, pink, pinkish-green, white, whitish, whitish-green, white-pink, white-yellow or yellowish-green; flowering generally takes place between early April and mid-November (additional records: one for early February, one for mid-March and one for early December); the fruit is a reddish top-shaped pod with papery wings. HABITAT: Within the range of this species it has been reported from mountains; gravelly mountainsides; sandy bases of mountains; sandy mesas; plateaus; canyon rims; chalky cliffs; bases of cliffs; rocky and sandy canyons; bouldery-gravelly-sandy, rocky and sandy canyon bottoms; bluffs; cindery (scoria) buttes; sandy knolls; rocky- rocky, sandy and sandy-loamy ridges; sandy rims of craters; rocky-clayey foothills; rocky, sandy and clayey hills; rocky, gravelly and sandy hillsides; sandy bases of escarpments; bouldery, rocky, rocky-gravelly, rocky-sandy-loamy, shaley, cindery, gravelly, gravelly-loamy, gravelly-sandy-loamy, sandy, sandy-loamy, loamy, clayey, clayey-loamy and silty slopes; alluvial fans; bajadas; rocky and shaley outcrops; sand hills; sand dunes; sandy berms; sandy-clayey breaks; sandy breaklands; steppes; prairies; sandy plains; sandy uplands; gravelly, gravelly-clayey, sandy, sandy-loamy, sandy-silty, clayey and silty flats; basins; gravelly, gravelly-sandy and sandy valley floors; valley bottoms; coastal dunes; coastal plains; sandy coastal beaches; coastal salt marshes; along gravelly-clayey railroad right-of-ways; gravelly roadbeds; sandy roadcuts; along rocky-sandy, shaley-clayey-loamy, gravelly, gravelly-sandy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey and clayey roadsides; sandy arroyos; bottoms of arroyos; rocky-sandy, sandy, loamy and loamy-clayey draws; bottoms of draws; gravelly gullies; seeps; along streams; along sandy streambeds; along creeks; along cobbly-loamy, sandy and sandy-silty creekbeds; along rivers; along rocky, rocky-sandy, sandy, sandy-clayey and clayey riverbeds; along bouldery, sandy, sandy-loamy and sandy-clayey washes; within gravelly-clayey, sandy and clayey drainages; pondbeds; around lakes; lakebeds; sandy-loamy playas; ciénegas; marshes; depressions; gravelly and gravelly-sandy swales; (sandy, clayey and clayey-loamy) banks of springs, streams, rivers and washes; borders of washes; (sandy) edges of creeks, marshes and lakes; margins of streams and rivers; (sandy and clayey-loamy) shorelines of rivers and lakes; mudflats; cobble, sand and silt bars; sandy and sandy-clayey beaches; sandy and clayey benches; cobbly-gravelly and gravelly terraces; sandy-clayey bottomlands; along gravelly, sandy, sandy-clayey and clayey floodplains; mesquite bosques; along fencelines; around and in (dry) stock tanks; along banks and shores of reservoirs; along canals; along sandy ditches; along sandy ditch banks; bouldery-cobbly-sandy, gravelly, sandy and silty-loamy riparian areas; sandy waste places, and disturbed areas growing in wet and dry desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-gravelly-sandy, rocky, rocky-sandy, stony, cobbly-gravelly, cindery, gravelly, gravelly-pebbly, gravelly-sandy and sandy ground; rocky-sandy loam, shaley-clayey loam, cobbly loam, gravelly loam, gravelly-

sandy loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky clay, gravelly clay, gravelly-sandy clay, sandy clay, loamy clay and clay ground; rocky silty, sandy silty and silty ground, and chalky ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, fodder and as a drug or medication. Russian Thistle is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets *Salsola tragus* is native to northern, central, eastern and southern Europe; Asia, and northern Africa. *5, 6, 15 (recorded as *Salsola iberica* Sennen & Pau), **16** (recorded as *Salsola iberica* Sennen & Pau), 28 (recorded as *Salsola iberica*, color photograph), 43 (070309), 44 (070611), 46 (recorded as *Salsola kali* L. and *Salsola kali* L. var. *tenuifolia* Tausch, Page 264), **56**, **57**, 58 (recorded as *Salsola iberica* Sennen & Pau), 63 (090912 - color presentation), 68 (of *Salsola kali* L. var. *tenuifolia* Tausch, "It is a host plant for the sugarbeet leafhopper which carries the virus causing curly top in beets. It is also the source of "blight" in other crop plants such as tomatoes, spinach and beans. ... May store toxic amounts of nitrates after periods of fast growth."), 77 (recorded as *Salsola australis* R. Br.), 80 (*Salsola kali* L. var. *tenuifolia* is listed as a Major Poisonous Range Plant. "Russian thistle is capable of storing up toxic quantities of nitrate, particularly during the flush period of growth. *Salsola* has also been suspected of causing oxalate poisoning in Australia. ... Large-scale control can best be accomplished through range improvement to replace the thistle with grass." See text for additional information.), **85** (090912 - color presentation, J.J. Thornber reported on August 8, 1913, that Russian Thistle (*Salsola kali* L.) was recently introduced and rapidly spreading at a population observed in the Rillito bottomlands east of Tucson,), 101 (recorded as *Salsola iberica* Sennen, color photograph), 115 (color presentation), 124 (070611), 127, 140 (Page 289), **WTK** (October 28, 2009)*

***Suaeda moquinii* (J. Torrey) E.L. Greene: Mojave Seablite**

SYNONYMY: *Dondia torreyana* P.C. Standley; *Suaeda nigra* (Rafenesque) J.F. MacBride; *Suaeda torreyana* S. Watson; *Suaeda torreyana* S. Watson var. *ramosissima* (P.C. Standley) P.A. Munz. COMMON NAMES: Alkali Seepweed; Black Sea Blite (*S. nigra*); Black Sea-blite (*S. nigra*); Black Seablite (*S. nigra*); Black Seepweed (*S. nigra*); Bush Seepweed; Chuchk Ouk (Pima); Chuick Onhk (meaning Black Salty - Pima); Desert Seepweed; Hataxipol (Seri); Inkweed (a name also applied to other species); Iodine Weed (a name also applied to other species); Iodine-weed (a name also applied to other species); Iodineweed (a name also applied to other species); Mojave Sea Blite Seepweed; Mojave Sea Blite; Mojave Sea-blite; Mojave Seablight; Mojave Seablite; Quelite Salado; Rush Seepweed (*S. nigra*); Sea Blite; Seep-weed; Seepweed (a name also applied to the genus *Suaeda*); Shrubby Seepweed; Torrey Sea-blite (*S. torreyana*); Torrey Seepweed (*S. torreyana*); Torrey's Sea-blite (*S. torreyana*); Torrey's Seepweed (*S. torreyana*); Western Blite. DESCRIPTION: Terrestrial perennial leaf-succulent forb/herb, subshrub or shrub (spreading or erect stems 8 inches to 8 feet in height; plants were observed and described as being 20 inches in height and 40 inches in width); the woody stems are brown to gray-brown; the herbaceous stems are blue, green, dark red or yellow-brown; the leaves are blue, grayish, green, red or yellow-green; the inconspicuous flowers are greenish; flowering generally takes place between mid-March and mid-November (additional records: one for early January, one for late February and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; shaley canyons; gravelly-sandy canyon bottoms; along bluffs; ridgetops; meadows; hills; sandy hilltops; rocky hillsides; rocky-sandy, shaley, sandy-loamy and clayey slopes; bajadas; alcoves; amongst rocks; sand hills; sand dunes; sandy plains; sand and clayey flats; sandy and clayey plains; rocky-clayey, shaley, sandy and clayey flats; basins; sandy-clayey-loamy valley floors; sandy-loamy and clayey valley bottoms; coastal bluffs; coastal plains; sandy coastal beaches; coastal salt marshes; along clayey railroad right-of-ways; gravelly-loamy, gravelly-sandy-loamy and sandy roadsides; within sandy arroyos; within gravelly-clayey ravines; around and in seeps; springs; along streams; along sandy creekbeds; along rivers; along riverbeds; along and in sandy, sandy-loamy, clayey-silty and silty washes; drainages; vernal pools; silty lakebeds; clayey and silty playas; clay pans; sinks; along sloughs; along (sandy) banks of rivers, ponds and marshes; borders of washes; (sandy) edges of gullies, washes, ponds, lakebeds, playas, bays, ciénegas and marshes; along shorelines of lakes; mudflats; rocky and sandy beaches; benches; sandy and sandy-silty terraces; sandy bottomlands; along floodplains; silty-clayey-loamy lowlands; fencelines; along silty-loamy ditch banks; sandy riparian areas and disturbed areas growing in wet, moist and dry rocky, shaley, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam, sandy-clayey loam, silty loam and silty-clayey loam ground; rocky clay, gravelly clay, sandy clay, silty clay and clay ground; sandy silty, clay silty and silty ground, and powdery ground, occurring from sea level to 7,400 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a cooking tool and as a drug or medication. The foliage is reportedly foul-smelling. *Suaeda moquinii* is native to west-central and southern North America. *5, 6, 13 (recorded as *Suaeda torreyana* S. Wats., *Suaeda torreyana* S. Wats. var. *ramosissima* (Standley) Munz), 43 (013010 - *Suaeda nigra* J.F. MacBr.), 44 (090912 - no listings under Common Names; genus record, Common Names located under *S. nigra*), 46 (recorded as *Suaeda torreyana* Wats., Page 263), **56**, **57**, 63 (090912 - color presentation), **85** (090912 - color presentation including habitat), **89** (reported as being a half-shrub located on the Santa Cruz Flood-plain), 124 (090912), 127*

Suaeda nigra (see *Suaeda moquinii*)

Suaeda torreyana (see *Suaeda moquini*)

Suaeda torreyana var. *ramosissima* (see *Suaeda moquinii*)

***Suaeda suffrutescens* S. Watson (var. *suffrutescens* is the variety reported as occurring in Arizona): Desert Seepweed**

SYNONYMY: *Dondia suffrutescens* A.A. Heller. COMMON NAMES: Desert Seepweed; Shrubby Seepweed. DESCRIPTION: Terrestrial perennial leaf-succulent forb/herb, subshrub or shrub (36 to 40 inches in height); based on few records located, flowering generally takes place between mid-August and late August (flowering record: (two for mid-August and one for late August; flowering beginning as early as March has also been reported). HABITAT: Within the range of this species it has been reported from mountains; canyons; slopes; clayey bases of shaley outcrops; alkali flats; basins; valley floors; valley bottoms; sandy-loamy roadsides; along arroyos; along rivers; bouldery-sandy-silty drainages; depressions; bottomlands; floodplains; riparian areas, and disturbed areas growing in moist and dry bouldery-sandy, gravelly-sandy and sandy ground; sandy loam ground; clay ground, and bouldery-sandy silty ground, occurring from 1,100 to 6,600 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial spice crop; it was also noted as having been used as a cooking tool. *Suaeda suffrutescens* is native to southwest-central and southern North America. *5, 6, 13, 43 (013010), 44 (090912 - no record of species; genus record), 46 (Page 263), 63 (090912), 85 (090912 - color presentation of dried material), **89** (reported as being a half-shrub located on the Santa Cruz Flood Plains), 124 (090912), 127*

Convolvulaceae: The Morning-glory Family

***Convolvulus arvensis* C. Linnaeus: Field Bindweed**

COMMON NAMES: Åkervinda (Swedish); Akerwinde (German); Akkerwinde (Afrikaans); Bear-bind (a name also applied to other species); Bearbind (a name also applied to other species); Bell-bind; Bellbind; Bind-weed (a name also applied to other species and the genus *Convolvulus*); Bindweed (a name also applied to other species and the genus *Convolvulus*); Black Bind-weed (a name also applied to other species); Black Bindweed (a name also applied to other species); Campainha (Portuguese: Brazil); Ch'il Na'atloo'ii (Navajo); Common Bindweed (a name also applied to other species); Common European Bindweed; Common Field Bind Weed; Common Field Bind-weed; Common Field Bindweed; Corda-de-viola (Portuguese: Brazil); Corn-bind (a name also applied to other species); Cornbind (a name also applied to other species); Corn-lilly (a name also applied to other species); Corn-lily; Correguela (Spanish); Corregüela (Spanish); Creeping Jenny (a name also applied to other species); Devil's Garters; Die Winde (German); European Bind-weed; European Bindweed; European Field Bindweed; European Glorybind; European Morning Glory; European Morning-glory; European Morningglory; Field Bind Weed; Field Bind-weed; Field Bindweed (a name also applied to the genus *Convolvulus*); Field Convolvulus; Field Morning Glory; Field Morning-glory; Field Morningglory; Hairy Bindweed; Hedge Bells; Hedge-bells; Hedgebell; Hoary Bindweed; Jack Run In The Country; Jack Run' In' The Country; Jack-run-in-the-country; Jack-run'-in'-the-country; Klimop (a name also applied to other species, Afrikaans); Lap-love; Laplove; Le Liseron (French); Lesser Bindweed; Liseron des Champs (French); Morning Glory (a name also applied to the genus *Convolvulus* and the Convolvulaceae); Morning-glory; Morningglory; Nebraska Glorybind; Orchard Bind Weed; Orchard Bind-weed; Orchard Bindweed; Orchard Morning-glory (a name also applied to other species); Perennial Field Bindweed; Perennial Morning Glory (a name also applied to other species); Perennial Morning-glory (a name also applied to other species); Possession Vine; Possession Weed; Sheep-bine; Sheep-blue; Sheepbine; Small Bind-weed; Small Bindweed; Smallflowered Morning Glory (a name also applied to other species); 'Ullayq (Arabic); Weedy Perennial Field Bindweed; Western Bindweed; White Convolvulus; Wild Morning Glory (a name also applied to other species); Wild Morning-glory (a name also applied to other species); Wind; With-wind (a name also applied to other species); Withwind (a name also applied to other species). DESCRIPTION: Terrestrial perennial forb/herb or vine (decumbent or climbing, sprawling, trailing and/or twining stems 6 inches to 10 feet in length; plants were observed and described as being 8 inches in height and 20 inches in width); the arrow-shaped leaves are green; the flowers may be lavender, pale pink, pink, pink & white, pinkish, pinkish-white, purple, white, white tinged with pink, pink-lavender or purple, white-violet, off-white with maroon streaking or white-yellow; flowering generally takes place between mid-April and early November or until the first frost (additional records: one for mid-March and one for late March). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy-loamy mesas; plateaus; rocky canyons; rocky and sandy-loamy canyon bottoms; rocky ledges; ridges; clayey ridgetops; clearings in forests; sandy and clayey meadows; foothills; hills; shaley-sandy escarpments; rocky, rocky-clayey-loamy, sandy and clayey-loamy slopes; amongst boulders; sand hills; gravelly banks; sandy steppes; sandy prairies; plains; cobbly-loamy, loamy and clayey flats; uplands; valley floors; valley bottoms; coastal prairies; along gravelly and sandy railroad right-of-ways; roadbeds; along rocky, stony, cindery, cindery-loamy, gravelly, gravelly-loamy, sandy and clayey roadsides; clayey bottoms of arroyos; gulches; rocky seeps; springs; along streams; along creeks; along and in sandy-silty and silty creekbeds; in boulders along rivers; riverbeds; along and in cobbly and sandy washes; sandy drainages; beds of vernal pools; boggy areas; banks of gullies and rivers; along margins of lakes; shores of lakes; terraces; sandy bottomlands; floodplains; along fencelines; margins of stock tanks; shores of reservoirs; along and in gravelly ditches; clayey-loamy ditch banks; riparian areas; waste places, and disturbed areas growing in wet, moist and dry bouldery, rocky, shaley-sandy, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, cobbly loam, cindery loam, gravelly loam, sandy loam, clayey loam and loam ground; clay ground, and sandy-silty and silty ground, occurring from sea level to 10,000 feet in elevation in the forest, woodland, scrub; grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities, and considered to be one of the most noxious of all weeds. This plant was reported to have been

utilized by native peoples of North America it was noted as having been used as cordage and as a drug or medication. Field Bindweed is an extremely difficult plant to eradicate once it has become established. *Convolvulus arvensis* is native to northern, central, eastern and southern Europe and coastal islands in the North Atlantic Ocean and islands in the Mediterranean Sea; Asia, and northern Africa. *5, 6, 15, 28 (color photograph 200), 43 (013110), 44 (091112 - color photograph), 46 (Page 674), 58, 63 (091112 - color presentation), 68, **77**, 80 (Species of the genus Convolvulus are listed as Rarely Poisonous and Suspected Poisonous Range Plants. "Species of this genus have been known to develop toxic concentrations of nitrate."), **85** (091212 - color presentation), 86 (color photograph), **89** (reported under Miscellaneous Introduced Species as being a perennial herb), 101 (color photograph), 124 (091112), 127*

***Evolvulus alsinoides* (C. Linnaeus) C. Linnaeus (var. *angustifolius* J. Torrey is the variety reported as occurring in Arizona): Slender Dwarf Morning-glory**

SYNONYMY: (for var. *angustifolius*: *Evolvulus alsinoides* (C. Linnaeus) C. Linnaeus var. *acapulcensis* (C.L. von Willdenow) S.J. van Ooststroom). COMMON NAMES: Acapulco Evolvulus; Arizona Blue Eyes; Blue Eyes (English)[140]; Blue-eyes; Blue-eyes (English)[140]; Cenicito ("Little Ashy One", Spanish: El Salvador)[140]; Dio de Vibora; Dwarf-morning-glory; Dwarf Morning-glory (a name also applied to the genus *Evolvulus*); Dwarf Morning-glory (English: Arizona, New Mexico)[140]; Fulgencia (Spanish); Ojitos Azules ("Little Blue-eyes", Spanish: Yucatán)[140]; Ojo de Vibora ("Snake's Eye", Spanish: Mexico and adjacent Texas)[140]; Oreja de Ratón ("Mouse's Ear", Spanish: Sonora, El Salvador)[140]; Pata de Paloma [Pate Paloma] ("Dove's Foot", Spanish: Honduras)[140]; Quiebra-cajete ("Box-breaker", Spanish: Guatemala)[140]; Sian-xiw <sia-siu, xia-xiu, xiatiu> (Mayan: Maya)[140]; Slender Dwarf Morning-glory; [Slender] Dwarf Morning-glory (English: Arizona, New Mexico)[140]; Slender Dwarf-morning-glory; Slender Dwarf Morningglory; Tropical-speedwell; Tsoots Ts'ul ("Spaniard's Hair", Mayan: Maya)[140]; X-havay <x-haway> (Mayan: Maya)[140]. DESCRIPTION: Terrestrial perennial forb/herb (prostrate, ascending and/or erect stems 2¼ to 28 inches in height); the leaves are green or dark green; the flowers are azure blue, pale blue, blue, bluish, blue-purple, blue-violet, lavender, lavender-blue, dark lavender, purple, purple with white stripes; rose, sky-blue, light violet, violet or white; the stigmas are white; flowering generally takes place between late February and mid-November (additional records: one for early February, three for mid-December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; rocky cliffs; rocky canyons; canyon bottoms; rocky buttes; ridges; rocky ridgetops; foothills; rocky hills; rocky-gravelly hilltops; bouldery and rocky hillsides; bedrock, bouldery-gravelly, rocky and gravelly slopes; rocky outcrops; on rocks; amongst rocks and stones; plains; gravelly-sandy flats; in roadbeds; along bouldery-rocky, gravelly and sandy-loamy roadsides; stony, gravelly and sandy arroyos; sandy bottoms of arroyos; springs; gravelly streambeds; creeks; riverbeds; along and in rocky, stony, gravelly and sandy washes; rocky drainages; (rocky) banks of springs and springs; margins of rivers; bottomlands; floodplains; mesquite woodlands; riparian areas; waste places, and disturbed areas growing in dry bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-gravelly, stony, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam and sandy loam ground, and clay ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub, and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Evolvulus alsinoides* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and northern, western, central and eastern South America. *5, 6, 15, 43 (071810 - *Evolvulus alsinoides* L., *Evolvulus alsinoides* L. var. *acapulcensis* Ooststr.; *Evolvulus alsinoides* L. var. *angustifolius* Torr. in Emory), 44 (091212 - no record of species or genus), 46 (Page 672), 58, 63 (091212), 77 (color photograph #72 labeled *Evolvulus alsinoides*), **85** (091212 - color presentation), 124 (091212 - no record of species; genus record), 140 (Page 118-119 & 289)*

Evolvulus alsinoides var. *acapulcensis* (see *Evolvulus alsinoides* var. *angustifolius*)

***Ipomoea barbatisepala* A. Gray: Canyon Morning-glory**

COMMON NAME: Bristlecup Morning Glory; Canyon Morning-glory; Canyon Morningglory; Gloria de la Mañana (Spanish); Morning Glory (a name also applied to the genus *Ipomoea* and the Convolvulaceae). DESCRIPTION: Terrestrial annual forb/herb or vine (climbing and/or twining stems to 2 feet (probably more) in length); the flowers (¾ inch in diameter) may be blue, dark blue, pink, pink-purple, purple, purplish-pink, rosy-purple, pale sky blue or white; the anthers are green; flowering generally takes place between late August and mid-October (additional record: flowering beginning as early as July and ending as late as December has been reported). HABITAT: Within the range of this species it has been reported from mountains; cliffs; along bases of cliffs; rocky canyons; sandy canyon bottoms; chasms; foothills; hills; rocky, rocky-loamy, gravelly and loamy slopes; sandy bajadas; rocky outcrops; amongst boulders; along railroad right-of-ways; along roadsides; along bouldery arroyos; rocky draws; along rocky ravines; springs; along and in rocky streams; along sandy streambeds; creeks; along and in gravelly and sandy washes, within rocky drainages; gravelly riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, gravelly and sandy ground and rocky loam and loam ground, occurring from 1,800 to 9,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Ipomoea barbatisepala* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (013110), 44 (091312 - no record of species; genus record), 46 (Page 677), 48 (genus), 63 (091312), 77, **85** (091312 - color presentation), 115 (color presentation), 124 (091312), 140 (Page 289)*

***Ipomoea coccinea* C. Linnaeus: Redstar**

COMMON NAMES: Red Morning-glory (a name also applied to the genus *Ipomoea*); Red Morningglory (a name also applied to the genus *Ipomoea*); Redstar; Scarlet Creeper; Scarlet-creeper; Scarlet Morning Glory; Scarlet Morning-glory; Scarlet Morningglory; Scarlet Star-glory; Scarlet Starglory; Small Red Morning Glory; Small Red Morning-glory; Star Glory; Star-glory (a name also applied to the genus *Ipomoea*); Starglory (a name also applied to the genus *Ipomoea*); Star Ipomoea; Stjärnvinda (Swedish). DESCRIPTION: Terrestrial annual forb/herb or vine (climbing, trailing and/or twining stems 5 inches to 10 feet in length); the stems are reddish; the heart-shaped leaves are dark green; the narrowly trumpet-shaped flowers (1/2 to 2/3 inch in diameter) may be orange-red, red, reddish-orange, reddish-purple or scarlet; flowering generally takes place between mid-August and late October (additional record: one for late June, flowering beginning as early as May has been reported). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; hillsides; rocky and gravelly slopes; amongst rocks; lava flows; gravelly flats; along gravelly-sandy and gravelly-sandy-loamy roadsides; along streams; along rock-gravelly creekbeds; along rocky, gravelly and gravelly-sandy washes; banks of rivers; terraces; floodplains; ditches; ditch banks; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-gravelly, gravelly and gravelly-sandy ground and gravelly-sandy loamy and loam ground , occurring from 2,000 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Exotic? This plant may be an attractive component of a restored native habitat. Some of the plants identified as *Ipomoea coccinea* may be *Ipomoea cristulata* (*Ipomoea coccinea* [misapplied]). *Ipomoea hederifolia* C. Linnaeus, once considered to be a variety of *Ipomoea coccinea* (*I.c.* var. *hederifolia* (L.) A. Gray) has leaves that are 3 to 5 lobed. Hummingbirds visit the flowers. *Ipomoea coccinea* is native to south-central North America. *5, 6, 15, 18 (genus), 28 (color photograph 554), 43 (013110), 44 (091312 - no record of species; genus record, 46 (Page 676), 48 (genus), 58, 63 (091312 - color presentation, the NRCS Database shows this plant as being native to southeast- central North America and as not being native to Arizona), 68, 85 (091312 - color presentation), 86 (note under *Ipomoea cristulata*), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain), 101 (color photograph), 124 (091312)*

Ipomoea desertorum (see *Ipomoea hederacea*)

***Ipomoea hederacea* N.J. von Jacquin: Ivyleaf Morning-glory**

SYNONYMY: *Ipomoea desertorum* H.D. House; *Ipomoea hirsutula* auct. non J.F. von Jacquin f.; *Ipomoea nil* auct. non (C. Linnaeus) A.W. Roth. COMMON NAMES: Bi:bhiag (Uto-Aztecan: Hiá Ceḍ O'odham and Tohono O'odham)[140]; Blue Filed Morning Glory (Iowa); Blue Morning Glory (a name also applied to other species, southwest Missouri); Blue Morning-glory (southwest Missouri); Blue-filed Morning-glory (Iowa); Desert Morning-glory; Enredadera de Campanilla ("Bell Twiner", Spanish: Mexico)[140]; Entireleaf Morningglory; Flor de Verano ("Summer Flower", Spanish: Mexico)[140]; Ivy Leaf Morning Glory; Ivy Leaf Morning-glory; Ivy Leafed Morning Glory; Ivy Morning Glory; Ivy Morning-glory; Ivy Morningglory; Ivy-leaf Morning Glory; Ivy-leaf Morning-glory; Ivy-leafed Morning Glory; Ivy-leafed Morning-glory; Ivy-leaved Morning Glory; Ivy-leaved Morning-glory; Ivy-leaved Morningglory; Ivyleaf Morning Glory; Ivyleaf Morning-glory; Ivyleaf Morningglory; Kaladana; Kengashi; Kusá'rupų (Uto-Aztecan: Ute)[140]; Manto [de la Virgen, Mexicano] ("[Virgin's, Mexican] Mantle", Spanish: Mexico)[140]; Manto de la Virgen (Spanish); Mexican Morningglory; Morning Glory (a name also applied to the genus *Ipomoea* and the Convolvulaceae); Murgrönsvinda (Swedish); Redadera ("Twiner", Spanish: Mountain Pima)[140]; Tł'é'godigáhá (Athapascan: Western Apache)[140]; Trompillo (Spanish); Trompillo [Morado] ("[Purple] Little Top", Spanish: Arizona, New Mexico, Sinaloa, Sonora)[140]; Trompillo Morado (Spanish); Wild Blue Morning Glory (Iowa); Wild Blue Morning-glory (Iowa); Woolly Ivyleaf Morning-glory; [Ivy-leaf] Woolly Morning Glory (English)[140]; Woolly Morning-glory; Woolly Morningglory. DESCRIPTION: Terrestrial annual forb/herb or vine (twining stems 16 inches to 8 feet in length); the flowers (to 2 inches in diameter) may be light blue, blue, blue-purple, blue with white or pale yellow throat, lavender, mauve-blue, purple, purplish, violet, white & purple or whitish; flowering generally takes place between early August and mid-December (additional records: one for late June and one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; mesas; bouldery bases of cliffs; along rocky canyons; rocky and sandy canyon bottoms; gravelly ridgetops; foothills; hills; rocky hilltops; rocky hillsides; rocky, gravelly, gravelly-loamy and sandy-clayey slopes; bajadas; amongst boulders; plains; gravelly, sandy, sandy clayey and sandy-silty flats; valley floors; sandy, sandy-silty and loamy valley bottoms; along rocky and sandy-loamy roadsides; stony and sandy arroyos; rocky-sandy bottoms of arroyos; gulches; along streams; streambeds; sandy riverbeds; along and in gravelly, gravelly-silty and gravelly-sandy-silty washes; drainages; cienegas; (silty) banks of creeks, rivers and drainage ways; benches; terraces; sandy floodplains; mesquite bosques; ditches; ditch banks; riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground; sandy clay ground, and gravelly silty, gravelly-sandy-silty, sandy silty and silty ground, occurring from sea level to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may or may not be an Exotic Invasive Species. *Ipomoea hederacea* is easily and often confused with *Ipomoea nil* (a widely cultivated species that is not native to Arizona). Two records stated that the flowers close by 11:00/11:30 AM. *Ipomoea hederacea* is native to southern North America; Central America and islands in the Caribbean Sea, and northwestern South America. *5, 6, 18 (genus), 28 (note under *Ipomoea purpurea*), 43 (070409), 44 (091312), 46 (recorded as *Ipomoea hirsutula* Jacq f. (*Ipomoea desertorum* House), Page 678), 48 (genus), **56**, **57**, 63 (091412 - color presentation), 68, 77, **85** (091412 - color presentation), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain), 101 (color photograph), 115 (color presentation), 124 (110310), 134, 140 (Pages 120-122 & 289)*

Ipomoea desertorum (see *Ipomoea hederacea*)

Ipomoea hirsutula N.J. von Jacquin f. (see *Ipomoea purpurea*)

Ipomoea hirsutula auct. non N.J. von Jacquin f. (see *Ipomoea hederacea*)

Ipomoea nil auct. non (C. Linnaeus) A.W. Roth (see *Ipomoea hederacea* and associated NOTES)

***Ipomoea purpurea* (C. Linnaeus) A.W. Roth: Tall Morning-glory**

SYNONYMY: *Ipomoea hirsutula* J.F. von Jacquin f. COMMON NAMES: Annual Morning Glory; Annual Morning-glory; Aurora (Spanish); Bejuco (Hispanic); Bindweed (a name also applied to other species and the genus *Ipomoea*); Campanilla (Spanish); Carriuela; Common Garden Morning Glory; Common Garden Morning-glory; Common Morning Glory (a name also applied to other species); Common Morning-glory (a name also applied to other species); Common Morningglory (a name also applied to other species); Entireleaf Morning-glory; Flor Azul (Spanish); Garden Morning-glory (a name also applied to other species); Manto (Spanish); Mexican Morning-glory; Morning Glory (a name also applied to other species and the genus *Ipomoea*); Morning-glory (a name also applied to other species and the genus *Ipomoea*); Platu Kak' Araku' (Purépecha); Purperwinde (Afrikaans); Purpur-Prunkwinde (German); Purpurvinda (Swedish); Quiebra Platos (Hispanic); Red Morning Glory (a name also applied to other species and the genus *Ipomoea*, southwest Missouri); Red Morning-glory (a name also applied to other species and the genus *Ipomoea*, southwest Missouri); Rope-wind; Ropewind; Tall Common Morning Glory; Tall Common Morning-glory; Tall Morning Glory; Tall Morning-glory; Tall Morningglory; Trompillo (Spanish); Woolly Morning-glory (a name also applied to other species); Yuan Ye Qian Niu (transcribed Chinese). DESCRIPTION: Terrestrial annual forb/herb or vine (trailing and twining stems 1 to 30 feet in length); the heart-shaped entire to 3- to 5-lobed leaves are green; the flowers (1½ to 2½ inches in diameter) may be pale blue, blue, blue-purple, blue-violet, blue & white, lavender, magenta with pink or white throats, bright pink, pink, pink-purple, purple, dark purple with blue, purple-blue, purple & white, purple with a white throat, red, violet, violet-purple, white or white tinged with purple; flowering generally takes place between late June and mid-November (additional record: one for late April). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky cliffs; rocky canyons; canyon bottoms; gravelly ridgetops; meadows; foothills; hills; hillsides; rocky, rocky-gravelly, stony-clayey, gravelly, gravelly-loamy, clayey-loamy and loamy slopes; alluvial fans; amongst rocks; plains; rocky, rocky-clayey, stony-clayey, cobbly-sandy and clayey flats; valley floors; along gravelly-sandy, gravelly-loamy and sandy-loamy roadsides; within rocky arroyos; rocky-sandy bottoms of arroyos; seeps; along streams; along rocky streambeds; sandy creekbeds; along rivers; sandy riverbeds; along sandy washes; drainage ways; along sandy beaches; terraces; sandy floodplains; mesquite bosques; along fencelines; along ditches; banks of levees; gravelly-clayey-loamy riparian areas; waste places, and disturbed areas growing in moist, damp and dry rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground, and rocky clay, stony clay, sandy clay and clay ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Ipomoea purpurea* is native to the tropical Americas. *5, 6, 15, 18 (genus), 28 (recorded as *Ipomoea hirsutula*, color photograph 692), 30, 43 (070409), 44 (091512, color photograph), 46 (Page 678), 48 (genus), 58, 63 (091512 - color presentation), 68, 85 (091512 - color presentation), 86 (color photograph), **89** (reported under Miscellaneous Introduced Species as being a long lived annual herb), 101 (color photograph), 124 (070911), 140 (page 122)*

Crassulaceae: The Stonecrop Family

***Crassula connata* (H. Ruiz Lopez & J.A. Pavon) A. Berger: Sand Pygmyweed**

COMMON NAMES: Erect Pigmy-weed; Erect Pigmyweed; Erect Pygmy Weed; Erect Pygmy-weed; Erect Pygmyweed; Pygmy Stonecrop (a name also applied to the genus *Crassula*); Pygmy Weed (a name also applied to the genus *Crassula*); Pygmy-weed (a name also applied to the genus *Crassula*); Sand Pigmy; Sand Pigmy Stonecrop; Sand Pigmy Weed; Sand Pigmy-stonecrop; Sand Pigmy-weed; Sand Pigmyweed; Sand Pygmy; Sand Pygmy Stonecrop; Sand Pygmy Weed; Sand Pygmy-weed; Sand Pygmy-stonecrop; Sand Pygmyweed. DESCRIPTION: Terrestrial annual forb/herb (erect stems ¾ to 4 inches in height); the plants may be green, reddish, reddish-yellow or yellow-green; the inconspicuous flowers are greenish-white or reddish; flowering generally takes place between mid-January and early May (additional records: one for early June and one for early July). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; rocky canyons; gravelly-sandy, sandy and sandy-loamy canyon bottoms; buttes; loamy-clayey ledges; clayey-loamy ridgetops; sandy meadows; rocky foothills; rocky and clayey hills; bouldery, rocky and gravelly-sandy hillsides; rocky, rocky-loamy, cobbly-sandy, gravelly-sandy and clayey slopes; rocky-sandy-loamy alluvial fans; bajadas; amongst rocks; shaded banks; gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy and loamy flats; rocky valley floors; coastal bluffs; along sandy and sandy-loamy roadsides; gullies; seeps; along streams; along sandy streambeds; along creeks; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; around pools; vernal pools; poolbeds; sandy depressions; gravelly swales; (rocky, sandy and silty) banks of arroyos, creeks and rivers; along edges of washes and lakes; margins of pools; benches; terraces; loamy bottomlands; floodplains; beds of dried ditches; recently burned areas in woodlands and chaparral, and disturbed areas growing in standing water and wet, moist, damp and dry bouldery, rocky, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; loamy clay and clay ground, and silty ground, occurring from sea level to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological

formations. NOTE: *Crassula connata* is native to west-central and southern North America; Central America, and western and southern South America. *5, 6, 43 (013110), 44 (091612 - color photograph), 46 (recorded as *Tillaea erecta* Hook. & Arn., Page 361), 63 (091612 - color presentation), **85** (091612 - color presentation), 124 (091612 - no record of species or genus), 140 (recorded as *Crassula connata* (Ruiz & Pavon) Berger [*Tillaea erecta* Hooker & Arnott], Page 290)*

***Crassula connata* (H. Ruiz Lopez & J.A. Pavon) A. Berger var. *connata*: Sand Pygmyweed**

SYNONYMY: *Crassula erecta* (W.J. Hooker & G.A. Arnott) A. Berger; *Tillaea erecta* W.J. Hooker & G.A. Arnott. COMMON NAMES: Pygmy Stonecrop (a name also applied to the species); Pygmy Weed (a name also applied to the species and the genus *Crassula*); Pygmy-weed (a name also applied to the species and the genus *Crassula*); Sand Pygmyweed (a name also applied to the species). DESCRIPTION: Terrestrial annual forb/herb (erect stems ¾ to 4 inches in height); the plant is reddish; the minute flowers are green and reddish; flowering for the species generally takes place between mid-January and early May (flowering records: one for late February, one for late March, two for mid-April and one for late April). HABITAT: Within the range of this species it has been reported from plateaus; openings in chaparral; rocky hills; rocky, sandy and clayey slopes; gravelly and sandy flats; coastal foothills; coastal bluffs; clayey roadsides; seeps; streambeds; washes; around vernal pools; sandy depressions; sandy terraces; and recently burned areas of chaparral, and disturbed areas growing in moist, damp and dry rocky, gravelly and sandy ground; clay loam ground, and clay ground, occurring from sea level to 4,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Crassula connata* var. *connata* is native to southwest-central and southern North America and western South America. *5, 6, 15 (recorded as *Crassula erecta* (Hook. & Arn.) Berger), **16** (recorded as *Tillaea erecta* Hook. & Arn.), 43 (013110), 44 (091612 - no listings recorded under Common Names, color photograph of species), 46 (recorded as *Tillaea erecta* Hook. & Arn., Page 361), 58 (recorded as *Tillaea erecta* Hook. & Arn.), 63 (091612 - color presentation, *Crassula connata* var. *connata* is shown as not being present in Arizona), 77 (recorded as *Tillaea erecta* H. & A.), 85 (091612), 124 (091612 - no record of variety, species or genus), 140 (recorded as *Crassula connata* (Ruiz & Pavon) Berger [*Tillaea erecta* Hooker & Arnott], Page 290)*

Crassula erecta (see *Crassula connata* var. *connata*)

Tillaea erecta (see *Crassula connata* var. *connata*)

Cucurbitaceae: The Cucumber Family

***Apodanthera undulata* A. Gray: Melon Loco**

COMMON NAMES: Calabaza Amarga (a name also applied to other species, Spanish); Calabaza de Coyote (Spanish); Crazy Melon; Melon de Coyote (a name also applied to other species); Loco-melon; Melon Loco; Melón Loco (Spanish); Melon-loco. DESCRIPTION: Terrestrial perennial forb/herb or vine (creeping, sprawling and/or trailing stems 2 to 10 feet in length; one plant was observed and described as being 12 inches in height and 6½ feet in width); the spreading stems arise from a thick root; the leaves (8 to 12 inches in height) are grayish or dark green; the flowers (to 1½ inches in diameter) are greenish-yellow, yellow, yellowish-cream, yellowish-green or white; flowering generally takes place between mid-May and mid-October (additional records: one for mid-August, one for mid-September and one for late December); the oval, ribbed fruit (2½ to 4 inches in length) is green. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; bases of cliffs; canyons; canyon walls; ridges; ridgetops; foothills; hills; rocky hillsides; rocky slopes; clayey bajadas; sand dunes; plains; bouldery-sandy, gravelly and sandy-silty flats; valley floors; valley bottoms; in roadbeds; along rocky, gravelly-loamy, gravelly-sandy-clayey-loamy and gravelly-sandy-silty roadsides; rocky arroyos; along and in washes; sandy depressions; along swales; edges of arroyos; along margins of arroyos; terraces; floodplains; mesquite woodlands; ditches, and disturbed areas growing in dry bouldery-sandy, rocky, gravelly and sandy ground; gravelly loam, gravelly-sandy loam and gravelly-sandy-clayey loam ground; clay ground, and gravelly-sandy silty and sandy-silty ground, occurring from 1,500 to 6,000 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: Melon Loco has a rank odor. *Apodanthera undulata* is native to southwest-central and southern North America. *5, 6, 15, **16** (mentioned, not verified) 43 (070409), 44 (091612 - no record of species or genus), 46 (Page 821), 58, 63 (091612 - color presentation), 77, 85 (091612 - color presentation), 86 (color photograph), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (091612 - no record of species or genus), 140 (Pages 124 & 290)*

***Cucurbita digitata* A. Gray: Fingerleaf Gourd**

COMMON NAMES: A:ḍ (Uto-Aztecan: Tohono O'odham)[140]; 'Ad (Uto-Aztecan: Hiá Ceḍ O'odham, Arizona, Sonora)[140]; 'Adavĭ (Uto-Aztecan: Akimel O'odham, Arizona)[140]; Adawĭ (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Aḍawĭ (Uto-Aztecan: Tohono O'odham)[140]; Aláwe (Uto-Aztecan: Guarijío)[140]; Ara (Uto-Aztecan: Mountain Pima)[140]; Be'iłkan Dee'é [Joołłé] (Athapascan: Western Apache)[140]; Calabacilla (Spanish); Calabacilla ("Little Gourd", Spanish: Arizona, Sonora)[140]; Calabaza Amarga (a name also applied to other species, Spanish); Calabaza Amarga ("Bitter Gourd", Spanish: Arizona, Sonora)[140]; Chichi Coyota (Spanish); Chichicoyote (Spanish); Chichicoyote <chichicayote, chichi coyota> ("Coyote's Breasts", Spanish: Sonora)[140]; Chichicoyotli (a word that refers to a practice used to discourage breast feeding, Uto-Aztecan: Náhuatl, Mexico); Coyote Gourd (a name also applied to other species); Coyote Gourd (English)[140]; Coyote Melon (a name also applied to other species); Finger Leaf Gourd; Finger-leaf Gourd; Finger Leafed Gourd; Finger Leaved Gourd; Finger-leaf Gourd; Finger-leafed Gourd (English:

New Mexico)[140]; Finger-leaved Gourd; Fingerleaf Gourd; Melón de Coyote (Spanish); Melon de Coyote ("Coyote Melon", Spanish: Arizona, Sonora)[140]; Meloncillo (Spanish); Meloncillo ("Little Melon", Spanish: Arizona)[140]; Mösipatnga (Uto-Aztecan: Hopi)[140]; Naadołkal <nat dil kaali> ("Gourd", Athapascan: Western Apache)[140]; Ndilkal (Athapascan: Navajo for *Cucurbita*)[140]; Nekhish <nekish> (Uto-Aztecan: Cahuilla)[140]; Patnga (Uto-Aztecan: Hopi)[140]; Teta'ahao (Uto-Aztecan: Yaqui)[140]; Whsáraaĝanápų (Uto-Aztecan: Ute)[140]; Xa:más (Yuman: Cocopa)[140]; Xamach (Yuman: Paipai)[140]; Ziix Is Cmasol ("Yellow-fruited Thing", Hokan: Seri)[140]. DESCRIPTION: Terrestrial perennial forb/herb or vine (climbing, sprawling and/or trailing stems 3 to 40 feet in length); the spreading stems arise from a thick root; the palmate leaves are dark blue-green, gray-green, grayish-green or green; the large funnel-shaped flowers (2¾ to 4 inches in diameter and 1½ to 2 inches in length) are greenish-yellow, orange or yellow; flowering generally takes place between mid-May and mid-October (additional records: one for mid-February and one for mid-November); the striped gourd-like fruits (2 to 3¾ inches in diameter) are green aging to pale yellow or yellowish-green. HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; rocky canyons; canyon bottoms; foothills; hills; sandy hilltops; hillsides; rocky slopes; banks; plains; gravelly and sandy flats; basins; gravelly-sandy valley floors; along gravelly, gravelly-sandy-silty and sandy roadsides; along and in sandy arroyos; gravelly bottoms of arroyos; gulches; along streambeds; sandy creekbeds; along rivers; sandy riverbeds; along and in gravelly-sandy, gravelly-loamy, sandy and silty washes; (sandy) banks of arroyos, rivers and washes; borders of washes; sandy benches; bottomlands; floodplains; along canal banks; riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam ground, and gravelly-sandy silty and silty ground, occurring from 100 to 5,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. One record reported that the flowers opened at dawn and closed in the afternoon, another reported that the flowers were closed by 10:00 a.m. The flowers are pollinated by "Digger-bees" and Gourd-bees" in the genera *Peponapis* and *Xenoglossa*. The Coyote (*Canis latrans*) feeds on the fruit pulp and seeds of this plant. *Cucurbita digitata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 371), 43 (070409), 44 (120310), 46 (Page 822), 48 (genus), **56**, **57**, 58, 63 (091612 - color presentation of seed), 68, 77, **85** (091612 - color presentation), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (110410 - no record of species; genus record), 127,140 (Pages 123-124 & 290)*

***Ibervillea tenuisecta* (A. Gray) J.K. Small: Slimlobe Globeberry**

SYNONYMY: *Maximowiczia lindheimeri* (A. Gray) C.A. Cogniaux var. *tenuisecta* (A. Gray) C.A. Cogniaux. COMMON NAMES: Cutleaf Globe Berry; Deer-apples; Globeberry (a name also applied to the genus *Ibervillea*); Slimlobe Globeberry; Texas Globe Berry; Texas Globeberry. DESCRIPTION: Terrestrial perennial forb/herb or vine (clambering, climbing, sprawling, trailing or twining stems 6 to 12 feet in length); the flattened stems are blue-green; the tiny flowers are yellow, yellow-green or yellowish-green; based on very few flowering records located, flowering generally takes place between mid-May and early November (flowering records: one for mid-May, one for mid-august, three for late August and one for early November); the berry-like fruit (½ to ¾ inch in diameter) is persimmon-orange, bright red or scarlet. HABITAT: Within the range of this species it has been reported from mountains, mountainsides; mesas; canyons; ridges; sandy-loamy meadows; foothills; rocky and clayey hills; rocky hillsides; rocky slopes; bajadas; clayey and silty flats; valley floors; sandy-silty valley bottoms; along roadsides; sandy and clayey-loamy arroyos; draws; along gullies; springs; along creeks; along washes; sandy-silty floodplains, and clayey-loamy riparian areas growing in dry rocky and sandy ground; sandy loam and clayey loam ground; clayey ground, and sandy silty and silty ground, occurring from 1,000 to 5,600 feet in elevation in the grassland and desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. The root has been described as being turnip-shaped. *Ibervillea tenuisecta* is native to southwest-central and southern North America. *5, 6, 8, 16, (recorded as *Maximowiczia tripartita* Cogni. var. *tenuisecta* Wats. as having been misidentified, see *Tumamoca macdougalii*), 43 (020110 - no record for *Maximowiczia lindheimeri* var. *tenuisecta*), 44 (091712 - no record of species or genus), 46 (Page 821), 63 (091712), **85** (091712 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill, possibly recorded as *Maximowiczia tripartita* Cogn. var. *tenuisecta* Wats.,), 124 (091712 - no record of species; genus record)*

Maximowiczia lindheimeri var. *tenuisecta* (see *Ibervillea tenuisecta*)

Maximowiczia tripartita var. *tenuisecta* (see footnotes 16 and 89 under *Ibervillea tenuisecta*)

***Tumamoca macdougalii* J.N. Rose: Tumamoc Globeberry**

COMMON NAMES: Camote de Jabalin (Spanish); Globeberry (a name also applied to the genus *Ibervillea*); MacDougal Tumamoc Globe-berry; Tumamoc Globeberry. DESCRIPTION: Terrestrial perennial forb/herb or vine (clambering stem 28 inches to 5 feet in length); the leaves are dark green; the flowers (one-eighth inch in diameter) are greenish, greenish-yellow, white or yellow; flowering generally takes place between late July and late September; the mature berry-like fruit (½ to ¾ inch in diameter) is orange-red, bright red or yellow. HABITAT: Within the range of this species it has been reported from mountains; rocky hills; rocky hillsides; rocky slopes; rocky bajadas; amongst rocks; gravelly flats; valley floors; sandy valley bottoms; coastal plains; valley floors; along arroyos; along gullies; along sandy washes; along stony drainages; along edges of arroyos, poolbeds and swales; along margins of washes; terraces, and mesquite bosques growing in dry rocky, stony, gravelly and sandy ground and sandy-silty ground usually with the support of and/or in the shade of shrubs and trees, occurring from sea level

to 3,000 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, plants remains dormant during winter and early spring, vines die back after fruiting or are killed by frost, consider planting beneath shrubs and low growing trees that will give support to the vines. The flowers are pollinated by moths; Cardinals, thrashers, Gambel Quail (*Callipepla gambelii*) and Gila Woodpeckers (*Melanerpes uropygialis*) feed on the fruits and seeds, and Javelinas (*Peccari tajacu*) feed on the tuberous roots. Ants have been observed visiting the fruits. *Tumamoca macdougalii* is native to southwest-central and southern North America. *5, 6, **8**, 9, **16** (recorded in the 1909 Thornber Listing as *Maximowiczia tripartita* Cogni. var. *tenuisecta* Wats.), 43 (020110), 44 (091712 - no record of species or genus), 46 (Pages 821-822), 63 (091712), **77**, 85 (091712), **89** (reported as being a perennial herb located on Tumamoc Hill, possibly recorded as *Maximowiczia tripartita* Cogni. var. *tenuisecta* Wats.), 91 (Pages 392-393), 124 (091712 - no record of species or genus)*

Cuscutaceae: The Dodder Family

***Cuscuta* C. Linnaeus: Dodder**

COMMON NAME: Coral Vine (Nebraska); Coral-vine (Nebraska); Corn silk (1898, Southold Long Island); Corn-silk (1898, Southold Long Island); Cuscuta; Devil's-ringlet; Dodder (a name also applied to the Cuscutaceae, "Tangle of Silk", Friesian); Hairweed; Hell Bind; Hell-bind; Hellbine; Love-vine; Witch's Hair; Witches' Shoelaces. *43 (020110), 44 (091712), 46 (Pages 666-671), 63 (091712 - color presentation), 85 (091712), **89** (reported as being a summer annual located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (091712)*

***Cuscuta salina* G. Engelmann: Saltmarsh Dodder**

COMMON NAMES: Alkali Dodder; Cúscuta (Spanish); Dodder (a name also applied to other species, the genus *Cuscuta* and the Cuscutaceae); Golden Thread (a name also applied to other species); Goldenthread (a name also applied to other species); Saltmarsh Dodder; Lovevine (Love-vine is a name that is also applied to other species and the genus *Cuscuta*); Marsh Dodder; Salt Dodder; Salt Marsh Dodder; Salty Dodder; Salt-marsh Dodder; Saltmarsh Dodder. DESCRIPTION: Terrestrial perennial parasitic forb/herb or vine; the stems are orange; the flowers are white; flowering generally takes place between late April and mid-August (additional records: one for mid-January, one for mid-October, one for early November and three for late November). HABITAT: Reported as growing on *Allenrolfea* spp., *Ambrosia* spp., *Atemisia* spp., *Atriplex* spp., *Bassia* spp., *Cressa* spp., *Frankenia* spp., *Haplopappus* spp., *Jaumea* spp., *Nitrophila* spp., *Peganum* spp., *Salicornia* spp., *Salsola* spp., *Stephanomeria* spp., *Suaeda* spp., and *Xanthium* spp., occurring from sea level to 4,300 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE: *Cuscuta salina* is native to west-central North America. *5, 6, 43 (020110), 44 (091712), 46 (Page 669), 63 (091712 - color presentation), 68 (genus), 77, 80 (Species of the genus *Cuscuta* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "This parasitic, annual vine has been suspected of causing digestive disturbances and diarrhea in horses and cattle."), 85 (091712 - color presentation of dried material), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain), 124 (091712 - no record of species; genus record)*

***Cuscuta umbellata* K.S. Kunth: Flatglobe Dodder**

SYNONYMY: *Cuscuta umbellata* K.S. Kunth var. *reflexa* (J.M. Coulter) T.G. Yuncker. COMMON NAMES: Big-flower Dodder; Cúscuta (a name also applied to other species, Spanish); Dodder (a name also applied to other species, the genus *Cuscuta* and the Cuscutaceae); Flat-globe Dodder; Flatglobe Dodder; Umbrella Dodder. DESCRIPTION: Terrestrial annual parasitic forb/herb or vine, the trailing or twining stems may be orange, yellow, yellowish or yellow-orange, the flowers may be cream, white, whitish or yellow, flowering generally takes place between mid-February and early December. HABITAT: Reported as growing on *Alternanthera* spp., *Allionia* spp., *Amaranthus* spp., *Anoda cristata*, *Artimisia* spp., *Atriplex* spp., *Boerhaavia* spp., *Euphorbia* spp., *Chamaesyce* spp., *Kallstroemia* spp., *Physalis* spp., *Polygonum* spp., *Portulaca* spp., *Salsola* spp., *Suaeda* spp., *Sesuvium* spp., *Tidestromia* spp., *Trianthema* spp. and *Tribulus* spp., occurring from sea level 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cuscuta umbellata* is native to south-central and southern North America; Central America, and northern South America. *5, 6, 43 (020210 - *Cuscuta umbellata* var. *reflexa* Yunck.), 44 (091712 - no listings recorded under Common Names), 46 (Page 671), **56**, **57**, 63 (091712 - color presentation), 68, **77** (*Cuscuta umbellata* H.B.K. var. *reflexa* (Coult.) Yuncker and *Cuscuta umbellata* H.B.K. var. *umbellata*), 80 (Species of the genus *Cuscuta* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "This parasitic, annual vine has been suspected of causing digestive disturbances and diarrhea in horses and cattle."), **85** (091712 - color presentation), 124 (091712)*

Cuscuta umbellata var. *reflexa* (see *Cuscuta umbellata*)

Euphorbiaceae: The Spurge Family

***Argythamnia* P. Browne: Silverbush**

SYNONYMY: *Ditaxis* M.H. Vahl ex A.H. Laurent de Jussieu. COMMON NAMES: Ditaxis; Silverbush; Wild Mercury. *43 (020210), 44 (091712 - no listings recorded under Common Names), 46 (recorded as *Ditaxis*, Pages 505-506), 63 (091712), 85 (091712 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill, recorded as *Ditaxis*), 124 (091712 - no record of species; genus record)*

***Argythamnia lanceolata* (G. Bentham) J. Müller Argoviensis: Narrowleaf Silverbush**

SYNONYMY: *Ditaxis lanceolata* (G. Bentham) F.A. Pax & K. Hoffmann. COMMON NAMES: Lance Leaf Ditaxis; Lance Leaved Ditaxis; Lance-leaved Argythamnia; Lance-leaved Ditaxis; Lanceleaf Ditaxis; Narrow-leaf Ditaxis; Narrow-leaf Silverbush; Narrow-leaved Ditaxis; Narrowleaf Ditaxis; Narrowleaf Silverbush. DESCRIPTION: Terrestrial perennial subshrub (stems 8 inches to 4 feet in height, one plant was observed and described as being 20 inches in height with a crown 11 inches in diameter); the bark is gray; the stems may be brown or green and covered with silky hairs; the leaves may be gray-green, light green, green, silvery, silvery-gray or silvery green and covered with silvery hairs; the small flowers may be cream, greenish-white, white, whitish, whitish-green, yellow or yellowish; flowering generally takes place between mid-January and early June (additional records: one for late June, one for mid-August, one for early September, four for mid-September, seven for late September, one for early October, three for mid-October, two for late October, two for early November, one for mid-November, one for early December, one for mid-December and one for late December, flowering had also been reported as occurring between February and September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; cliffs; bases of cliffs; bouldery, rocky and gravelly canyons; rocky canyon walls; along gravelly and sandy canyon bottoms; buttes; gravelly ridges; rocky foothills; rocky hills; rocky and gravelly hillsides; rocky, rocky-sandy, gravelly and gravelly-sandy-loamy slopes; rocky-sandy alluvial fans; rocky and gravelly bajadas; amongst boulders and rocks; lava hills; sand dunes; crests of dunes; deposits of wind-blown sand; flats; sandy coastal plains; sandy coastal beaches; railroad right-of-ways; along gravelly and sandy roadsides; along arroyos; gravelly bottoms of arroyos; ravines; along and in bouldery-rocky, rocky, rocky-sandy, gravelly and sandy washes; along and in stony-gravelly-sandy drainages; (rocky-silty-clayey) banks of washes; borders of washes; along edges of washes; (rocky) margins of arroyos; sandy beaches; terraces; along floodplains; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and sandy loam ground, and rocky-silty clay and clay ground, occurring from sea level to 4,600 feet in elevation in the scrub, desertscrub and wetland ecological formation. NOTES: This plant may be browsed by rodents. *Argythamnia lanceolata* is native to southwest-central and southern North America. *5, 6, 43 (052310), 44 (091812 - no listings under Common Names; no genus record, Common Names located under *Ditaxis lanceolata* - color photograph), 46 (recorded as *Ditaxis lanceolata* (Benth.) Pax & Hoffmann, Page 506), 63 (091812), 77, **85** (091812 - color presentation), 124 (091812 - no record of species; genus record)*

***Argythamnia neomexicana* J. Müller Argoviensis: New Mexico Silverbush**

SYNONYMY: *Ditaxis neomexicana* (J. Müller Argoviensis) A.A. Heller. COMMON NAMES: Common Ditaxis; Common Silverbush; Ditaxis; New Mexico Ditaxis; New Mexico Silverbush; New Mexico Wild Mercury; Silverbush. DESCRIPTION: Terrestrial annual or perennial forb/herb (spreading decumbent, procumbent and/or ascending stems 2 to 32 inches in height; clumps were observed and described as being 4 inches in height and 12 inches in width); the leaves are gray-green or green; the small flowers may be cream, cream-yellow, green, white, whitish, white-pale yellow, white-yellowish, white with a yellow center, light yellow or yellowish; flowering generally takes place between early January and late December. HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; rocky and gravelly mesas; rocky and rocky-loamy canyons; bouldery canyon walls; canyon bottoms; talus slopes; pockets of soil amongst volcanic bedrock; rocky ridges; rocky ridgetops; along margins of meadows; cinder cones; foothills; rocky, rocky-sandy, cindery and gravelly-sandy hills; rocky and rocky-sandy hillsides; gravelly bases of hills; bedrock, rocky, rocky-sandy, rocky-loamy, gravelly-sandy, sandy, sandy-silty and clayey-loamy slopes; bouldery-rocky-cobbly and rocky alluvial fans; gravelly, gravelly-sandy and sandy bajadas; rocky outcrops; bases of rock outcrops; amongst boulders and rocks; sand dunes; cobbly and sandy plains; rocky, gravelly, sandy, clayey and silty flats; gravelly-sandy and sandy valley floors; coastal sand dunes; coastal terraces; coastal plains; coastal flats; bouldery-cobbly coastal beaches; along clayey roadsides; within rocky, gravelly and sandy arroyos; along rocky and sandy bottoms of arroyos; rivulets; along creeks; along and in creekbeds, riverbeds; along and in bouldery, rocky, gravelly-sandy, gravelly-sandy-silty, sandy and silty washes; along and in gravelly drainages; sandy drainage ways; silty depressions; banks of arroyos and washes; borders of washes; (sandy) edges of arroyos and washes; along (sandy) margins of washes; dried mudflats; sand bars; beaches; along rocky and gravelly benches; rocky terraces; sandy floodplains; sandy berms of canals; ditches; gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry desert pavement; bedrock, bouldery, bouldery-rocky-cobbly, bouldery-cobbly, rocky, rocky-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam and clayey loam ground; clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 6,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Argythamnia neomexicana* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (020210), 44 (021511 - no listings recorded under Common Names), 46 (recorded as *Ditaxis neomexicana* (Müll.Arg,) Heller, Page 506), 58, 63 (091812), 77 (recorded as *Ditaxis neomexicana* (Müll.Arg,) Heller), **85** (091912 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Ditaxis humilis* (Engelm. & Gray) Pax.), 124 (021511 - no record of species; genus record)*

***Chamaesyce abramsiana* (L.C. Wheeler) D.L. Koutnik: Abrams' Sandmat**

SYNONYMY: *Euphorbia abramsiana* L.C. Wheeler. COMMON NAMES: Abram Spurge; Abrams Broomspurge; Abrams Prostrate Spurge; Abrams Sandmat; Abrams Spurge; Abrams' Broomspurge; Abrams' Prostrate Spurge; Abrams' Sandmat; Abrams' Spurge; Abrams's (an error) Broomspurge; Abrams's (an error) Prostrate Spurge; Abrams's (an error) Sandmat; Abrams's (an error) Spurge; Golondrina (a name also applied to other species, Spanish); Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae). DESCRIPTION: Terrestrial annual forb/herb (mat-forming, prostrate to erect stems; plants were observed and described as being up to 40 inches in diameter); the herbage is gray-brown or dark green sometimes with purple-red blotches; the flower-like cups are white; flowering generally takes place between early August and early November (additional records: one for early January and one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky ridges; rocky hillsides; rocky and gravelly-sandy slopes; alluvial fans; rocky bajadas; amongst rocks; lava flows; dunes; plains; gravelly, sandy and sandy-silty flats; valley floors; sandy-silty and loamy valley bottoms; coastal dunes; coastal plains; along and in roadbeds; along rocky-sandy and gravelly roadsides; bottoms of arroyos; draws; along runnels; along and in rocky, gravelly-sandy, sandy and silty washes; playas; sandy-silty depressions; within swales; (sandy) banks of washes; (gravelly-silty) edges of washes; mudflats; along sandy floodplains; clayey mesquite bosques; riparian areas; sandy banks of riparian areas, and disturbed areas growing in muddy and wet, moist and dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; loam ground; clay ground, and gravelly-silty, sandy silty and silty ground, occurring from sea level to 4,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce abramsiana* is native to southwest-central and southern North America. *5, 6, 15, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020210), 44 (021511), 46 (recorded as *Euphorbia abramsiana* L.C. Wheeler, Page 520), 63 (092012), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia abramsiana* L.C. Wheeler), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (092012 - color presentation of dried material), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), 124 (021511 - no record of species; genus record)*

Chamaesyce albomarginata (J. Torrey & A. Gray) J.K. Small: Whitemargin Sandmat

SYNONYMY: *Euphorbia albomarginata* J. Torrey & A. Gray. COMMON NAMES: Corape (Uto-Aztecan: Ópata, Sonora)[140]; <c'os be'i'c'oi> ("Vein Spurter", Athapascan: Navajo)[140]; Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); [Yerba de la] Golondrina ("Swallow [Herb]", Spanish: used for the genus over much of Latin America)[140]; Hierba de la Vibora ("Rattlesnake Herb" a name also applied to other species, Spanish: Mexico)[140]; I'kwikĭakĭa Tsan'na (Language Isolate: Zuni)[140]; Ikwik'yakya, ("to get milk", Zuni); Memeya (Uto-Aztecan: Náhuatl, Mexico)[140]; Qénxmal (Uto-Aztecan: Luiseño, Juaneño dialect)[140]; Rattlesnake Sandmat; Rattlesnake Spurge; Rattlesnake Weed (a name also applied to other species); Rattlesnake Weed (English)[140]; Sandmat Spurge; Sïmïndïŋ Tibohišn (Uto-Aztecan: Tübatulabal)[140]; Temal Hepi' ("Earth's Milk", Uto-Aztecan: Cahuilla)[140]; T~~ɨ~~ Vikagiv~~ɨ~~ ("Earth Collar", Uto-Aztecan: Kawaiisu)[140]; Tuvukpi <tuvúkpi> (Uto-Aztecan: Hopi)[140]; Vii'ipkam <veeipkam> (Uto-Aztecan: Akimel O'odham, Arizona)[140]; White Margin Euphorbia; White Margin Sandmat; White Margin Spurge; White-margin Broomspurge; White-margin Euphorbia; White-margin Sand-mat; White-margin Sandmat (English: Arizona, New Mexico)[140]; White-margined Spurge; Whitemargin Broomspurge; Whitemargin Euphorbia; Whitemargin Sandmat; Whitemargin Spurge; Wi:bkam (Uto-Aztecan: Tohono O'odham)[140]. DESCRIPTION: Terrestrial perennial forb/herb (mat-forming, prostrate and/or decumbent stems ½ to 3 inches in height and 2 to 10 inches in length; mats were observed and described as being 12 inches in diameter); the leaves are gray-green or green often having a white margin; the flower-like cups (1/8 inch in diameter) have green perianths and maroon, purple or purple-red glands (centers) with white petaloid appendages; flowering generally takes place between early January and late November. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; mesas; plateaus; cliffs; along rocky canyons; rocky-gravelly-sandy, cobbly-gravelly-sandy, gravelly and sandy canyon bottoms; gorges; bluffs; rocky knobs; mudstone knolls; ridges; ridgetops; clearings in forests and scrub; sandy meadows; rocky-gravelly-loamy and sandy foothills; bouldery, rocky and sandy hills; rocky-gravelly hilltops; rocky hillsides; bedrock, bouldery-sandy, rocky, rocky-sandy, rocky-clayey-loamy, cobbly-sandy-loamy, sandy, sandy-clayey, clayey, clayey, clayey-loamy and silty slopes; rocky-sandy and gravelly-sandy alluvial fans; sandy bajadas; craters; sand dunes; cobbly, clayey breaks; sandy and clayey-loamy plains; rocky-sandy, gravelly, gravelly-loamy, sandy-clayey, sandy-silty, loamy, clayey, clayey-loamy and clayey-silty flats; uplands; basins; bolsons; valley floors; sandy-silty, loamy and clayey valley bottoms; along railroad right-of-ways; gravelly roadbeds; along rocky, gravelly, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, loamy and silty roadsides; along and in sandy arroyos; bottoms of arroyos; sandy draws; gulches; gullies; rocky-gravelly-silty ravines; seeps; along streams; streambeds; in sand along creeks; sandy creekbeds; rocky-cobbly-sandy, sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-silty and silty washes; drainages; within clayey drainage ways; clayey poolbeds; pondbeds; silty lakebeds; silty and powdery playas; depressions; swales; along (rocky-sandy and sandy) banks of gullies, streams, creeks, rivers and washes; borders of washes; (gravelly and sandy) edges of creeks, washes, ponds, lakes and marshes; along (clayey) margins of springs, washes, poolbeds, vernal pools and ponds; mudflats; benches; rocky strands; rocky-sandy, gravelly

and sandy terraces; bottomlands; rocky-gravelly floodplains; mesquite bosques; along sandy fence lines; dry charco bottoms; along canals; canal banks; within clayey ditches; sandy riparian areas; waste places, and disturbed areas growing in moist (rarely reported) and dry rocky desert pavement; bouldery, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, clayey loam and loam ground; gravelly clay, sandy clay and clay ground; rocky-gravelly silty, sandy silty, clayey silty and silty ground, and powdery ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North; it was noted as having been used as a drug or medication. The stems have a milky sap. Ants, bees, beetles, bugs and flies pollinate the flowers. *Chamaesyce albomarginata* is native to south-central and southern North America. *5, 6, 15, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 28 (recorded as *Euphorbia albomarginata*, color photograph 283), 43 (070509), 44 (021511), 46 (recorded as *Euphorbia albomarginata* Torr. & Gray, Pages 518-519), 58, 63 (092012 - color presentation), 68 (recorded as *Euphorbia albomarginata* Torr. & Gray, see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia albomarginata* T. & G.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (092212 - color presentation), 86 (color photograph, *Euphorbia albomarginata*, "Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Euphorbia albomarginata* T. & G.), 124 (111610), 127, 140 (Pages 133-134, 135 & 291)*

Chamaesyce arizonica (G. Engelmann) J.C. Arthur: Arizona Sandmat

SYNONYMY: *Euphorbia arizonica* G. Engelmann. COMMON NAMES: Arizona Broomspurge; Arizona Euphorbia; Arizona Sand Mat; Arizona Sand-mat; Arizona Sandmat; Arizona Spurge; Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae). DESCRIPTION: Terrestrial perennial forb/herb (prostrate, ascending and/or erect stems 6 to 12 inches in height); the foliage appears reddish or reddish-purple; the leaves are green with red margins; the flower-like cups have maroon glands (centers) with pink or white petaloid appendages; flowering generally takes place between mid-January and early December. HABITAT: Within the range of this species it has been reported from bouldery mountains; rocky-sandy mountaintops; bouldery-rocky cliffs; bouldery and rocky canyons; rocky and gravelly canyon bottoms; scree; gravelly bases of cliffs; bluffs; rocky ledges; ridgetops; foothills; rocky hills; rocky hillsides; rocky and gravelly-loamy slopes; amongst boulders and rocks; boulder fields; plains; gravelly and sandy flats; valley floors; along sandy roadsides; along sandy arroyos; rocky bottoms of arroyos; gulches; sandy seeps; damp sand of seeping streams; along sandy streams; along and in rocky-gravelly streambeds; along and in creeks; sandy creekbeds; along rivers; riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in drainages; swales; banks of washes; borders of washes; edges of creeks and washes; sandy-clayey bars; riparian areas, and disturbed areas growing in damp and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam ground; sandy-clayey, and bouldery silty and silty ground, occurring from 100 to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce arizonica* is native to southwest-central and southern North America. *5, 6, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020310), 44 (071111), 46 (recorded as *Euphorbia arizonica* Engelm., Pages 519-520), 58, 63 (092312), 68 (see: Poisonous Properties of Spurges, Page 202), 77, 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (092312 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), 124 (071111 - no record of species; genus record), 140 (Page 291)*

Chamaesyce capitellata (G. Engelmann) C.F. Millspaugh: Head Sandmat

SYNONYMY: *Euphorbia capitellata* G. Engelmann. COMMON NAMES: Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); Head Euphorbia; Head Sandmat; Head Spurge; Koapaim (Yaqui); Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae). DESCRIPTION: Terrestrial perennial forb/herb (prostrate and/or ascending stems 3 to 8 inches in height); the leaves are green; the flower-like cups have brown-maroon, pink or red glands and white petaloid appendages; flowering generally takes place between mid-February and late October (additional records: two for early January, two for mid-November, four for late November, one for mid-December and

two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bouldery and clayey mesas; rocky canyons; gravelly-sandy canyon bottoms; rocky-sandy rims of craters; rocky ridgetops; rocky ridgelines; foothills; rocky and cobbly-gravelly-loamy hills; rocky hilltops; bouldery and rocky hillsides; rocky, gravelly and sandy slopes; bajadas; boulder fields; cobbly plains; rocky, gravelly, sandy and clayey flats; uplands; along rocky roadbeds; along rocky, rocky-clayey, gravelly, sandy-clayey roadsides; sandy arroyos; gravelly bottoms of arroyos; gravelly-silty bottoms of draws; gullies; along and in rocky and stony streambeds; along creeks; along sandy creekbeds; riverbeds; along and in rocky, gravelly and sandy washes; drainages; banks of arroyos and lakes; (sandy) edges of poolbeds, ponds; bays, lagoons and marshes; along margins of pools; floodplains; fencelines; dry stock tank (charco) bottoms; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, rocky, stony, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam and gravelly loam ground; bouldery clay, rocky clay, sandy clay and clay ground, and bouldery-silty and gravelly silty ground, occurring from sea level to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce capitellata* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Euphorbia capitellata* Engelm.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020310), 44 (092312 - no record of species; genus record), 46 (recorded as *Euphorbia capitellata* Engelm., Page 518), **56** (recorded as *Euphorbia capitellata* Engelm.), **57** (recorded as *Euphorbia capitellata* Engelmann), 58, 63 (092312), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia capitellata* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), 85 (092312 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Euphorbia capitellata* Engelm.), 124 (110410 - no record of species; genus record), 140 (Page 291)*

***Chamaesyce florida* (G. Engelmann) C.F. Millspaugh: Chiricahua Mountain Sandmat**

SYNONYMY: *Euphorbia florida* G. Engelmann. COMMON NAMES: Chiricahua Mountain Sandmat; Florida Spurge; Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 1 to 18 inches in height); the stems are pink-tan; the leaves are green; the flower-like cups have green glands (centers) and white (aging rose), white-pink or white with pinkish tips petaloid appendages; flowering generally takes place between mid-July and early November (additional records: two for early January, one for late June and two for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; canyon walls; sandy canyon bottoms; chasms; sandy ridgetops; rocky foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly, rocky-sandy, gravelly-loamy and sandy-loamy slopes; bajadas; sand dunes; plains; gravelly and sandy flats; basins; valley floors; coastal dunes; in roadbeds; along rocky-sandy, gravelly-clayey and sandy roadsides; sandy arroyos; along and in streambeds; along and in gravelly and sandy washes; gravelly-clayey depressions; along (sandy) banks of arroyos, rivers and washes; margins of washes; bottomlands; floodplains; sandy mesquite woodlands; edges of stock tanks; sandy riparian areas, and disturbed areas growing in wet, moist and dry rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground; gravelly loam, gravelly-clayey loam and sandy loam ground, and gravelly clay ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce florida* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Euphorbia florida* Engelm.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020310), 44 (092312 - no record of species; genus record), 46 (recorded as *Euphorbia florida* Engelm., Page 518), 58, 63 (092312), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia florida* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (092312 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (reported as being a summer annual herb located on Tumamoc Hill, recorded as *Euphorbia florida* Engelm.), 115 (color presentation), 124 (110410 - no record of species; genus record), 140 (Page 291)*

***Chamaesyce glyptosperma* (G. Engelmann) J.K. Small: Ribseed Sandmat**

SYNONYMY: *Euphorbia glyptosperma* G. Engelmann. COMMON NAMES: Corrugate-seeded Spurge; Rib-seed Sandmat; Ribseed Sandmat; Rib-seeded Sandmat; Ridge Seeded Spurge; Ridge-seed Euphorbia; Ridge-seed Euphorbia; Ridge-seed Spurge; Ridge-seeded Milk-purslane; Ridge-seeded Spurge; Ridgeseed Euphorbia; Ridgeseed Spurge; Sidewalk Weed

(Elbert, Colorado); Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae). DESCRIPTION: Terrestrial annual forb/herb (mat-forming, prostrate, decumbent and/or ascending stems to 10 inches in length); the stems are red-purple; the leaves are green or dark green; the flower-like cups have pinkish or white petaloid appendages; flowering generally takes place between late July and early October (additional records: flowering beginning as early as June has been reported). HABITAT: Within the range of this species it has been reported from mountains; clayey mesas; rocky canyons; rocky-sandy sides of canyons; canyon bottoms; chalky talus; crevices in rocks; sandy bottoms of cracks; bluffs; ledges; meadows; foothills; shaley and sandy hills; rocky, sandy, sandy-loamy and chalky slopes; sand dunes; sandy prairies; cindery, sandy, sandy-clayey and sandy-silty flats; sandy valley floors; along gravelly, gravelly-sandy and sandy roadsides; sandy bottoms of arroyos; gulches; sandy streambeds; along sandy washes; sandy-clayey playas; (gravelly and sandy) banks of creeks, rivers and washes; edges of saltmarshes; along (sandy) shorelines of lakes; cobbly benches; sandy floodplains; banks of stock ponds; sandy riparian areas, and disturbed areas growing in moist and dry rocky, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam and sandy loam ground; sandy clay and clay ground; sandy silty ground, and chalky ground, occurring from 600 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The stems have a milky sap. *Chamaesyce glyptosperma* is native to central North America. *5, 6, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020410), 44 (021511), 46 (recorded as *Euphorbia glyptosperma* Engelm., Page 520), 63 (092312 - color presentation), 68 (see: Poisonous Properties of Spurges, Page 202), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), 85 (092312 - color presentation of dried material), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes), 101 (color photograph), 124 (021511), 127*

Chamaesyce gracillima (S. Watson) C.F. Millspaugh: Mexican Sandmat

SYNONYMY: *Euphorbia gracillima* S. Watson. COMMON NAMES: Mexican Broomspurge; Mexican Sandmat; Mexican Skeletonspurge; Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae). DESCRIPTION: Terrestrial annual forb/herb (ascending to erect stems 4 to 6 inches in height/length); the flower-like cups have red glands and red or white petaloid appendages; flowering generally takes place between mid-August and late October (additional records: flowering beginning as early as July and ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; rocky canyons; rocky foothills; rocky hills; rocky hillsides; rocky and gravelly slopes; bajadas; amongst rocks; grassy plains; gravelly flats; along rocky-sandy roadsides; sandy arroyos; sandy bottoms of arroyos; along sandy streambeds; along and in rocky-sandy washes; (sandy) banks of streams and rivers, and (rocky) margins of arroyos growing in dry rocky and stony desert pavement and rocky, rocky-sandy, stony, gravelly and sandy ground, occurring from 300 to 6,500 feet in elevation in the forest, scrub, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce gracillima* is native to southwest-central and southern North America. *5, 6, 8, 15, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020410), 44 (021511 - no record of species), 46 (recorded as *Euphorbia gracillima* Wats., Page 519), 63 (092412), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia gracillima* S. Wats.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (092412 - color presentation of dried material), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), 124 (021511 - no record of species; genus record), 140 (Page 291)*

Chamaesyce hyssopifolia (C. Linnaeus) J.K. Small: Hyssopleaf Sandmat

SYNONYMY: *Euphorbia hyssopifolia* C. Linnaeus. COMMON NAMES: Burra Leitera ("Donkey's Milk", Portuguese: Brazil)[140]; Erva de Leite ("Milk Herb", Portuguese: Brazil)[140]; Erva de Santa Luzia ("St. Lucia's Herb", Portuguese: Brazil)[140]; Golondrina ("Swallow", Spanish: Mexico)[140]; Hyssop Spurge (English)[140]; Hyssopleaf Euphorbia; Hyssopleaf Sandmat; Hyssopleaf Spurge; Leafy Spurge (a name also applied to other species); Pau de Leite ("Milk Tree", Portuguese: Brazil)[140]; [Hyssop-leaf] Sandmat (English: Arizona, Florida, New Mexico)[140]; Vipgam ("It Has Much Milk", Uto-Aztecan: Onavas Pima)[140]; Wi:bkam ("It Has Much Milk", Uto-Aztecan: Tohono O'odham)[140]. DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate, ascending and/or erect stems 4 inches to 2 feet in height/length); the stems are red or reddish; the leaves are green; the inconspicuous flower-like cups have pink glands with pink, purplish reddish, white or white-pink petaloid

appendages; flowering generally takes place between early July and mid-November (additional records: one for early January, one for mid-January, one for late January, one for mid-March, one for mid-April, one for early May, one for early June, one for mid-December and three for late December). HABITAT: Within the range of this species it has been reported from bouldery mountains; bases of mountains; rocky mesas; cliffs; rocky canyons; rocky canyon bottoms; gorges; pockets of soil in bedrock; ridges; rocky ridge crests; sandy-loamy meadows; rocky foothills; rocky hills; rocky hillsides; bouldery, rocky, gravelly, sandy, sandy-loamy and clayey slopes; alluvial fans; gravelly bajadas; bedrock and rocky outcrops; amongst boulders and rocks; bouldery-sandy, gravelly, sandy and clayey flats; sandy valley floors; along railroad right-of-ways; roadcuts; along rocky-sandy, gravelly, gravelly-sandy-loamy and gravelly-sandy-clayey-loamy roadsides; sandy soils along and in rocky-gravelly, stony and sandy arroyos; sandy bottoms of arroyos; draws; gulches; within gullies; ravines; gravelly seeps; springs; rocky soils along streams; along and in rocky, cobbly and gravelly-silty-loamy streambeds; in rocks along and in creeks; creekbeds; sandy-clayey soils along rivers; gravelly-sandy and sandy-clayey riverbeds; along and in rocky, stony, gravelly, gravelly-sandy, sandy and clayey washes; within drainages; along sandy drainage ways; playas; bogs; ciénegas; clayey swales; along (sandy and silty) banks of arroyos, streams, creeks, rivers and lakes; edges of washes; margins of streams; sand and sandy-clayey bars; rocky-sandy benches; rocky shelves; terraces; bottomlands; floodplains; mesquite bosques; mesquite woodlands; bottoms of dry stock tanks (charcos); along and in sandy ditches; sandy-clayey ditch banks; gravelly and sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry (seasonally wet, reportedly this plant will soon wither and die as the soil dries out) bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-silty loam and sandy loam ground, and sandy clay and clay ground, occurring from sea level to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce hyssopifolia* is native to south-central (many sources report this plant as being native to areas outside of southern Florida in the continental United States) and southern North America and coastal islands in the Atlantic Ocean; Central America and coastal islands in the Caribbean Sea and North Atlantic Ocean, and northern, western, central and eastern South America. *5, 6, 15, **16** (recorded as *Euphorbia hyssopifolia* L.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (070509), 44 (071111 - no record of species; genus record), 46 (recorded as *Euphorbia hyssopifolia* L., Page 518), **56** (recorded as *Euphorbia hyssopifolia* L.), **57** (recorded as *Euphorbia hyssopifolia* Linnaeus), 58, 63 (012811 - color presentation), 68 (recorded as *Euphorbia hyssopifolia* L. - see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia hyssopifolia* L.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (092512 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), 115 (color presentation), 124 (071111 - redirected to *Chamaesyce nutans* (Lag.) Small, common names not included in this listing), 140 (Pages 134-135 & 291), **WTK** (August 2, 2010)*

***Chamaesyce melanadenia* (J. Torrey) C.F. Millspaugh: Red-gland Spurge**

SYNONYMY: *Euphorbia melanadenia* J. Torrey. COMMON NAMES: Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); Red-gland Spurge; Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae); Squaw Spurge (not recommended for use); Squaw Sandmat (not recommended for use). DESCRIPTION: Terrestrial perennial forb/herb (prostrate, decumbent, ascending to erect stems 2¾ to 8 inches in height); the stems may be red, red-brown or reddish; the leaves may be gray-green or green turning reddish with age; the flower-like cups have dark burgundy, purple, dark purple or red glands with white petaloid appendages; flowering generally takes place between early January and mid-November (additional records: flowering beginning as early as December and ending as late as May has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; along bases of cliffs; rocky canyons; bouldery, rocky-sandy and sandy canyon bottoms; talus; rocky and gravelly-loamy ridgetops; rocky ridgelines; foothills; rocky hills; bouldery, rocky, cobbly and sandy hillsides; bouldery, bouldery-rocky, bouldery-gravelly-loamy, rocky, stony, gravelly, gravelly-loamy and sandy slopes; rocky outcrops; bases of rock outcrops; amongst boulders and rocks; gravelly-loamy and sandy flats; basins; along silty-clayey roadsides; arroyos; sandy bottoms of arroyos; springs; along streams; along creeks; in rocky and sandy creekbeds; along and in rocky, rocky-sandy, gravely and sandy washes; along and in gravelly-sandy and sandy drainages; along (sandy) banks of creeks, rivers, washes and drainages; borders of washes; terraces; sandy bottomlands; sandy-loamy floodplains; bouldery-sandy, gravelly-sandy and sandy riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy, pebbly and sandy ground; bouldery-gravelly loam, rocky-sandy loam, rocky-clayey loam, gravelly loam and sandy loam ground; loamy clay and silty clay ground, and gravelly-sandy humusy ground often found amongst shrubs, occurring from 200 to 6,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The stems have a milky sap. *Chamaesyce melanadenia* is native to southwest-central and southern North America. *5, 6, 15, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (071910), 44 (092512), 46 (recorded as *Euphorbia melanadenia* Torr., Page

519), 63 (092712 - color presentation), 68 (see: Poisonous Properties of Spurges, Page 202), 77, 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (092712 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), 124 (092512 - no record of species; genus record), 127, 140 (Pages 134 & 291)*

***Chamaesyce micromera* (P.E. Boissier ex G. Engelmann) E.O. Wooton & P.C. Standley: Sonoran Sandmat**

SYNONYMY: *Euphorbia micromera* P.E. Boissier ex G. Engelmann. COMMON NAMES: Desert Spurge (a name also applied to other species); Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); Little-leaf Spurge; Littleleaf Spurge; Pit-seed Broomspurge; Pit-seed Euphorbia; Pitseed Euphorbia; Sonora Sand Mat; Sonora Sandmat; Sonoran Sand Mat; Sonoran Sand-mat; Sonoran Sandmat; Sonoran Spurge; Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae); Tiny Spurge. DESCRIPTION: Terrestrial annual forb/herb (mat-forming, sprawling prostrate stems 3 to 9 inches in length); the stems are flesh colored; the leaves are gray-green or dull pinkish-gray green; the inconspicuous flower-like cups have green or greenish-red perianths and magenta, pink, purple, red or dark red glands without (or with minute) white petaloid appendages; flowering generally takes place between early August and late November (additional records: one for late January and two for early April, three for late April, one for early May, one for late June, two for early July, one for mid-December and one for late December; flowering beginning in September and December and again between April thru June has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; rocky canyons; sandy canyon floors; pockets of sandy soil in granitic hills; ridges; rocky foothills; bouldery and rocky hills; hilltops; rocky hillsides; bouldery, bouldery-rocky-gravelly, rocky, rocky-gravelly, gravelly, sandy, sandy-loamy and sandy-silty slopes; rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy alluvial fans; gravelly and sandy bajadas; sand dunes; gravelly outwash fans; prairies; plains; gravelly, sandy and silty flats; basins; valley floors; valley bottoms; rocky-gravelly-loamy, rocky-sandy, gravelly and gravelly-sandy roadsides; arroyos; along sandy bottoms of arroyos; gulches; seeps; along streams; along gravelly-sandy creeks; creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along drainages; silty lakebeds; playas; along banks of rivers; (gravelly) edges of washes and lakebeds; (rocky-sandy) shores of lakes; mudflats; sandy-clayey bars; sandy beaches; sandy benches; terraces; sandy and silty floodplains; clayey lowlands; margins of stock tanks; ditch banks; gravelly and sandy riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-rocky-gravelly, rocky, rocky-gravelly, rocky-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 6,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The herbage has a milky sap. *Chamaesyce micromera* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Euphorbia micromera* Boiss.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020410 - *Chamaesyce micromera* (Boiss.) Wooton & Standl., *Euphorbia micromera* Boiss.), 44 (021511), 46 (recorded as *Euphorbia micromera* Boiss., Page 520), 63 (092712), 68 (recorded as *Euphorbia micromera* Boiss., see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia micromera* Boiss.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (092712 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), 124 (021511 - no record of species; genus record)*

***Chamaesyce nutans* (M. Lagasca y Segura) J.K. Small: Eyebane**

SYNONYMY: *Euphorbia preslii* G. Gussone. COMMON NAMES: Eyebane (a name also applied to other species); Eyebane Broomspurge; Eyebane Euphorbia; Eyebane Spurge; Large Spotted Spurge (a name also applied to other species); Large Spotted-spurge; Milk Purslane; Nickende Wolfscmilch (German); Nodding Spurge (a name also applied to other species); Prostrate Spurge; Spotted Spurge (a name also applied to other species); Spotted Sandmat (a name also applied to other species); Spotted Spurge; Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae); Stubble Spurge; Upright Blotched Spurge; Upright Spotted Spurge (a name also applied to other species). DESCRIPTION: Terrestrial annual or perennial forb/herb (low spreading to weekly ascending stems 3 to 32 inches in height); the leaves are green; the flower-like cups have greenish-pink glands and white petaloid appendages; flowering generally takes place between June and October. HABITAT: Within the range of this species it has been reported from mountains; canyons; clearings in woodlands; rocky hills; gravelly-loamy slopes; gravelly and clayey prairies; along railroad right-of-ways; ruts of roadbeds; along rocky roadsides; sandy arroyos; swales; banks of arroyos; margins of lakes; floodplains; along dikes; waste places, and disturbed areas growing in dry rocky, gravelly and sandy ground; gravelly loam ground, and clay ground, occurring from sea level to 8,500 feet in elevation in

the woodland, grassland and desertscrub ecological formations. NOTES: EXOTIC Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The stems have a milky sap. *Chamaesyce nutans* is native to eastern, southwest-central and southern North America; Central America, and northwestern South America. *5, 6, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020410), 44 (092712), 46 (no record of species), 63 (092712 - color presentation, mapping shows that this plant is not present in Arizona), 68 (see: Poisonous Properties of Spurges, Page 202), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), 85 (092812 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (reported as being a long-lived annual herb located on Santa Cruz Flood-plain, recorded as *Euphorbia preslii* Guss.), 124 (092712), 127*

***Chamaesyce pediculifera* (G. Engelmann) J.N. Rose & P.C. Standley: Carrizo Mountain Sandmat**

SYNONYMY: *Euphorbia pediculifera* G. Engelmann. COMMON NAMES: Carrizo Mountain Sandmat; Carrizo Mountain Spurge; Carrizo Spurge; Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); Louse Broomspurge; Louse Spurge; Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae). DESCRIPTION: Terrestrial perennial forb/herb (prostrate to ascending stems 4 to 16 inches in height/length); the stems are red or reddish; the leaves are gray-green or green; the flower-like cups have dark red-purple glands with white petaloid appendages; flowering generally takes place between early January and late December; the white seeds are ringed with 4 to 5 ridges. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cliffs; talus slopes; rocky canyons; bouldery, rocky and gravelly canyon bottoms; rocky gorges; crevices in rocks; rocky ledges; ridge crests; cinder cones; rims of cinder cones; rocky foothills; rocky and rocky-sandy hills; rocky and gravelly hillsides; clayey bases of hills; bluffs; rocky slopes; alluvial fans; sandy bajadas; amongst boulders, rocks and cobbles; boulder fields; sand dunes; plains; gravelly, sandy and silty flats; valley floors; coastal plains; sandy coastal beaches; railroad right-of-ways; along gravelly and sandy roadsides; rocky arroyos; along gravelly and sandy bottoms of arroyos; gravelly-sandy-loamy draws; rocky bottoms of ravines; along streams; gravelly-sandy streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in rocky, stony, gravelly, gravelly-sandy and sandy washes; drainages; rocky drainage ways; playas; coves; banks of washes; along (cobbly and sandy) edges of washes; (sandy) margins of washes; mudflats; sand bars; sandy beaches; benches; sandy strands; bottomlands; sandy floodplains; mesquite bosques; dry bottoms of charcos (stock tanks); mesquite bosques; sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, rocky, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and sandy loam ground; rocky clay and clay ground, and bouldery silty and silty ground, occurring from sea level to 4,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce pediculifera* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Euphorbia pediculifera* Engelm.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020510), 44 (021511), 46 (recorded as *Euphorbia pediculifera* Engelm., Page 519), **56** (recorded as *Euphorbia pediculifera* Engelm.), **57** (recorded as *Euphorbia pediculifera* Engelmann), 58, 63 (092912), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia pediculifera* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (092912 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Euphorbia pediculifera* Engelm.), 124 (092912 - no record of species; genus record)*

***Chamaesyce serpyllifolia* (C.H. Persoon) J.K. Small subsp. *serpyllifolia*: Thymeleaf Sandmat**

SYNONYMY: *Euphorbia serpyllifolia* C.H. Persoon. COMMON NAMES: Naze-ni Pezhi (Omaha-Ponca, Milkweed); Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae); Thyme Leafed Spurge; Thyme Leaved Sandmat; Thyme Leaved Spurge; Thyme-leaf Broomspurge; Thyme-leaf Euphorbia; Thyme-leaf Sandmat; Thyme-leaf Spurge; Thyme-leafed Spurge; Thyme-leaved Sandmat; Thyme-leaved Spurge; Thymeleaf Broomspurge; Thymeleaf Euphorbia; Thymeleaf Spurge; Thymeleaf Sandmat; White-stemmed Spurge. DESCRIPTION: Terrestrial annual forb/herb (prostrate to ascending stems 4 to 6 inches in length); the stems are purple-red or reddish; the leaves are green; the inconspicuous flower-like cups have red glands with white petaloid appendages, flowering generally takes place between early April and early November (additional records: one for late November and one early December). HABITAT: Within the range of this species it has been reported from mountains; rocky-gravelly mountainsides; mesas; cliffs; sandy canyons; rocky, sandy and sandy-loamy canyon

bottoms; among rocky talus; gravelly knolls; ridges; meadows; foothills; hilltops; rocky hillsides; rocky, cindery, gravelly, gravelly-loamy, sandy-loamy, clayey and silty-loamy slopes; rocky-sandy-loamy and gravelly-sandy alluvial fans; bajadas; sandy outwash fans; prairies; gravelly-sandy plains; sandy-clayey fields; rocky, gravelly, gravelly-sandy, sandy and clayey flats; valley floors; along railroad right-of-ways; along sandy roadbeds; along gravelly, sandy and clayey roadsides; draws; seeps; springs; along streams; sandy streambeds; along sandy creeks; along rivers; rocky-sandy and sandy riverbeds; along and in bouldery-gravelly, gravelly-sandy and sandy washes; drainages; along cindery drainage ways; lakebeds; freshwater marshes; depressions; sumps; sandy banks of creeks and washes; edges of ponds; margins of ponds and lakes; shores of lakes; clayey mudflats; sandy benches; sandy and sandy-loamy terraces; bottomlands; silty-loamy floodplains; lowlands; mesquite bosques; margins of reservoirs; within ditches; riparian areas, and disturbed areas growing in wet, moist and dry bouldery-gravelly, rocky, rocky-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, gravelly loam, sandy loam, clayey loam and silty loam ground; rocky clay, sandy clay and clay ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, candy and or sweetener crop; it was also noted as having been used as a drug or medication. The stems have a milky sap. *Chamaesyce serpyllifolia* subsp. *serpyllifolia* is native to west-central and southern North America. *5, 6, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020510), 44 (093012), 46 (recorded as *Euphorbia serpyllifolia* Pers., Page 520), 58, 63 (093012 - color presentation), 68 (see: Poisonous Properties of Spurges, Page 202), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), 85 (093012 - color presentation of dried material), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recorded as *Euphorbia serpyllifolia* Pers.), 124 (093012), 127*

***Chamaesyce serrula* (G. Engelmann) E.O. Wooton & P.C. Standley: Sawtooth Sandmat**

SYNONYMY: *Euphorbia serrula* G. Engelmann. COMMON NAMES: Sawtooth Euphorbia; Saw-tooth Sandmat; Sawtooth Sandmat; Sawtooth Spurge. DESCRIPTION: Terrestrial annual forb/herb (mat-forming, prostrate to ascending stems 3 to 6 inches in length); the stems are red; the inconspicuous flower-like cups have green perianths and white petaloid appendages; flowering generally takes place between early July and early October (additional records: one for early May, one for late October and one for early November). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; crevices in rocks; ridges; clearings in woodlands; sandy foothills; rocky hills; escarpments; rocky, rocky-gravelly, gravelly, sandy and sandy-clayey slopes; alluvial fans; sandy-clayey bajadas; plains; sandy, sandy-clayey and clayey flats; valley floors; in two-tracks; along gravelly roadsides; in two-tracks; along and in sandy washes; bogs; banks of washes, drainages and drainage ways; edges of washes; sandy-silty floodplains; edges of stock tanks; riparian areas; waste places, and disturbed areas growing in moist, damp and dry desert pavement; rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from 2,400 to 8,000 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce serrula* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Euphorbia serrula* Engelm.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020510), 44 (100112 - no record of species; genus record), 46 (recorded as *Euphorbia serrula* Engelm., Page 520), 63 (100112), 68 (recorded as *Euphorbia serrula* Engelm. - see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia serrula* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (100112 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recorded as *Euphorbia serrula* Engelm.), 124 (100112 - no record of species; genus record)*

***Chamaesyce setiloba* (G. Engelmann ex J. Torrey) J.B. Norton: Yuma Sandmat**

SYNONYMY: *Euphorbia setiloba* G. Engelmann ex J. Torrey. COMMON NAMES: Bristlelobe Sandmat; Bristle-lobed Sandmat; Bristlelobe Spurge; Fringed Spurge; Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae); Yuma Broomspurge; Yuma Sandmat; Yuma Spurge. DESCRIPTION: Terrestrial annual forb/herb (sprawling prostrate to ascending stems 1½ to 20 inches in height); the foliage is pale green, green, reddish or yellow-green; the flower-like cups have maroon or red glands with light pink, pink, pinkish-white, white or white-pink petaloid appendages; flowering generally takes place between

mid-January and mid-May and again between early August and late November (additional records: three for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; mesas; rocky and sandy canyons; bouldery and rocky canyon bottoms; rocky talus; crevices in boulders; rocky foothills; bouldery and rocky hills; rocky and shaley hillsides; bouldery-rocky, rocky, rocky-gravelly, gravelly, sandy and sandy-silty slopes; cobbly-gravelly-sandy and gravelly-sandy alluvial fans; gravelly-sandy and sandy bajadas; sand dunes; sandy plains; rocky, gravelly and sandy flats; basins; valley floors; valley bottoms; coastal plains; rocky-gravelly, rocky-sandy and gravelly roadsides; within gravelly and sandy arroyos; rocky, gravelly and gravelly-sandy and sandy bottoms of arroyos; gravelly draws; within rocky gullies; along creeks; rocky, gravelly-sandy and sandy riverbeds; along and in rocky-sandy, cobbly, gravelly, gravelly-sandy, sandy and clayey washes; sandy-loamy drainage ways; waterholes; salt marshes; banks of washes; along (gravelly, gravelly-silty and sandy) edges of arroyos, rivers and washes; along margins of pools; mudflats; gravel bars; sandy beaches; sandy deltas; terraces; gravelly, sandy and sandy-loamy floodplains; mesquite bosques; riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam and loam ground; clay ground, and gravelly silty and sandy silty ground, occurring from sea level to 5,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce setiloba* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Euphorbia setiloba* Engelm.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020510 - *Chamaesyce setiloba* (Engelm. ex Torr.) Millsp.), 44 (021511), 46 (recorded as *Euphorbia setiloba* Engelm., Page 520), **57** (recorded as *Euphorbia setiloba* Engelmann), 58, 63 (100212 - color presentation), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia setiloba* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (100212 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recorded as *Euphorbia setiloba* G. Engelm.), 124 (021511 - no record of species; genus record)*

Ditaxis (see *Argythamnia*)

Ditaxis humilis (see footnote 89 under *Argythamnia neomexicana*)

Ditaxis lanceolata (see *Argythamnia lanceolata*)

Ditaxis neomexicana (see *Argythamnia neomexicana*)

***Euphorbia* C. Linnaeus: Spurge**

COMMON NAME: Euphorbia; Kombu; Poinsettia; Snow-on-the-mountain; Spurge (from French 'Espurge' for emetic qualities); Wolf Milk; Wolf's Milk; Wolfs Milk; Wolf-milk; Wolf's-milk; Wolfs-milk; Wolfmilk. *43 (042510), 44 (100312), 46 (Pages 511-520), 63 (100312 - color presentation), 85 (100312 - color presentation), 124 (101312), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes)

***Euphorbia* C. Linnaeus: Spurge**

COMMON NAME: Euphorbia; Kombu; Poinsettia; Snow-on-the-mountain; Spurge (from French 'Espurge' for emetic qualities); Wolf Milk; Wolf's Milk; Wolfs Milk; Wolf-milk; Wolf's-milk; Wolfs-milk; Wolfmilk. *43 (042510), 44 (100312), 46 (Pages 511-520), 63 (100312 - color presentation), 85 (100312 - color presentation), 124 (101312), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes)

***Euphorbia* C. Linnaeus: Spurge**

COMMON NAME: Euphorbia; Kombu; Poinsettia; Snow-on-the-mountain; Spurge (from French 'Espurge' for emetic qualities); Wolf Milk; Wolf's Milk; Wolfs Milk; Wolf-milk; Wolf's-milk; Wolfs-milk; Wolfmilk. *43 (042510), 44 (100312), 46 (Pages 511-520), 63 (100312 - color presentation), 85 (100312 - color presentation), 124 (101312), **89** (reported as being a perennial species located on the Mesa-like Mountain Slopes)

Euphorbia abramsiana (see *Chamaesyce abramsiana*)

Euphorbia albomarginata (see *Chamaesyce albomarginata*)

Euphorbia arizonica (see *Chamaesyce arizonica*)

Euphorbia capitellata (see *Chamaesyce capitellata*)

Euphorbia florida (see *Chamaesyce florida*)

Euphorbia glyptosperma (see *Chamaesyce glyptosperma*)

Euphorbia gracillima (see *Chamaesyce gracillima*)

***Euphorbia heterophylla* C. Linnaeus: Mexican Fireplant**

SYNONYMY: *Poinsettia heterophylla* (C. Linnaeus) J.F. Klotzsch & C.A. Garcke. COMMON NAMES: Adeus-Brazil (Portuguese: Brazil); Amendoim-Bravo (Portuguese: Brazil); Caca Poule (French); Café-do-diabo (Portuguese: Brazil); Catalina; Fiddler's Spurge; Flor-do-poeta (Portuguese); Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); Hierba de Leche (Spanish); Japanese Poinsettia; Laban el-Homara (Arabic); Labeinah (Arabic); Lechosa (Spanish); Leiteira (Portuguese: Brazil); Mexican Fireplant; Mexican-fireplant; Milkweed; Painted Euphorbia; Painted Leaf; Painted Spurge; Painted-leaf; Paintedleaf; Picachalih (Spanish); Pascuilla (Spanish); Poinsettien-Wolfmilch (German); Summer Poinsettia; Wild Poinsettia. DESCRIPTION: Terrestrial annual or perennial forb/herb (ascending and/or erect stems 8 inches to 5 feet in height); the stems are green; the leaves are green; the flowers are cream, light green, green, white or white & green; the glands are yellow without petaloid appendages; the floral bracts (below the flowering cluster) may be partly colored light green, pink, red, white or yellow; flowering generally takes place between early August and late October (additional records: one for early January, one for mid-January, one for mid-March and two for mid-July); the ripe fruits are reddish. HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; rocky canyons; sandy canyon bottoms; ridges; bouldery-rocky and sandy-clayey meadows; foothills; hillsides; rocky, stony, gravelly, sandy-clayey and clayey slopes; along rocky outcrops; amongst rocks and cobbles, bases of rocks; plains; fields; gravelly and clayey flats; valley floors; along roadsides; within sandy arroyos; bottoms of arroyos; gulches; ravines; along streams; cobbly and sandy streambeds; along creeks; sandy creekbeds; riverbeds; along and in washes; within drainage ways; ciénegas; marshes; (sandy) banks of rivers and washes; edges of washes; margins of arroyos; terraces; bottomlands; floodplains; mesquite bosques; ditches; grassy riparian areas, and disturbed areas growing in wet, moist and dry bouldery-rocky, rocky, stony, cobbly, gravelly and sandy ground and sandy clay and clay ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant has a milky sap. *Euphorbia heterophylla* is native to south-central and southern North America and coastal islands in the Atlantic Ocean; Central America and coastal islands in the Caribbean Sea, and northern, western and eastern South America; however, the exact native range in the neotropics is obscure. *5, 6, 15, **16**, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (012811 - *Poinsettia heterophylla* Klotzsch & Garcke), 44 (071311 - no records under Common Names; genus record), 46 (Page 519), **56**, **57**, 58, 63 (100312 - color presentation), 68 (see: Poisonous Properties of Spurges, Page 202), 77, 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (100312 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), 124 (071311 - redirected to *Euphorbia cyathophora* Murray), 140 (recorded as *Poinsettia heterophylla* (Linnaeus) Klotzsch & Garcke, Page 291)*

Euphorbia hyssopifolia (see *Chamaesyce hyssopifolia*)

Euphorbia melanadenia (see *Chamaesyce melanadenia*)

Euphorbia micromera (see *Chamaesyce micromera*)

Euphorbia pediculifera (see *Chamaesyce pediculifera*)

Euphorbia preslii (see *Chamaesyce nutans*)

Euphorbia serpyllifolia (see *Chamaesyce serpyllifolia* subsp. *serpyllifolia*)

Euphorbia serrula (see *Chamaesyce serrula*)

Euphorbia setiloba (see *Chamaesyce setiloba*)

***Jatropha cardiophylla* (J. Torrey) J. Müller Argoviensis: Sangre de Cristo**

COMMON NAMES: Limberbush; Matacora; Nettlespurge; Sangre de Cristo (Spanish); Sangre de Drago (Spanish); Sangre-de-Cristo; Sangre-de-drago; Sangregrado (Spanish); Sangrengado (Spanish: Mexico, Sonora); Sangringada; Torote. DESCRIPTION: Terrestrial perennial deciduous, semi-succulent shrub (erect stems 1 to 7 feet in height); the flexible stems are basally branches; the bark is reddish; the leaves shiny green; the small bell-shaped flowers may be cream-white, pink, white or yellow; flowering generally takes place between mid-July and late September. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; rocky canyons; canyon bottoms; ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; rocky and gravelly slopes; rocky and gravelly bajadas; boulderfields; terraces; gravelly plains; gravelly-sandy flats; basins; valley floors; coastal plains; coastal beaches; rocky roadsides; along and in gravelly and sandy arroyos; sandy bottoms of arroyos; cobbly and cobbly-gravelly-loamy draws; riverbeds; along and in sandy washes; margins of washes; floodplains; mesquite woodlands; riparian areas, and disturbed areas growing in dry bouldery, rocky, cobbly, gravelly, gravelly-sandy and sandy ground and cobbly-gravelly loam and gravelly loam ground, occurring from sea level to 4,800 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop; the stems were used in the making of baskets. The shiny heart-shaped emerald green leaves appear around the time of the first rains and then provide color when the leaves turn gold in the fall. *Jatropha cardiophylla* is native to southwest-central and southern North America. *5, 6, 13 (Pages 113-114, color photograph: Plate M.1., Page 400), 15, **16**, 43 (020510), 44 (071311 - no record of species or genus), 45 (color photograph), 46 (Page 509), 48, 58, 63 (100312), 77, 80 (Species of the genus *Jatropha* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Seeds of several species of *Jatropha* are toxic to humans and livestock but no poisoning has been reported from Arizona."), 85 (100412 - color presentation), **89** (reported as being a shrub located on Tumamoc Hill), 91 (Pages 244-245), 115 (color presentation), 124 (071311 - no record of species or genus), 127, 140 (Page 291)*

***Tragia nepetifolia* A.J. Cavanilles (var. *dissecta* J. Müller Argoviensis is the variety reported as occurring in Arizona): Catnip Noseburn**

COMMON NAMES: Betony-leaf Noseburn; Betonyleaf Noseburn; Catnip Noseburn (a name also applied to other species); Catnip Tragia; Noseburn (a name also applied to the genus *Tragia*); Ortiguilla (a name applied to var. *dissecta*, Spanish); Ra´oke (Purépecha); Ra´uli (Purépecha); Rama Quemadora (a name applied to var. *dissecta*, Spanish); Sartillo (a name applied to var. *dissecta*, Spanish); Stinging Nettle (western Missouri). DESCRIPTION: Terrestrial perennial forb/herb (6 to 18 inches in height/length); often has twining stems; the foliage is reddish; the flowers are maroon, reddish, yellow or yellowish; flowering generally takes place between early March and mid-December. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky cliffs; along rocky canyons; canyon walls; rocky and sandy canyon bottoms; talus slopes; crevices; rocky buttes; rocky ridges; ridge crests; clearings in forests; foothills; hills; rocky hillsides; rocky, cobbly-gravelly-loamy, gravelly, sandy and loamy slopes; gravelly bajadas; bases of rock outcrops; amongst boulders, rocks and cobbles; lava beds; rocky banks; plains; rocky flats; valley floors; along rocky and rocky-gravelly-sandy-clayey-loamy roadsides; along and in arroyos; along rocky ravines; along rocky and rocky-gravelly streams; streambeds; along creeks; creekbeds; along and in gravelly and sandy washes; drainages; along in drainage ways; (rocky) banks of washes; edges of washes; around lakes; benches; terraces; bottomlands; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly and sandy ground and rocky-gravelly-sandy-clayey loam, cobbly-gravelly loam, gravelly loam, gravelly-clayey loam, sandy loam and loam ground, occurring from 100 to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This vining or semi-vining herb has stinging hairs on the leaves; Richard S. Felger (SEINet record 02 Dec 2000) reported that the pain, from the mildly stinging hairs of variety *dissecta*, lasted for about 10 minutes. *Tragia nepetifolia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 30, 43 (020610), 44 (100412 - no record of species; genus record), 46 (Page 508), 58, 63 (100412), 77, **85** (100412 - color presentation), 124 (100412 - redirected to *Tragia betonicifolia* Nutt.; genus record), 127, 140 (Page 291)*

Tragia nepetifolia var. *ramosa* (see *Tragia ramosa*)

***Tragia ramosa* J. Torrey: Branched Noseburn**

SYNONYMY: *Tragia nepetifolia* A.J. Cavanilles var. *ramosa* (J. Torrey) J. Müller Argoviensis; *Tragia stylaris* J. Müller Argoviensis. COMMON NAMES: Branched Noseburn; Branched Tragia; Branching Noseburn; Branching Tragia; Catnip Noseburn (a name also applied to other species); Desert Noseburn; Desert Tragia; Netleaf Noseburn; Noseburn; Ortiguilla (a name also applied to other species, Spanish); Ranuriki (Hispanic). DESCRIPTION: Terrestrial perennial forb/herb, subshrub, shrub or vine (3 to 20 inches in height or length; one plant was observed and described as being 4 inches in height and 3 inches in width, one plant was observed and described as being 4 inches in height and 4 inches in width); the stems may be dark green or purple-brown; the leaves may be gray-green, green, dark green or yellow-green; the inconspicuous flowers may be brownish, green, greenish, red or yellow; flowering generally takes place between late March and mid-November. HABITAT: Within the range of this species it has been reported from mountains; mesa rims; rocky cliffs; bases of cliffs; along canyon rims; bouldery and rocky canyons; along rocky sides of canyons; along canyon bottoms; rocky scree; rocky talus slopes; bouldery rock falls; crevices in rocks; gravelly buttes; rocky knolls; ledges; ridges; rocky ridgetops; ridgelines; cindery tops and flanks of cinder cones; foothills; rocky-gravelly and rocky-clayey hills; hilltops; bouldery, rocky, rocky-sandy and gravelly hillsides; bouldery

escarpments; bouldery, bouldery-rocky-cobbly, rocky, rocky-gravelly-sandy, rocky-clayey, cindery, gravelly and sandy-clayey-loamy slopes; loamy alluvial fans; bajadas; gravelly pediments; rocky and shaley outcrops; amongst boulders and rocks; bases of boulders and rocks; loamy steppes; prairies; plains; gravelly-loamy flats; roadcuts; along gravelly-loamy roadsides; within arroyos; rocky bottoms of arroyos; bouldery draws; gulches; within ravines; along streams; streambeds; along gravelly creeks; creekbeds; along and in bouldery-sandy, rocky, rocky-gravelly, cobbly, gravelly and sandy washes; drainages; within rocky drainage ways; sinks; banks of rivers and washes; borders of washes; edges of springs; along margins of washes; rocky fringes of washes; terraces, and riparian areas growing in damp and dry bouldery, bouldery-rocky-cobbly, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly, cindery, gravelly and sandy ground; gravelly loam, sandy-clayey loam and loam ground; rocky clay and clay ground, and silty ground, occurring from 500 to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North; it was noted as having been used as a drug or medication. The herbage of this semi-vining plant has stinging hairs. W. Winston (SEINet record 27 June 2007) reported that the stinging hairs of a 6 inch plant caused a pain that lasted for at least 20 minutes and caused welts to form where it touched skin. *Tragia ramosa* is native to southwest-central and southern North America. *5, 6, 15, 30, 43 (020610), 44 (100412 - color photograph), 46 (recorded as *Traiga stylaris* Müell. Arg., Page 508), 63 (100412), 85 (100412 - color presentation), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes), 124 (100412), 127*

Tragia stylaris (see *Tragia ramosa*)

Fabaceae (Leguminosae): The Pea Family

Acacia angustissima var. *cuspidata* (see *Acacia angustissima* var. *suffrutescens*)

***Acacia angustissima* (P. Miller) C.E. Kuntze var. *filicioides* (A.J. Cavanilles) C.E. Kuntze: Prairie Acacia**

SYNONYMY: *Mimosa filicioides* A.J. Cavanilles. COMMON NAME: Dai (Mexico: Ocurahui, Sierra Surotato, Sinaloa); Prairie Acacia (a name also applied to the species); Tu Ntoo (a name also applied to the species, N. Mixteco). DESCRIPTION: Terrestrial perennial deciduous forb/herb or subshrub (20 inches to 26 feet in height); the smooth bark is gray; the stems are reddish; the flowers are cream, green, rose, dull white or white; flowering generally takes place between early July and early December (additional records: one for late January, one for late February, two for late March, two for early May, one for mid-May, one for late May and one for mid-June). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; barrancas; canyons; along rocky ridges; along ridgetops; clearings in woodlands; foothills; hills; hilltops; hillsides; rocky slopes; plains; rocky flats; sandy basins; valley floors; along grassy roadsides; rocky draws; ravines; along streams; riverbeds; in sandy washes; within rocky drainages; along watercourses; rocky terraces; floodplains; lowlands, and disturbed areas growing in damp and dry rocky, rocky-sandy and sandy ground and sandy loam ground, occurring from 100 to 8,200 feet in elevation in the in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the leaves are fernlike. *Acacia angustissima* var. *filicioides* is native to southwest-central and southern North America. *13 (species, Pages 235-236), 28 (species, color photograph of species 295), 30 (species), 43 (020610), 44 (100512 - no record of variety or species; genus record), 46 (species, Pages 398-399), 48 (species), 63 (100512 - no record of variety *filicioides*), **85** (100812), **89** (reported as being a half-shrub located on the Santa Cruz Flood-plain, recorded as *Acacia filiculoides* (Cav.) Trelease), 91 (species, Pages 11-12), 115 (color presentation of the species), 124 (100512 - no record or variety; species and genus records)*

***Acacia angustissima* (P. Miller) C.E. Kuntze var. *suffrutescens* (J.N. Rose) D. Isely: Prairie Acacia**

SYNONYMY: *Acacia angustissima* (P. Miller) C.E. Kuntze var. *cuspidata* (D.F. von Schlechtendal) L.D. Benson; *Acacia cuspidata* D.F. von Schlechtendal. COMMON NAMES: Barbas de Chivo (a name also applied to the species, Spanish); Cantemó (a name also applied to the species, Spanish); Guajillo (a name also applied to the species); Palo de Pulque (a name also applied to the species, Spanish); Prairie Acacia (a name also applied to the species); Siraku K'amataraku (a name also applied to the species, Purépecha); Timbe (a name also applied to the species, Hispanic); Timben (a name also applied to the species, Hispanic); Timbre (a name also applied to the species, Hispanic); White-ball Acacia (a name also applied to the species); Whiteball Acacia (a name also applied to the species). DESCRIPTION: Terrestrial perennial deciduous forb/herb or subshrub (erect stems 8 inches to 14 feet in height, plants were reported that were 16 inches in height and 32 inches in width); the leaves are dark green; the flowers are cream-white, white or white-cream; flowering generally takes place between late May and mid-October. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; plateaus; mesas; rocky cliffs; rocky canyons; bouldery and rocky canyon bottoms; rocky talus; ledges; rocky and gravelly-clayey ridges; foothills; rocky hills; rocky and gravelly-sandy-loamy hillsides; rocky, rocky-gravelly, rocky-clayey-loamy and gravelly slopes; bajadas; rocky outcrops; amongst boulders and rocks; plains; clayey flats; silty valley floors; along rocky roadsides; along streams; gravelly creeks; along and in rocky-sandy washes; drainage ways; (gravelly-loamy and sandy) banks of washes; edges of streams and washes; sandy-loamy benches; bottomlands; along ditches; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam and sandy loam ground; gravelly clay and clay ground, and silty ground, occurring from 2,200 to 6,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored

native habitat, the leaves are fernlike. Quail feed on the seeds. *Acacia angustissima* var. *suffrutescens* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Acacia angustissima* (Miller) Kuntze var. *cuspidata* L. Benson, Page 236), 15, 28 (species, color photograph of species 295), 30 (species), 43 (070709), 44 (100512 - no record of variety or species; genus record), 46 (Pages 398-399), 48 (species), 63 (100512), **85** (100812), 91 (species, Pages 11-12), 115 (color presentation of the species), 124 (110410 - no record of variety; species and genus records), 140 (Page 291)*

Acacia constricta G. Bentham: Whitethorn Acacia

SYNONYMY: *Vachellia constricta* (G. Bentham) D.S. Seigler & J.E. Ebinger. COMMON NAMES: All-thorn Acacia; Chaparo Prieta; Chaparro Prieto (Spanish); Common Whitethorn; Garabato; Gidag (Tohono O'odham); Gigantillo (Spanish); Huisache; Huizache (Spanish); Largoncillo (Spanish); Mescat Acacia; Twinthorn Acacia; Vara Prieta (Spanish); Vinorama (Spanish); White Thorn; White Thorn Acacia; White-thorn Acacia; Whitethorn Acacia; Yellow Cat Claw. DESCRIPTION: Terrestrial perennial cold- and drought-deciduous shrub or tree (ascending and/or erect stems 1 to 20 feet in height with crowns to about the same in width; one plant was observed and described as being 8 feet in height with a crown 8 feet in width); the bark may be light gray, mahogany or nearly black; the stems may be red; the spines on the branches and stems are gray or white; the small pinnate leaves are green; the small flowers have been described as being golden, golden-yellow, orange-yellow, light yellow, yellow or yellowish-orange; flowering generally takes place between late March and late October (additional records: one for mid-April, two for early March and one for late December); the seedpods are brown, purple-red, reddish or rusty-brown. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; cliffs; rocky canyons; canyon sides; sandy canyon bottoms; sandy ridges; foothills; rocky and gravelly hills; bouldery hilltops; rocky and gravelly hillsides; escarpments; rocky, rocky-clayey-loamy and clayey-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders; terraces; sandy-loamy plains; gravelly, gravelly-sandy and sandy flats; valley floors; coastal plains; along rocky, rocky-gravelly-loamy, rocky-gravelly-clayey loam, rocky-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey loam and sandy roadsides; along and in rocky and sandy arroyos; bottoms of arroyos; rocky gulches; along streambeds; creeks; along and in sandy creekbeds; along rivers; along and in gravelly, gravelly-sandy, sandy and silty-clayey washes; drainages; swales; along (gravelly-sandy and sandy) banks of streams, creeks, rivers and washes; borders of washes; along edges of washes; (rocky) margins of arroyos and washes; mudflats; benches; alluvial terraces; sandy bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-gravelly-clayey loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground, and silty clay ground, occurring from 100 to 6,500 feet (infrequently as low as 500 feet and as high as 9,200 feet) in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, plants may live to be more than 72 years of age and the flowers may be fragrant. Whitethorn Acacia is used for food (but not extensively) by the Desert Mule Deer (*Odocoileus hemionus*) and Scaled Quail (*Callipepla squamata*), Merriam's Kangaroo Rats (*Dipodomys merriami*), Bailey's Pocket Mice (*Chaetodipus baileyi*) and Rock Pocket Mice (*Chaetodipus intermedius*) as well as a variety of other birds and mammals feed on the seeds. *Acacia constricta* is native to southwest-central and southern North America. *5, 6, 13 (Pages 226-228; color photograph: Plate R-1, Page 403), 15, **16**, 18, 26 (color photograph), 28 (color photograph 83), 43 (080409), 44 (040211 - no record of species; genus record), 46 (Page 399), 48, 53 (note under *Acacia farnesiana*), 63 (101012 - color presentation), 68, 77, 80 (This species is listed as a Major Poisonous Range Plant. "The plants are high in cyanide forming-compounds and have been reported to cause death of cattle in Arizona. In general, the plants are not palatable to livestock although the pods are grazed. However, in the fall of the year at or near frost time, when the range grasses become less palatable, cattle may eat heavily of these plants and death is likely to result. ... Animals should be removed from heavily infested areas during the early frost period or considerable death losses may occur." See text for additional information.), **85** (101812 - color presentation), **89** (reported as being a shrub located on Tumamoc Hill), 91 (Pages 15-16), 115 (color presentation), 124 (040211 - no record of species; genus record), 134, 140 (Page 138), **WTK** (August 12, 2005)*

Acacia constricta G. Bentham var. *constricta*: Whitethorn Acacia

SYNONYMY: (for *Acacia constricta*: *Vachellia constricta* (G. Bentham) D.S. Seigler & J.E. Ebinger). COMMON NAMES: All-thorn Acacia (a name also applied to the species); Chaparo Prieta (a name also applied to the species); Chaparro Prieto (a name also applied to the species); Common Whitethorn (a name also applied to the species); Garabato (a name also applied to the species); Gidag (a name applied to the species, Tohono O'odham); Gigantillo (a name also applied to the species); Huisache (a name also applied to the species); Largoncillo (a name also applied to the species); Mescat Acacia (a name also applied to the species); Twinthorn Acacia (a name also applied to the species); Vara Prieta (a name also applied to the species); Vinorama (a name also applied to the species); White Thorn (a name also applied to the species and to other species; Whitethorn Acacia (a name also applied to the species and to other species); Yellow Cat Claw (a name also applied to the species). DESCRIPTION: Terrestrial perennial cold- and drought-deciduous shrub or tree (ascending and/or erect stems 1 to 20 feet in height with crowns to about the same in width; one plant was described as being 8 feet in height with a crown 8 feet in width); the bark may be light gray, mahogany or nearly black; the stems may be red; the spines on the branches and stems are gray or white; the small pinnate leaves are green; the spines are gray or white; the small flowers are golden, golden-yellow, orange-yellow or yellow; flowering generally takes place between late March and late October (additional records: two for early March and one for late December); the seedpods are brown, purple-red or reddish. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; sandy canyon bottoms; sandy ridges; foothills; rocky and gravelly hills; bouldery

hilltops; rocky and gravelly hillsides; rocky and rocky-clayey-loamy slopes; gravelly bajadas; rock outcrops; amongst boulders; sandy-loamy plains; gravelly flats; valleys; coastal plains; along rocky, rocky-gravelly-loamy, rocky-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey-loamy and sandy roadsides; along and in rocky arroyos; bottoms of arroyos; rocky gulches; along streambeds; creeks; along and in sandy creekbeds; gravelly-sandy rivers; along and in gravelly, gravelly-sandy, sandy and silty-clayey washes; drainage ways; (gravelly-sandy and sandy) banks of streams, creeks, rivers and washes; along edges of washes; (rocky) margins of arroyos and washes; benches; terraces; sandy bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly clayey loam, sandy loam and loam ground, and silty clay ground, occurring from 1,200 to 6,500 feet (infrequently to as low as 500 feet and to as high as 9,200 feet) in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, plants may live to be more than 72 years of age and the flowers may be fragrant. Whitethorn Acacia is used for food (but not extensively) by the Desert Mule Deer (*Odocoileus hemionus*) and Scaled Quail (*Callipepla squamata*), Merriam's Kangaroo Rats (*Dipodomys merriami*), Bailey's Pocket Mice (*Chaetodipus baileyi*) and Rock Pocket Mice (*Chaetodipus intermedius*) as well as a variety of other birds and mammals feed on the seeds. *Acacia constricta* var. *constricta* is native to southwest-central and southern North America. *5, 6, 13 (Pages 227-228; color photograph of species: Plate R-1, Page 403), 26 (color photograph of species), 28 (species, color photograph of species 83), 43 (080409), 44 (021511 - no record of variety or species), 46 (species, Page 399), 48 (species), 53 (species note under *Acacia farnesiana*), 63 (101012), 68, 80 (The species, *Acacia constricta*, is listed as a Major Poisonous Range Plant. "The plants are high in cyanide forming-compounds and have been reported to cause death of cattle in Arizona. In general, the plants are not palatable to livestock although the pods are grazed. However, in the fall of the year at or near frost time, when the range grasses become less palatable, cattle may eat heavily of these plants and death is likely to result. ... Animals should be removed from heavily infested areas during the early frost period or considerable death losses may occur." See text for additional information.), **85** (101812), 91 (species, Pages 15-16), 115 (color presentation of the species), 124 (110410 - no record of variety or species; genus record), 134, 140 (species, Page 138), **WTK** (October 28, 2009)*

Acacia constricta G. Bentham var. *paucispina* E.O. Wooton & P.C. Standley: Whitethorn Acacia

SYNONYMY: (for *Acacia constricta*: *Vachellia constricta* (G. Bentham) D.S. Seigler & J.E. Ebinger). COMMON NAMES: Chaparro Prieto (a name also applied to the species); Common Whitethorn (a name also applied to the species); Garabato (a name also applied to the species); Gidag (a name also applied to the species, Tohono O'odham); Gigantillo (a name also applied to the species); Huisache (a name also applied to the species); Largoncillo (a name also applied to the species); Mescat Acacia (a name also applied to the species); Vara Prieta (a name also applied to the species); Vinorama (a name also applied to the species); White Thorn (a name also applied to the species and to other species); Whitethorn Acacia (a name also applied to the species and to other species). DESCRIPTION: Terrestrial perennial cold- and drought-deciduous shrub or tree (ascending and/or erect stems 2 to 18 feet in height with a crown to about the same in width); the bark may be light gray, mahogany or nearly black; the stems may be red; the small fragrant flowers are orange-yellow or yellow; flowering generally takes place between late March and late October (flowering records for early June, mid-June and late July); the seedpods are brown, purple-red or reddish. HABITAT: Within the range of this species it has been reported from mesas; canyons; ridges; gravelly hills; bouldery hilltops; rocky slopes; bajadas; amongst boulders; gravelly flats; rocky-gravelly-loamy and gravelly-loamy roadsides; along arroyos; along washes; swales; floodplains, and riparian areas growing in dry bouldery, rocky and gravelly ground and rocky-gravelly loam and gravelly loam ground, occurring from 2,000 to 3,700 feet (infrequently to 9,000 feet) in elevation in the forest, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, plants may live to be more than 72 years of age and the flowers may be fragrant. This variety is spineless. *Acacia constricta* var. *paucispina* is native to southwest-central and southern North America. *5, 6, 13 (species, Pages 226-228; color photograph of species: Plate R-1, Page 403), 26 (color photograph of species), 28 (species, color photograph of species 83), 43 (080409), 44 (021511 - no record of variety or species), 46 (Page 399), 48 (species), 53 (species note under *Acacia farnesiana*), 63 (101012), 68, 80 (The species, *Acacia constricta*, is listed as a Major Poisonous Range Plant. "The plants are high in cyanide forming-compounds and have been reported to cause death of cattle in Arizona. In general, the plants are not palatable to livestock although the pods are grazed. However, in the fall of the year at or near frost time, when the range grasses become less palatable, cattle may eat heavily of these plants and death is likely to result. ... Animals should be removed from heavily infested areas during the early frost period or considerable death losses may occur." See text for additional information.), 85 (101812), 91 (species, Pages 15-16), 115 (color presentation of the species), 124 (110410 - no record of variety or species; genus record), 134, 140 (species, Page 138), **HR***

Acacia cuspidata (see *Acacia angustissima* var. *suffructescens*)

Acacia greggii A. Gray (var. *greggii* is the variety reported as occurring in Arizona): Catclaw Acacia

SYNONYMY: (for var. *greggii*: *Acacia greggii* A. Gray var. *arizonica* D. Isely); *Senegalia greggii* (A. Gray) N.L. Britton & J.N. Rose. COMMON NAMES: Acacia (a name also applied to the genus *Acacia*); Algarroba (Spanish)[140]; Arizona Acacia (var. *greggii*); Cat Claw; Cat Claw Acacia; Catclaw; Cat Claw Acacia; Cat-claw Acacia; Catclaw Acacia; [Long-flower] Catclaw Acacia (English)[140]; Cat's Claw (a name also applied to other species); Cat's Claw Acacia; Cat's-claw (a name also applied to other species); Devil's Catclaw; Ch'il Yíjish <ch'il gotiza> (Athapascan: Western Apache)[140]; Devil's Claw (a name

also applied to other species); Devil's Claw (English)[140]; Devil's Claw Acacia; Devil's-claw (a name also applied to other species); Devil's-claw Acacia; Devil'sclaw Acacia; Devilsclaw (a name also applied to other species); Di:s (Seri); Gatuño (Spanish); Gatuño ("Cat Claw", Spanish: Chihuahua)[140]; Gregg Acacia; Gregg Cat-claw; Gregg Catclaw; Gregg Catclaw Acacia; Gregg's Acacia; Gregg's Cat-claw; Gregg's Catclaw; Gregg's Catclaw Acacia; Hu'upa Kek'ala (Uto-Aztecan: Yaqui)[140]; Ka'djása (Yuman: Havasupai)[140]; Kitcás[a] <gijes> (Yuman: Walapai)[140]; Long-flower Catclaw; Long-flower Catclaw Acacia; Long-flowered Catclaw; Palo Chino (Spanish); Patitos ("Little Feet", Spanish: New Mexico)[140]; Sichingily <sichingal, sichingil> (Uto-Aztecan: Cahuilla)[140]; Tear-blanket (English: California)[140]; Tearblanket; Tepame (Spanish: Mexico)[140]; Teso (Uto-Aztecan: Cahita)[140]; Tesota (a name also applied to other species); Tésota (Spanish); Tésoto [Tesota, Tésota] (Spanish: Sonora)[140]; Texas Catclaw; Texas Mimosa (a name also applied to other species); Texas-mimosa; Tis (Hokan: Seri)[140]; Tümippüh (Uto-Aztecan: Panamint)[140]; 'U:paḍ <'u:padh, uupat> (Uto-Aztecan: Hiá Ceḍ O'odham and Tohono O'odham)[140]; 'Uupaḍ (Uto-Aztecan: Akimel O'odham)[140]; Uña de Gato ("Cat's Claw", Spanish: New Mexico, Chihuahua)[140]; Wait-a-minute (a name also applied to other species); Wait-a-minute Bush (a name also applied to other species); Wright Acacia (var. *wrightii*). DESCRIPTION: Terrestrial perennial winter-deciduous shrub or tree (40 inches to 35 feet in height with a broad crown; plants were observed and described as being 6½ feet in height with crowns 10 feet in width, one plant was observed and described as being 13 feet in height with a crown 16½ feet in width); the bark imay be gray-black or red-brown; the leaves may be gray-green or green; the flowers may be cream, cream-white, cream-yellow, green, greenish-yellow, lemon-yellow, dull white, white, pale yellow, yellow, yellow-cream or yellow-green in catkins; flowering generally takes place between early March and early August (additional records: two for late August, one for mid-September, two for late September, one for early October, three for mid-October, one for early November, one for mid-November, one for early December and one for late December); the mature fruits (straight or twisted pods) are brown or brownish-red. HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; gravelly mesas; rocky canyons; rocky and sandy canyon bottoms; gorges; rocky bluffs; rocky and sandy ridges; ridgetops; foothills; rocky hills; gravelly hilltops; rocky, gravelly and gravelly-loamy hillsides; bedrock, rocky, rocky-gravelly-loamy, gravelly, gravelly-sandy and sandy slopes; bases of slopes; alluvial fans; bajadas; amongst boulders; debris flows; terraces; plains; sandy flats; basins; valley floors; loamy valley bottoms; coastal plains; coastal beaches; along gravelly-sandy, gravelly-sandy-clayey-loamy and sandy roadsides; along and in arroyos; bottoms of arroyos; draws; ravines; seeps; springs; along streams; along creeks; along sandy and sandy-silty creekbeds; in sand along rivers; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within drainages; along drainage ways; bases of waterfalls; along (rocky, gravelly-sandy, gravelly-silty, sandy and sandy-silty) banks of arroyos, streams, creeks, rivers and washes; borders of washes; along (sandy) edges of arroyos, creeks and washes; margins of washes; shorelines; sand bars; shelves; gravelly-sandy and sandy terraces; sandy bottomlands; sandy-loamy floodplains; lowlands; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy-clayey loam, gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from slightly above sea level to 6,000 feet (one record located showing 10,400 plus feet in Yavapai County, AZ) in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; the flowers are fragrant, it may live to be up to 120 years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber crop; it was also noted as having been used as a fuel, tool and in the making of perfumed sachets. The Catclaw Acacia provides food, shelter, protection, shade, nesting sites, roosting sites and nesting material for a wide variety of species of wildlife. It is a favored nesting site of the Verdin (*Auriparus flaviceps*). *Acacia greggii* is native to southwest-central and southern North America. *5, 6, 13 (Pages 223-224; color photograph: Plate R-1, Page 403), 15, 18, 26 (color photograph), 28 (color photograph 84), 43 (102012 - *Senegalia greggii* Britton & Rose), 44 (071311), 46 ("This is probably the most heartily disliked plant in the state, the sharp, strong prickles tearing the cloths and lacerating the flesh.", Page 398), 48 ("A good honey plant but a poisonous weed on range lands."), 52, 53, **56**, **57**, 58, 63 (102012 - color presentation), 77, 80 (This species is listed as a Secondary Poisonous Range Plant. "Plants contain cyanide-forming compounds and symptoms are typical of cyanide poisoning. The new foliage is relished by cattle in the early spring. It also may be grazed considerably during dry seasons or drouth periods when other feed is short. Plants are most dangerous in the fall during first frosts. Cattle are most often poisoned, but losses in Arizona are not heavy. Poisoning may be prevented by deferring heavily infested areas during the early frost periods." See text for additional information.), 85 (102012 - color presentation), **89** (reported as being a tree located on the Santa Cruz Flood-plain), 91 (Pages 21-22), 115 (color presentation), 124 (071311 - no record of species; genus record), 140 (Pages 136-138 & 291)*

Acacia greggii var. *arizonica* (see *Acacia greggii* var. *greggii*)

Acacia greggii A. Gray var. *greggii*: Catclaw Acacia

SYNONYMY: *Acacia greggii* A. Gray var. *arizonica* D. Isely. COMMON NAMES: Acacia (a name also applied to the species and the genus *Acacia*); Algarroba (a name applied to the species, Spanish; usually used for *Prosopis*)[140]; Arizona Acacia; Cat Claw (a name also applied to the species); Cat Claw Acacia (a name also applied to the species); Catclaw (a name also applied to the species); Catclaw Acacia (a name also applied to the species); [Long-flower] Catclaw Acacia (a name applied to the species, English)[140]; Cat's-claw (a name also applied to the species); Devil's Catclaw (a name also applied to the species); Ch'il Yíjish <ch'il gotiza> (a name applied to the species, Athapascan: Western Apache)[140]; Devil's Claw (a name also applied to the species); Devil's Claw (a name applied to the species, English)[140]; Devil's-claw (a name also applied to the species); Devil's-claw Acacia (a name also applied to the species); Devilsclaw (a name also applied to the species); Di:s (a name also applied to

the species, Seri); Gatuño ("Cat Claw" a name applied to the species, Spanish: Chihuahua)[140]; Gregg Catclaw (a name also applied to the species); Gregg's Acacia (a name also applied to the species); Huʾupa Kekʾala (a name applied to the species, Uto-Aztecan: Yaqui)[140]; Ka'djása (a name applied to the species, Yuman: Havasupai)[140]; Kitcás[a] <gijes> (a name applied to the species, Yuman: Walapai)[140]; Long-flower Catclaw Acacia (a name also applied to the species); Patitos ("Little Feet" a name applied to the species, Spanish: New Mexico)[140]; Sichingily <sichingal, sichingil> (a name applied to the species, Uto-Aztecan: Cahuilla)[140]; Tear-blanket (a name applied to the species, English: California)[140]; Tearblanket (a name also applied to the species); Tepame (a name applied to the species, Spanish: Mexico)[140]; Teso (a name applied to the species, Uto-Aztecan: Cahita)[140]; Tesota (a name also applied to the species and to other species); Tesoto [Tesota, Tésota] (a name applied to the species, Spanish: Sonora)[140]; Texas Catclaw (a name also applied to the species); Texas Mimosa (a name also applied to the species and to other species); Texas-mimosa (a name also applied to the species); Tis (a name applied to the species, Hokan: Seri)[140]; Tümippüh (a name applied to the species, Uto-Aztecan: Panamint)[140]; 'U:paḍ <'u:padh, uupat> (a name applied to the species, Uto-Aztecan: Hiá Ceḍ O'odham and Tohono O'odham)[140]; 'Uupaḍ (a name applied to the species, Uto-Aztecan: Akimel O'odham)[140]; Uña de Gato ("Cat's Claw" a name applied to the species, Spanish: New Mexico, Chihuahua)[140]; Wait-a-minute (a name also applied to the species and to other species); Wait-a-minute Bush (a name also applied to the species and to other species). DESCRIPTION: Terrestrial perennial winter-deciduous shrub or tree (40 inches to 25 feet in height with a broad crown); the bark is gray-black or red-brown; the leaves are gray-green or green; the flowers may be cream, cream-white, cream-yellow, green, greenish-yellow, lemon-yellow, white, yellow, yellow-cream or yellow-green in catkins; flowering generally takes place between early March and mid-July (additional record: one for mid-October); the mature fruits (straight or twisted pods) are brown or brownish-red. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; canyons; rocky and sandy canyon bottoms; rocky bluffs; rocky and sandy ridges; ridgetops; hillsides; rocky, rocky-clayey-loamy, sandy and loamy slopes; amongst boulders; alluvial fans; sandy flats; valley floors; gravelly-sandy-clayey-loamy and sandy roadsides; sandy edges of arroyos; draws; ravines; along streams; along creeks; along rivers; along gravelly and sandy washes; within drainages; along banks of rivers and washes; along edges of washes; margins of arroyos; floodplains; mesquite bosques, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-clayey loam, gravelly-sandy-clayey loam, sandy loam and clayey loam ground, and gravelly clay ground, occurring from slightly above sea level to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; the flowers are fragrant, it may live to be up to 120 years of age. The species, *Acacia greggii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber crop; it was also noted as having been used as a fuel, tool and in the making of perfumed sachets. The Catclaw Acacia provides food, shelter, protection, shade, nesting sites, roosting sites and nesting material for a wide variety of species of wildlife. It is a favored nesting site of the Verdin (*Auriparus flaviceps*). *Acacia greggii* var. *greggii* is native to southwest-central and southern North America. *5, 6, 13 (species, Pages 223-224; color photograph of species: Plate R-1, Page 403), **16** (recorded as *Acacia greggii* Gray var. *arizonica* Isely), 18 (species), 26 (species, color photograph of species), 28 (species, color photograph of species 84), 43 (020710), 44 (071311 - no listing provided under Common Names), 46 (species, "This is probably the most heartily disliked plant in the state, the sharp, strong prickles tearing the clothes and lacerating the flesh.", Page 398), 48 (species, "A good honey plant but a poisonous weed on range lands."), 52 (species) 53, (species), 63 (102012), 80 (The species is listed as a Secondary Poisonous Range Plant. "Plants contain cyanide-forming compounds and symptoms are typical of cyanide poisoning. The new foliage is relished by cattle in the early spring. It also may be grazed considerably during dry seasons or drouth periods when other feed is short. Plants are most dangerous in the fall during first frosts. Cattle are most often poisoned, but losses in Arizona are not heavy. Poisoning may be prevented by deferring heavily infested areas during the early frost periods." See text for additional information.), 85 (102012 - color presentation of dried material), 91 (species, Pages 21-22), 115 (color presentation of the species) 124 (071311 - no record of species/variety; genus record), 127 (species), 140 (species, Pages 136-138 & 291), **WTK** (October 28, 2009)*

Acmispon strigosus (see Footnote 44 under *Lotus strigosus* var. *tomentellus*)

Acaciella angustissima (see *Acacia angustissima*)

***Astragalus allochrous* A. Gray: Halfmoon Milkvetch**

COMMON NAMES: Cascabelillo (Spanish: applied to var. *playanus*); Cascabelito (Spanish: applied to var. *playanus*); Crazyweed; Garbancillo (Spanish: applied to var. *playanus*); Half Moon Loco; Half Moon Milkvetch; Half-moon Loco; Half-moon Locoweed; Half-moon Milkvetch; Halfmoon Loco; Halfmoon Loco-weed; Halfmoon Locoweed; Halfmoon Milk-vetch; Halfmoon Milkvetch; Hierba Loca (generic, Spanish: applied to var. *playanus*); Loco (a name also applied to other species and the genus *Astragalus*); Loco Weed (a name also applied to other species and the genus *Astragalus*); Locoweed (a name also applied to other species and the genus *Astragalus*); Playa Milk Vetch (applied to var. *playanus*); Playa Milk-vetch (applied to var. *playanus*); Playa Milkvetch (applied to var. *playanus*); Playanus Locoweed (applied to var. *playanus*); Poisonvetch (a name also applied to genus *Astragalus*); Rattle Weed (a name also applied to genus *Astragalus*); Rattleweed (a name also applied to genus *Astragalus*); Tronador (Spanish: applied to var. *playanus*). DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (prostrate stems 10 inches to 2 feet in length); the stems may be dull red or red; the leaves may be gray-green, dark gray-green or green; the flowers may be blue, blue-purple, blue-violet, creamy, lavender-white, magenta-purple, magenta-violet, magenta & white, purple, purple & whitish-yellow, pale red-violet, red-violet or yellowish; flowering generally takes place between early

March and late May (additional records: one for mid-June, two for mid-September, two for mid-October and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; along rocky canyons; sandy canyon bottoms; bluffs; bouldery ridges; sandy cinder cones; bouldery, rocky-sandy and cindery ridges; sandy cinder cones; foothills; hills; rocky hilltops; bouldery-rocky and gravelly hillsides; rocky, cindery, gravelly and clayey slopes; amongst rocks; sandy lava flows; breaks; plains; cindery and sandy flats; valley floors; valley bottoms; along rocky, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, sandy and sandy-loamy roadsides; springs; around and in sandy streams; along creeks; along gravelly-sandy creekbeds; along rivers; within cobbly-sandy, gravelly and sandy washes; (sandy) banks of streams, rivers and washes; benches; sandy and loamy bottomlands; sandy floodplains; cobbly-sandy, gravelly-sandy and sandy riparian areas, and disturbed areas growing in moist, damp and dry bouldery, bouldery-rocky, rocky, rocky-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and sandy loam ground; clayey ground, and silty ground, occurring from 1,500 to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and as a ceremonial item. *Astragalus allochrous* is native to southwest-central and southern North America. *5, 6, 43 (020810), 44 (102112), 46 (Page 463), 58, 63 (102112 - color presentation), 68, 80 (This species is listed as a Major Poisonous Range Plant. "Poisonings by *Astragalus* and *Oxytropis* are similar and are of three types. Some species cause typical loco poisoning. Others pick up poisonous minerals, such as selenium, and cause mineral poisoning. A third type of poisoning causes respiratory problems, in addition to other loco symptoms, and death by asphyxiation. The toxic principle of typical loco poisoning has never been specifically isolated, though an alkaloid-like substance given the name of "locoine" has been proven to cause typical symptoms. ... Animals ordinarily will not eat loco unless feed is scarce, but animals forced to eat the plants become addicted and will eat the loco plants even when good forage is available." See text for additional information.), **85** (102112 - color presentation), 124 (102112 - no record of species; genus record), 127*

Astragalus allochrous A. Gray var. *playanus* (W. Jones) D. Isely: Halfmoon Milkvetch

SYNONYMY: *Astragalus wootoni* (alternate spelling: *A. wootonii*) E.P. Sheldon; *Astragalus wootoni* E.P. Sheldon var. *typicus* R.C. Barneby. COMMON NAMES: Cascabelillo (Spanish); Cascabelito (Spanish); Crazyweed; Garbancillo (Spanish); Halfmoon Milkvetch; Hierba Loca (generic, Spanish); Loco (a name also applied to the species, other species and to the genus *Astragalus*); Loco Milk Vetch; Loco Weed (a name also applied to the species, other species and to the genus *Astragalus*); Locoweed (a name also applied to the species, other species and to the genus *Astragalus*); Playa Milk Vetch; Playa Milk-vetch; Playa Milkvetch; Playanus Locoweed; Poisonvetch (a name also applied to the species, other species and to the genus *Astragalus*); Rattleweed (a name also applied to the species, other species and to the genus *Astragalus*); Tronador (Spanish); Western Loco; Wooton Loco; Wooton's Loco; Wooton's Milk-vetch. DESCRIPTION: Terrestrial annual or biennial forb/herb (prostrate stems 10 to 16 inches in length) the stems may be reddish; ; the leaflets may be gray or gray-green; the flowers may be lavender-white, pink-lavender, purple, purplish & white, reddish, red-violet, reddish-violet, rose, violet or whitish; flowering generally takes place between late February and mid-June (additional records: one for early January, two for late July; August flowering has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; gravelly-sandy canyons; canyon bottoms; rocky-sandy ridges; meadows; cindery flanks of cinder cones; sandy foothills; hills; rocky and gravelly-clayey hillsides; bouldery-sandy-silty, rocky, cobbly-sandy, cindery, gravelly, gravelly-clayey, sandy and loamy slopes; gravelly-sandy pediments; rocky outcrops; sandy bajadas; plains; gravelly, sandy, sandy-loamy and sandy-clayey flats; basin bottoms; sandy valley floors; along railroad right-of-ways; along rocky, stony, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy and sandy-loamy roadsides; within sandy arroyos; sandy draws; seeps; along streams; sandy streambeds; along creeks; along rivers; riverbeds; along and in rocky and sandy washes; within drainage ways; (sandy) edges of arroyos; channel bars; terraces; sandy bottomlands; sandy floodplains; lowlands; mesquite bosques; along canals; within ditches; bouldery riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy, shaley, stony, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam and loam ground; gravelly clay, sandy clay and clay ground, and bouldery-sandy silty and bouldery silty ground, occurring from 1,300 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The species, *Astragalus allochrous*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and as a ceremonial item. *Astragalus allochrous* var. *playanus* is native to southwest-central and southern North America. *5, 6, **16** (*Astragalus wootonii* Sheldon), 43 (020810), 44 (071411), 46 (*Astragalus wootoni* Sheldon, Page 463 and *Astragalus wootoni* Sheldon var. *typicus* Barneby, Page 463), 58, 63 (102112), 68, **77**, 80 (The species is listed as a Major Poisonous Range Plant. "Poisonings by *Astragalus* and *Oxytropis* are similar and are of three types. Some species cause typical loco poisoning. Others pick up poisonous minerals, such as selenium, and cause mineral poisoning. A third type of poisoning causes respiratory problems, in addition to other loco symptoms, and death by asphyxiation. The toxic principle of typical loco poisoning has never been specifically isolated, though an alkaloid-like substance given the name of "locoine" has been proven to cause typical symptoms. ... Animals ordinarily will not eat loco unless feed is scarce, but animals forced to eat the plants become addicted and will eat the loco plants even when good forage is available." See text for additional information.), **85** (102112 - color presentation), 124 (071411), 127 (species), 140 (Page 291)*

Astragalus nuttallianus A.P. de Candolle: Smallflowered Milkvetch

COMMON NAMES: Annual Astragalus (Oklahoma); Cascabelito (Spanish: applied to var. *austrinus* and other taxa); Coliche Milkvetch (var. *imperfectus*); Hierba Loca (Spanish: applied to var. *austrinus* and other taxa); Imperfect Milkvetch (var. *imperfectus*); Locoweed (a name also applied to other taxa including the genus *Astragalus*); Nuttall Locoweed (a name also

applied to other taxa); Nuttall Milkvetch (a name also applied to other taxa); Rattleweed (a name also applied to other taxa including the genus *Astragalus*); Scammon's Milkvetch (var. *cedrosensis*); Small Flower Milk-vetch; Small Flowered Milk-vetch; Small Flowered Milkvetch; Small-flower Milk-vetch; Small-flower Milkvetch; Smallflower Milkvetch; Small-flowered Milk Vetch; Small-flowered Milk-vetch; Small-flowered Milkvetch; Smallflowered Milkvetch; Sonora Rattle-weed (var. *austrinus*); Southern Small Flowered Milk Vetch (var. *austrinus*); Southern Small-flowered Milk-vetch (var. *austrinus*); Texas-pea (a name also applied to other taxa); Turkeypeas (a name also applied to other taxa). DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate, procumbent and/or weakly ascending stems 2 to 4 inches in height with stems 1½ to 21 inches in length; one plant was observed and described as being 4 inches in height and 12 inches in width, plants were observed and described as being 4 inches in height and 16 inches in width); the foliage is grayish; the flowers may be pale blue, blue, pale bluish, blue-indigo, blue-lavender, blue & purple, blue-violet, blue-white, cream-bluish, pale lavender, lavender, lavender & white, maroon-lavender; pink, light purple, purple, purple-blue, purple-red, purple & white, red-violet, pale violet, white, white tinged with lavender, white tinged with purple or whitish; flowering generally takes place between late January and early July (additional records: one for early January, one for late January, one for early August, one for mid-August, two for early October, one for mid-October, three for late October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, gravelly and sandy-silty mesas; plateaus; rock cliffs; along canyon rims; stony-gravelly bases of cliffs; along rocky canyons; gravelly and sandy canyon bottoms; gravelly scree; talus slopes; chalky bluffs; bases of hogbacks; knolls; rocky ledges; rocky ridges; rocky meadows; volcanic cones; foothills; rocky, stony-gravelly, rocky-clayey and clayey hills; rocky and sandy hillsides; rocky, rocky-gravelly, rocky-clayey, gravelly, gravelly-sandy-silty, sandy and sandy-clayey slopes; rocky and sandy alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders and rocks; on rocks; sandy lava flows; lava fields; sand hills; sand dunes; sand sheets; sandy and sandy-silty plains; rocky, cindery, gravelly, pebbly-sandy, sandy-clayey and sandy-clayey-loamy flats; sandy uplands; basins; valley floors; along sandy railroad right-of-ways; along rocky, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy and sandy-silty roadsides; rocky, gravelly and sandy arroyos; gravelly bottoms of arroyos; along bouldery draws; bottoms of draws; gulches; along streams; streambeds; along creeks; along and in gravelly and gravelly-sandy creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; sandy drainage ways; drip walls; silty lakebeds; gravelly and sandy depressions; sandy-clayey swales; (gravelly-sandy, sandy and silty-loamy) banks of creeks, rivers and washes; gravel and gravelly-sand bars; gravelly and sandy beaches; rocky and sandy benches; shorelines; rocky shelves; terraces; sandy bottomlands; sandy floodplains; around stock tanks; clayey ditches; gravelly-sandy and sandy riparian areas; waste places, and sandy disturbed areas growing in moist, damp and dry desert pavement; bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, stony, stony-gravelly, cindery, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, gravelly loam, gravelly-clay loam, sandy loam, sandy-clay loam, silty loam, humusy loam and loam ground; rocky clay, rocky-silty clay, sandy clay and clay ground; gravelly-sandy silty and sandy silty ground, and chalky ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Astragalus nuttallianus* is native to south-central and southern North America. *5, 6, **16**, 43 (070709), 44 (102312), 46 (Page 468), 58, 63 (102312 - color presentation), 68, **85** (102412 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 124 (102312), 140 (Page 292)*

***Astragalus nuttallianus* A.P. de Candolle var. *austrinus* (J.K. Small) R.C. Barneby: Smallflowered Milkvetch**

COMMON NAMES: Cascabelito (Spanish: applied to other taxa); Hierba Loca (Spanish: applied to other taxa); Locoweed (a name also applied to other taxa including the genus *Astragalus*); Nuttall Locoweed (a name also applied to other taxa); Nuttall Milkvetch (a name also applied to other taxa); Rattleweed (a name also applied to other taxa including the genus *Astragalus*); Small-flowered Milkvetch (a name also applied to other taxa); Smallflowered Milkvetch (a name also applied to other taxa); Sonora Rattle-weed; Southern Small Flowered Milk Vetch; Southern Small-flowered Milk-vetch. DESCRIPTION: Terrestrial annual or perennial forb/herb (the species has been recorded as having prostrate, procumbent and/or weakly ascending stems 2 to 4 inches in height and 1½ to 21 inches in length); the flowers may be pale blue, bluish, blue-purple, blue & white, pale lavender & white, lavender, lavender & white, dull pink, dull pink & white, pink-purple, pink-purple & white, pale purple, purple, red-violet, pale violet, pale violet & white, white & purple or whitish; flowering generally takes place between early March and late May (additional records: one for late January, one for early August and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; canyon bottoms; foothills; hills; rocky and sandy hillsides; rocky, rocky-gravelly, gravelly, sandy-loamy and loamy slopes; gravelly bajadas; pediments; rocky outcrops; sand dunes; clayey-loamy prairies; shaley-sandy plains; gravelly and sandy-clay-loamy flats; gravelly-sandy bowls; basins; silty valley floors; along railroad right-of-ways; gravelly roadbeds; along gravelly-loamy, gravelly-clayey-loamy and sandy roadsides; rocky, gravelly and sandy arroyos; gravelly bottoms of arroyos; draws; gulches; along streams; in gravelly-sandy creekbeds; in riverbeds; along and in rocky-gravelly, gravelly and sandy washes; (sandy) banks of creeks and rivers; (sandy) edges of creeks; shorelines; sandy beaches; rocky shelves; along sandy bottomlands; riparian areas and waste places growing in moist and dry rocky, rocky-gravelly, shaley-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, humusy loam and loam ground, and silty ground, occurring from sea level to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Astragalus nuttallianus* var. *austrinus* is native to southwest-central and southern North America. *5, 6, 15, 43 (070709), 44 (102312), 46 (species, Page 468), 63 (102312 - color presentation), 68 (species), 77, **85** (102412 - color presentation of dried material), 124 (102312 - no record of variety; species and genus records)*

***Astragalus nuttallianus* A.P. de Candolle var. *imperfectus* (P.A. Rydberg) R.C. Barneby: Turkeypeas**

COMMON NAMES: Coliche Milkvetch; Imperfect Milkvetch; Locoweed (a name also applied to other taxa including the genus *Astragalus*); Milk-vetch (a name also applied to other taxa including the genus *Astragalus*); Nuttall Locoweed (a name also applied to other taxa); Nuttall Milkvetch (a name also applied to other taxa); Smallflowered Milkvetch (a name also applied to other taxa); Turkeypeas (a name also applied to other taxa). DESCRIPTION: Terrestrial annual or perennial forb/herb (the species has been recorded as having prostrate, procumbent and/or weakly ascending stems 2 to 4 inches in height and 1½ to 21 inches in length); the foliage is grayish; the flowers may be blue, blue-violet, lavender & white, purple, white or whitish; flowering generally takes place between late January and late May (additional records: one for early October, two for late October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; rock cliffs; stony-gravelly bases of cliffs; rocky and gravelly-sandy canyons; gravelly canyon bottoms; gorges; gravelly scree; talus slopes; knobs; rocky knolls; ledges; rocky meadows; volcanic cones; foothills; rocky and stony-gravelly hills; rocky hillsides; rocky, gravelly and sandy slopes; gravelly bajadas; rock outcrops; amongst boulders and rocks; lava fields; rocky, cindery and gravelly and gravelly-sandy flats; sandy uplands; basins; stony and sandy valley floors; along gravelly-sandy-silty roadsides; gravelly arroyos; gravelly bottoms of arroyos; along creeks; creekbeds; along rivers; along gravelly and sandy washes; (gravelly-sandy) banks of washes; gravelly-sand bars; sandy beaches; terraces; sandy riparian areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, stony, stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, sandy loam and clayey loam ground, and gravelly-sandy silty ground, occurring from 600 to 9,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Astragalus nuttallianus* var. *imperfectus* is native to southwest-central and southern North America. *5, 6, 43 (070709), 44 (102312), 46 (Page 468), 63 (102312 - color presentation), 68 (species), **85** (102412 - color presentation of dried material), 124 (102312 - no record of variety; species and genus records)*

Astragalus wootoni (see *Astragalus allochrous* var. *playanus*)

Astragalus wootonii (see *Astragalus allochrous* var. *playanus*)

Astragalus wootoni var. *typicus* (see *Astragalus allochrous* var. *playanus*)

***Caesalpinia gilliesii* (N. Wallich ex W.J. Hooker) N. Wallich ex D.N. Dietrich: Bird-of-paradise Shrub**

SYNONYMY: *Poinciana gilliesii* N. Wallich ex W.J. Hooker. COMMON NAMES: Bird of Paradise (a name also applied to other taxa including the genus *Caesalpinia*); Bird of Paradise Flower; Bird of Paradise Shrub; Bird-of-paradise (a name also applied to other taxa); Bird-of-paradise Flower; Bird-of-paradise Shrub (a name also applied to other taxa including the genus *Caesalpinia*); Bird-of-paradise-flower; Cat's-claw (a name also applied to other taxa); Desert Bird-of-paradise (a name also applied to other taxa); Mal de Ojo (Spanish); Mexican Bird of Paradise (a name also applied to other taxa); Mexican Bird-of-paradise (a name also applied to other taxa); Mysorethorn (Mysore Thorn is a name that is also applied to other taxa); Paradise Caesalpinia; Paradise Poinciana (a name also applied to other taxa); Poinciana (a name also applied to other taxa); Tabachin Amarillo (Spanish); Yellow Bird of Paradise; Yellow Bird of Paradise Bush; Yellow Bird of Paradise Shrub; Yellow Bird-of-paradise; Yellow Bird-of-paradise Bush; Yellow Bird-of-paradise Shrub. DESCRIPTION: Terrestrial perennial deciduous or evergreen vine, shrub or tree (30 inches to 13 feet in height with a crown to 8 feet in width); the leaves are pale gray-green; the flowers may be pale yellow, yellow or yellow-green with purplish-red, dark purple-red, red or rose-red filaments and pale orange-red anthers; flowering generally takes place between early April and late September (additional records: 2 for early February, two for late October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; canyons; canyon bottoms; foothills; hillsides; rocky slopes; berms; valley floors; along railroad right-of-ways; along rocky and rocky-gravelly-sandy-loamy, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy roadsides; within arroyos; gulches; rocky and sandy streambeds; along creeks; riverbeds; along and in rocky and sandy washes; clayey depressions; banks of rivers; edges of vernal pools; alluvial terraces; sandy bottomlands; lowlands; sandy and silty floodplains; bosques; stock tanks; catchments; along ditches; riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy loam, gravelly loam and gravelly-sandy loam ground; clay ground; silty ground, and humus ground, occurring from sea level to 8,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. The pods and seeds of this plant are reported to be poisonous. *Caesalpinia gilliesii* is native to western and southern South America. *5, 6, 13, 18, 26 (color photograph), 28, 43 (080409), 44 (102412), 46 (Page 409), 63 (102412 - color presentation), **77**, 80 (This species is listed as a Poisonous Cropland and Garden Plant. "The pods of this showy shrub cause severe gastritis in humans and animals but both usually recover."), **85** (020910 - color presentation), 97, 124 (102412 - no record of species; genus record)*

***Caesalpinia pulcherrima* (C. Linnaeus) O. Swartz: Pride-of-Barbados**

SYNONYMY: *Poinciana pulcherrima* C. Linnaeus. COMMON NAMES: Barba del Sol (Spanish); Barbados Flower-fence; Barbados-pride; -de Guacamaya (Spanish); Dwarf Poinciana; Flor de Camarón (Spanish); Flower-fence; Mexican Bird-of-paradise (a name also applied to other taxa); Juchía (Mexico, sonora); Påfågelsträd (Swedish); Paradise-flower; Pride of Barbados; Pride-of-Barbados; Red Bird-of-paradise; Tabachín (Spanish: Mexico, Sonora); Tabachin del Monte; Tacapachi (Guarijío, Spanish); Tauachin del Monte; Tavachin; Tetezo (Spanish). DESCRIPTION: Terrestrial perennial deciduous (evergreen in mild winters or warm climates) shrub or tree (3 to 20 feet in height); the branches may be yellowish-brown; the

flowers may be orange, orange-red, orange-red & yellow, orange-yellow, red, red-orange, red & orange, salmon, yellow or yellow-orange with deep maroon filaments; flowering generally takes place between late January and mid-December. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; cliffs; rocky canyons; canyon bottoms; ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; rocky slopes; rocky plains; flats; valley floors; along roadsides; along and in stony, gravelly and sandy arroyos; sandy bottoms of arroyos; barrancas (ravines); along and in sandy-loamy washes; drainage ways; banks of rivers; borders of washes; edges of ravines; along (rocky) margins of arroyos; (sandy) sides of rivers; floodplains; bosques; riparian areas, and disturbed areas growing in wet and dry rocky, stony, gravelly and sandy ground and sandy loam ground, occurring from sea level to 3,800 feet in elevation in the forest, woodland, scrub, grasslands, desertscrub and wetland ecological formations. NOTES: EXOTIC Plant. The fruit is poisonous. *Caesalpinia pulcherrima* may be native to southern North America (Mexico and the West Indies); however, its native origin is unknown. *5, 6, 18, 26 (color photograph), 43 (020910), 44 (102512 - no record of listings under Common Names; genus record), 46 (no record of species), 63 (102512 - forma *flava* is not recognized by USDA-NRCS, color presentation), **85** (102712 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a shrub, possibly recorded as *Poinciana pulcherrima* Sw. var. *flava*), 124 (102512 - no record of species; genus record)*

***Calliandra eriophylla* G. Bentham: Fairyduster**

SYNONYMY: *Calliandra eriophylla* G. Bentham var. *eriophylla*. COMMON NAMES: Bastard Catclaw; Bastard Mesquite; Brasilillo ("Little Brazil-wood", Spanish: New Mexico, Chihuahua)[140]; Cabellito [Cabellos, Pelo de Ángel] ("Little [Angel] Hair", Spanish: Mexico)[140]; Cabeza de Ángel (Spanish); Cabeza [de] Ángel ("Angel Head", Spanish: Baja California)[140]; Cabelleto de Angel; Charresquillo ("Little Thicket", Spanish: San Louis Potosí)[140]; Cosahui (Spanish); Cósahui [del Norte] (Spanish: Sonora)[140]; Cu:wĭ Wuipo <cu:wi wu:pui> ("Jack-rabbit Eyes", Uto-Aztecan: Tohono O'odham)[140]; Desert Fairy Duster; Desert Fairy-duster; Desert Fairyduster; Fairy Duster (a name also applied to the genus *Calliandra*); Fairy Duster [Fairy-duster] (English)[140]; Fairy Duster False Mesquite; Fairy-duster (a name also applied to the genus *Calliandra*); Fairy-duster False-mesquite; Fairy-duster Mesquitilla; Fairyduster (a name also applied to the genus *Calliandra*); Fairyduster Mesquitilla; False Catclaw; False Mesquite; False [Bastard, Mock] Mesquite [Catclaw] (English)[140]; False Mesquite Calliandra (a name also applied to other species); False-mesquite Calliandra; Guajillo; Hairy-leafed Calliandra; Hairy-leaved Calliandra; Haxz Iztim ("Dog's Hipbone", Hokan: Seri)[140]; Huajillo <guajillo> (Spanish: Mexico)[140]; Mautillo (Mexico, Sonora); Mesquitella (Spanish); Mesquitilla (a name also applied to other species); Mezquitilla ("Little Mesquite", Spanish: Mexico)[140]; Mezquitillo (Spanish); Mock Catclaw; Mock Mesquite (a name also applied to the genus *Calliandra*); Pelo de Ángel (Spanish); Pink Fairy Duster; Pink Fairy-duster; Pink Fairyduster; Pink False Mesquite; Plumita ("Little Plume", Spanish: Mexico)[140]; Rama Mansa (Spanish: Puerto Rico); Taaseyueylalá <ta-a-sey-ueylalá> (Uto-Aztecan: Guarijío)[140]. DESCRIPTION: Terrestrial perennial deciduous subshrub or shrub (4 inches to 6½ feet in height; one plant was observed and described as being 40 inches in height with a crown 80 inches in width); the stems may be bluish, light gray, gray, whitish or white-gray; the leaves may be grayish, dark green or red; the flowers may be cream-white, pink, pink-red, pink-white, pinkish, light purple, purple, red, red and white, reddish-purple, rose, violet-red or white; flowering generally takes place between late January and early July (additional records: two for mid-January, five for mid-August, three for late August, three for early September, three for mid-September, one for early October, four for mid-October, four for late October, four for early November, two for mid-November, three for late November, one for early December, one for mid-December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky peaks; mountainsides; gravelly mesas; plateaus; rocky canyons; along rocky canyon bottoms; buttes; knolls; bedrock and sandy ridges; rocky ridgetops; rocky, shaley-sandy and gravelly-clayey-loamy foothills; rocky hills; hilltops; rocky hillsides; along bedrock, bouldery, rocky, rocky-loamy, rocky-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy and clayey slopes; gravelly bajadas; rocky outcrops; amongst boulders and rocks; boulderfields; lava hills; interior dunes; stony banks; plains; rocky, gravelly, sandy and clayey-loamy flats; basins; valley floors; along rocky, gravelly-sandy, rocky-sandy, sandy and sandy-loamy roadsides; along rocky-sandy and sandy arroyos; within gullies; around seeps; around springs; around seeping streams; streambeds; along and in gravelly and sandy washes; drainages; within bouldery drainage ways; along watercourses; (rocky) banks of arroyos and lakes; borders of washes; edges of washes and drainage ways; margins of washes; shores of lakes; gravelly terraces; bottomlands; mesquite woodlands; ditches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, shaley-sandy, stony, gravelly and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, pebbly-clayey loam, sandy loam and clayey loam ground, and rocky clay and clay ground, occurring from sea level to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and is sold as an ornamental; it is considered to be a soil binder. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Hummingbirds and White-lined Sphinx Moths (*Hyles lineata*) have been observed visiting the flowers, the plant is browsed by wildlife with Mule Deer (*Odocoileus hemionus*) and White-tailed Deer (*Odocoileus virginianus*) finding it highly palatable, and birds may feed on the seeds. *Calliandra eriophylla* is native to southwest-central and southern North America. *5, 6, 13 (Pages 230-231), 15, **16**, 18, 28 (color photograph 653), 43 (080409), 44 (071611 - color photograph), 46 (Page 397), 48, 58, 63 (102712 - color presentation), 77 (color photograph #32), **85** (101812 - color presentation), 86 (color photograph), **89** (reported as being a dwarf shrub located on Tumamoc Hill), 91 (Pages 142-143), 115 (color presentation), 124 (071611 - no record of genus or species), 127, 140 (Pages 138-139 & 292), **HR**, **WTK** (October 28, 2009)*

Calliandra eriophylla var. *eriophylla* (see *Calliandra eriophylla*)

Cassia bauhinioides (see *Senna bauhinioides*)

Cassia bauhinioides var. *arizonica* (see *Senna bauhinioides*)

Cassia covesii (see *Senna covesii*)

Cercidium floridum (see *Parkinsonia florida*)

Cercidium floridum subsp. *floridum* (see *Parkinsonia florida*)

Cercidium microphyllum (see *Parkinsonia microphylla*)

Cercidium torreyanum (see footnote 89 under *Parkinsonia florida*)

***Coursetia glandulosa* A. Gray: Rosary Babybonnets**

SYNONYMY: *Coursetia microphylla* A. Gray. COMMON NAMES: Arí (Hispanic); Baby Bonnets; Chino (Spanish); Chipile; Chipilillo; Coursetia (a name also applied to the genus *Coursetia*); Cousamo (Spanish); Cousano (Spanish); Lac Bush; Rosary Babybonnets; Samo (Tarahumara); Samo Prieto; Samota; Samotum [Samodum, Usapdum] (Pima Bajo, usap is the word used for the sap of this plant); Samo Prieto (Spanish); Sámota (Spanish: Mexico, Sonora); Sámu (Hispanic); [Tepe] Chipile (Spanish); Tepechipile; Zamota (Hispanic). DESCRIPTION: Terrestrial perennial (winter-deciduous in Arizona) shrub (3 to 20 feet in height); the bark on the slender branches is light gray, grayish, gray o rtan; the leaves are grayish-green or green; the flowers may be cream & yellow, lavender & cream, lemon-yellow, pink, white, white-yellow, pale yellow, yellowish or yellow & white often tinged with lavender, pink, purple or red; flowering generally takes place between early December and late May (additional records: two for late June and one for mid-November); the mature seed pods (1 to 2 inches in length) are brown. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of cliffs; rocky canyons; rocky sides of canyons; bouldery and rocky canyon bottoms; ridges; foothills; rocky hills; rocky hilltops; rocky and gravelly hillsides; bedrock, rocky and sandy-loamy slopes; gravelly alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; terraces; cobbly and sandy-loamy plains; flats; basins; sandy valley floors; coastal flats; roadsides; within rocky and sandy arroyos; rocky and sandy bottoms of arroyos; along bottoms of ravines; springs; along rocky streams; riverbeds; along and in rocky, gravelly-sandy, sandy and sandy-loamy washes; drainages; borders of washes; (rocky) edges of streambeds and washes; (rocky) margins of arroyos; (sandy) sides of rivers; mesquite bosques, and riparian areas growing in dry bouldery, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground and sandy loam ground, occurring from sea level to 4,300 (one record for 7,500) feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial sealant crop (the transparent yellowish-brown gum was mixed with adobe to make jars of syrup air tight). An orange-colored lac may be observed on the stems of the plant that is produced by the feeding of an insect in the genus *Tachardiella*. The Broad-billed Hummingbird (*Cynanthis latirostris*) has been observed visiting the flowers. *Coursetia glandulosa* is native to southwest-central and southern North America. *5, 6, 10, 13 (Page 256), 15, 28 (recorded as *Coursetia microphylla*, color photograph 95), 30, 43 (020910), 44 (102812 - no record of species or genus), 46 (recorded as *Coursetia microphylla* Gray, Page 443), 63 (102812 - color presentation of seed), 77 (color photograph #33), **85** (102812 - color presentation), 91 (Pages 171-172), 115 (color presentation), 124 (102812 - no record of species or genus), 127, 140 (Page 292)*

Coursetia microphylla (see *Coursetia glandulosa*)

***Dalea neomexicana* (A. Gray) V.L. Cory (var. *neomexicana* is the variety reported as occurring in Arizona): Downy Prairie Clover**

COMMON NAMES: Downy Prairie Clover; Downy Prairie-clover; Downy Prairieclover; New Mexico Dalea; New Mexican Indigo Pea. DESCRIPTION: Terrestrial perennial forb/herb (mostly prostrate stems 2 to 12 inches in height); the leaves are blue-green; the flowers may be lavender, lavender & dull lavender, pink, purple, purple & white, white, white tinged with red-violet or pale yellow; flowering generally takes place between mid-February and late November (Kearney and Peebles in Arizona Flora describes the flowering period as being December to May); the mature fruits are fuzzy and white. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; canyons; ridges; rocky and gravelly hills; gravelly-clayey-loamy and sandy hillsides; rocky bases of mountains and hills; hillsides; sandy slopes; rocky-sandy bajadas; sand dunes; plains; valley floors; gravelly, gravelly-sandy and sandy valley bottoms; along rocky, gravelly and gravelly-loamy roadsides; bottoms of arroyos; along creekbeds; sandy washes; drainages; floodplains, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam and gravelly-clayey loam ground, and silty ground, occurring from 400 to 5,300 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTE: *Dalea neomexicana* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (020910 - no record of species; genus record), 46 (Pages 436-437), 44 (102912), 63 (102912 - color presentation), 77, **85** (102912 - color presentation), 124 (102912 - no record of species; genus record)*

Dalea parryi (see *Marina parryi*)

***Dalea pogonathera* A. Gray (var. *pogonathera* is the variety reported as occurring in Arizona): Bearded Prairie Clover**

COMMON NAMES: Bearded Dalea; Bearded Pogonanthera; Bearded Prairie Clover; Bearded Prairieclover; Herba del Corazón; Heirba del Corazon; Pea-bush. DESCRIPTION: Terrestrial perennial forb/herb (8 inches to 2 feet in height); the flowers (a spike 2 to 4 inches in length) may be pale blue-lavender, blue-lavender, bluish-purple, brown, lavender, pink, light purple, purple, violet, white or yellow; flowering generally takes place between mid-March and mid-October (additional records: one for mid-February, two for early November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy and gravelly mesas; rocky canyons; stony talus; rocky ridges; foothills; rocky, gravelly and clayey hills; rocky, rocky-gravelly and rocky-sandy hillsides; bedrock, rocky, rocky-sandy-clayey, stony-clayey, gravelly and gravelly-sandy slopes; bajadas; rocky and gravelly piedmonts; rocky outcrops; amongst rocks; rocky hardpans; rocky flats; rocky valley floors; along bouldery-rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-gravelly-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy and sandy roadsides; arroyos; rocky draws; rocky gullies; rocky-gravelly streambeds; along creeks; washes; drainages; edges of gullies; terraces; floodplains, and disturbed areas growing in dry rocky desert pavement; bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-gravelly-clayey loam, gravelly-sandy loam, gravelly loam and gravelly-clayey loam ground; rocky-sandy clay, stony clay, gravelly clay and clay ground, and sandy silty ground, occurring from 300 to 8,000 feet in elevation in the forest, woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Dalea pogonathera* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 43 (020910), 44 (102912 - no record of species; genus record), 46 (Page 438), 58, 63 (102912 - color presentation), 77, **85** (102912 - color presentation of dried material), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes), 124 (102912 - no record of species; genus record), 140 (Page 292)*

***Desmanthus covillei* (N.L. Britton & J.N. Rose) I.L. Wiggins ex B.L. Turner: Coville's Bundleflower**

COMMON NAMES: Bundleflower (a name also applied to the genus *Desmanthus*); Coville Bundleflower; Coville's Bundleflower; Dais (Spanish); Hiitepoa (Yaqui). DESCRIPTION: Terrestrial perennial drought deciduous forb/herb or subshrub (13 inches to 8 feet in height); the leaves are green; the flowers may be cream, white, yellow, yellowish-green, yellowish-white or yellowish & white; flowering generally takes place between late July and late October (additional records: one for mid-January, one for mid-February, one for late March, one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky peaks (cerros); mesas; cliffs; rocky canyons; canyonsides; rocky, rocky-sandy and sandy canyon bottoms; ridges; rocky hills; bouldery and rocky hillsides; rocky, rocky-clayey, cobbly and gravelly slopes; bajadas; amongst boulders and rocks; sand dunes; terraces; plains; gravelly-sandy flats; valley bottoms; coastal plains; coastal beaches; gravelly roadsides; arroyos; waterholes; sloughs; edges of ponds; (rocky-sandy) margins of watercourses; benches; riparian areas, and disturbed areas growing in wet and dry bouldery, rocky, rocky-sandy, cobbly, gravelly, gravelly, gravelly-sandy, pebbly and sandy ground and rocky clay ground, occurring from sea level to 3,900 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTE: This plant is sometimes described as being a small rounded shrub with dense foliage. Maso (Yaqui name for the White-tailed Deer) reportedly browse this plant. *Desmanthus covillei* is native to southwest-central and southern North America. *5, 6, **8**, 43 (021010 - *Desmanthus covillei* (N.L. Britton & J.N. Rose) I.L. Wiggins in B.L. Turner), 44 (no record of species or genus), 46 (no record of species; genus record, Page 401), 63 (102912), 77, 85 (102912 - color presentation of dried material), 91, 124 (102912 - no record of species; genus record), 140 (recorded as *Desmanthus covillei* (Britton & Rose) Wiggins ex B.L. Turner var. *arizonicus* B.L. Turner, Page 292)*

Hoffmanseggia densiflora (see footnote 46 under *Hoffmannseggia glauca*)

Hoffmannseggia densiflora (see *Hoffmannseggia glauca*)

***Hoffmannseggia glauca* (C. Gómez de Ortega) I.J. Eifert: Indian Rushpea**

SYNONYMY: *Hoffmannseggia* (alternate spelling: *Hoffmanseggia*) *densiflora* G. Bentham. COMMON NAMES: Camote de Ratón (Mouse's Sweet Potato); Camote-de-raton; Hog Potato; Hog-potato; Hogpotato; Indian Rush-pea (not recommended); Indian Rushpea (not recommended); Indian-potato; Mesquite Weed; Mouse's Sweet Potato; Pig Nut (a name also applied to other taxa); Pignut (a name also applied to other taxa); Rat's Sweet Potato; Shoe String Weed; Shoestring Weed; Sickle-fruit Hoffmanseggia; Sickle-fruited Hoffmanseggia; Sicklepod Rushpea; Shahd (Pima); Waxy Rush Pea; Waxy Rush-pea; Waxy Rushpea; Waxy Hoffmannseggia. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (prostrate stems 4 to 12 inches in height; one "patch" was described as being 20 feet in diameter); the anthers may be purple or red; the flowers may be golden-yellow, maroon & orange, orange, orange & red, orangish-red, orange-yellow, orangish-yellow, reddish-orange, yellow, dull yellow, dark yellow, yellow-orange, yellow & orange or yellow & red; flowering generally takes place between late February and mid-November. HABITAT: Within the range of this species it has been reported from mountains; clayey mesas; canyons; ridges; foothills; rocky-gravelly-loamy hills; gravelly-loamy hillsides; rocky-clayey and sandy-loamy slopes; sandy lava flows; sandy lava beds; clayey breaks; terraces; sandy prairies; sandy-loamy plains; sandy, clayey, silty and silty-loamy flats; basin bottoms; sandy and clayey valley floors; silty and silty-loamy valley bottoms; railroad right-of-ways; on cobbly-loamy roadbeds; along rocky, rocky-gravelly-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy,

gravelly-sandy-silty, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, clayey and clayey-loamy roadsides; arroyos; draws; creekbeds; along and in sandy and clayey-loamy washes; drainages; sandy and silty-loamy dry lakes; lakebeds; sandy and clayey playas; ciénegas; swamps; sandy-silty depressions; grassy swales; along (sandy) edges of lakes, marshes and swales; (silty) margins of playas; channel bars; floodplains; mesquite bosques; stock tanks; silty ditches; ditch banks; clayey riparian areas; waste places, and disturbed areas growing in wet (seasonally), moist and dry rocky, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly loam, gravelly-loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, gravelly clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from areas located below sea level to 7,600 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Indian Rushpea provides food for quail and Whitetail Deer (*Odocoileus virginianus couesi*). *Hoffmannseggia glauca* is native to southwest-central and southern North America and western and southern South America. *5, 6, **16**, 43 (021010), 44 (103012), 46 (*Hoffmanseggia densiflora* Benth., Pages 408-409), **57**, 63 (103012), 68, 77, **85** (103012 - color presentation), 86 (color photograph), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Hoffmanseggia stricta* Benth.), 101 (color photograph), 115 (color presentation), 124 (103012), 127*

Hoffmannseggia stricta (see footnote 89 under *Hoffmanseggia glauca*)

Hosackia brachycarpa (see *Lotus humistratus*)

Hosackia humilis (see footnote 89 under *Lotus strigosus* var. *tomentellus*)

Hosackia tomentella (see *Lotus strigosus* var. *tomentellus*)

***Lathyrus pusillus* S. Elliott: Tiny Pea**

COMMON NAMES: Low Pea; Low Pea Vine; Low Peavine; Low Vetchling; Singletary Pea; Singletary Vetchling; Tiny Pea; Tiny Pea Vine. DESCRIPTION: Terrestrial annual forb/herb or vine; the flowers are light violet-blue; one flowering record for late April. HABITAT: Within the range of this species it has been reported from rocky hills growing in dry rocky and sandy ground, occurring between 2,300 to 3,100 feet in elevation in the woodland and desertscrub ecological formations. NOTES: EXOTIC Plant. *Lathyrus pusillus* is native to native to south-central North America. *5, 6, 43 (103012), 44 (103012 - no record of species; genus listing), 46 (no record of species; genus record, Pages 477-479), 48 (genus), 63 (103012), 80 (Species in the genus *Lathyrus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These perennial forbs have been suspected of causing lameness in livestock in other states but plants are probably too rare to cause poisoning in Arizona."), 85 (103012), **89** (reported as being a summer annual herb located on Tumamoc Hill), 124 (103012)*

***Lotus greenei* A.M. Ottley ex T.H. Kearney & R.H. Peebles: Greene's Bird's-foot Trefoil**

COMMON NAMES: Deer Vetch (a name also applied to other species and the genus *Lotus*); Deer-vetch (a name also applied to other species and the genus *Lotus*); Deervetch (a name also applied to other species and the genus); Greene Bird's-foot Trefoil; Greene's Bird's-foot Trefoil; Greene's Birdsfoot Trefoil; Green's Lotus. DESCRIPTION: Terrestrial perennial forb/herb (sprawling, spreading or trailing prostrate, decumbent and/or erect stems 3 to 6 inches in height); the leaves are grayish-green; the flowers may be orange & yellow, dark orange-dark yellow, pink & yellow, reddish-yellow, pale yellow, yellow, yellow-orange, yellow with orange or pinkish-orange on the banner, yellow & pink, yellow & red, yellow with red on bottom, yellow tinged with red, yellow & rose, yellow with a rose tint or yellowish-orange; flowering generally takes place between early March and late June (additional records: one for mid-February, one for late July, one for early August, two for mid-August, one for late August, two for mid-September and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bases of mountains; mesas; canyons; pockets of soil; rocky ledges; ridgetops; amongst oaks and grasses; foothills; rocky hills; hilltops; rocky, rocky-gravelly and rocky-clayey hillsides; bouldery, rocky, rocky-gravelly, rocky-gravelly-loamy, stony-silty, cindery, gravelly, gravelly-loamy, gravelly-clayey, sandy and sandy-loamy slopes; bases of slopes; rocky outcrops; amongst boulders; sandy banks; berms; prairies; plains; flats; along rocky-gravelly, stony, gravelly and gravelly-sandy roadsides; rocky draws; gulches; gullies; along streams; along streambeds; sandy washes; along watercourses; along (gravelly-sandy, gravelly-loamy and sandy) banks of arroyos, streambeds, rivers and washes; edges of streams; margins of lakes; (sandy) shores of creeks; bottomlands; floodplains; sandy mesquite woodlands; stony ditches; riparian areas, and disturbed areas growing in dry (including seasonally wet) bouldery, rocky, rocky-gravelly, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, gravelly loam and sandy loam ground; rocky clay and gravelly clay ground, and stony silty ground, occurring from 2,800 to 8,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The seeds of this plant are used as food by Mule Deer (*Odocoileus hemionus*), quail and Bighorn Sheep (*Ovis canadensis*). *Lotus greenei* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 503), 43 (030811 - *Lotus greenei* (Wooton & Standl.) Ottley in Kearney & Peebles), 44 (103112 - no record of species; genus record), 46 (Page 428), 48 (genus), 58, 63 (103112 - color presentation), 77, **85** (103112 - color presentation of dried material), 124 (030811 - no record of species; genus record)*

***Lotus humistratus* E.L. Greene: Foothill Deervetch**

SYNONYMY: *Hosackia brachycarpa* G. Bentham. COMMON NAMES: Bird's Foot Lotus; Colchita; Deer Vetch (a name also applied to the genus *Lotus*); Deer-vetch (a name also applied to the genus *Lotus*); Foothill Deervetch; Hill Deervetch; Hill Locust; Foothill Deervetch; Maresfat; Short Podded Lotus. DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate stems 4 to 18 inches in height or length); the leaves are gray-green or green; the small flowers are orange, orange-yellow, yellow, yellow-orange, yellow & orange-red and yellow & red; flowering generally takes place between late January and late June (additional records: one for early August, one for late August and one for early October); the mature pods are brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mesas; plateaus; cliffs; rocky, rocky-gravelly and stony canyons; sandy-loamy canyon bottoms; scree; bluffs; rocky and clayey-loamy ridges; rocky and clayey ridgetops; ridgelines; rocky-sandy meadows; foothills; bases of foothills; bedrock, rocky and clayey hills; clayey hilltops; rocky, rocky-gravelly-loamy, rocky-pebbly-sandy-silty, stony, cobbly-sandy-loamy, gravelly and clayey hillsides; rocky, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, cobbly-sandy-loamy, gravelly, clayey and clayey-loamy slopes; rocky-sandy and sandy alluvial fans; gravelly bajadas; rocky outcrops; amongst rocks; rocky banks; clay lenses; sandy-silty plains; rocky-sandy, gravelly, gravelly-sandy, sandy and clayey flats; benchlands; clayey basins; gravelly-sandy-loamy, sandy and clayey valley floors; valley bottoms; along rocky, gravelly and silty roadsides; along and in rocky and sandy arroyos; bottoms of arroyos; within draws; gulches; gullies; along seeping washes; springs; along streams; sandy soils along creeks; bouldery-rocky, stony, cobbly, gravelly, gravelly-sandy and sandy creekbeds; sandy soils along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey washes; within drainage ways; along (rocky-silty, gravelly-loamy and sandy) banks of streams, streambeds, rivers and washes; gravel bars; clayey benches; terraces; sandy and loamy bottomlands; cobbly-sandy and sandy floodplains; along canals; gravelly-sandy and sandy riparian areas; recently burned areas in scrub, and disturbed areas growing in wet, moist, damp and dry bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, rocky-clayey loam, cobbly-sandy loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam and loam ground; clay ground, and rocky-pebbly-sandy silty, rocky silty, sandy silty and silty ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Lotus humistratus* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (071009), 44 (110112 - no listings under Common Names; genus record), 46 (Page 427), 48 (genus), 58, 63 (110112 - color presentation of seed), 77, **85** (110112 - color presentation), 86 (color photograph), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Hosackia brachycarpa* Benth.), 115 (color presentation), 115 (color presentation), 124 (110112 - no record of species; genus record), 127, 140 (Page 292)*

***Lotus strigosus* (T. Nuttall) E.L. Greene (var. *tomentellus* D. Isely is the variety reported from Arizona): Strigose Bird's-foot Trefoil**

SYNONYMY: (for var. *tomentellus*: *Hosackia tomentella* (E.L. Greene) L. Abrams; *Lotus tomentellus* E.L. Greene). COMMON NAMES: Annual Lotus (a name applied to other taxa); Bishop Lotus; Bishop's Lotus; Desert Birdfoot Trefoil; Desert Deervetch (a name applied to other taxa); Desert Lotus (a name applied to other taxa); Greene's Desert Deervetch; Hairy Deer Vetch (a name applied to other taxa); Hairy Lotus (a name applied to other taxa); Sand Lotus; Stiff Haired Lotus; Stiff-hair Lotus; Stiff-haired Lotus; Strigose Bird's-foot Trefoil; Strigose Hosackia; Strigose Lotus; Strigose Bird's Foot Trefoil; Strigose Bird's-foot Trefoil; Strigose Bird's-foot-trefoil; Strigose Birdfoot-trefoil; Strigose Birdsfoot-trefoil; Strigose Calif Lotus; Strigose Deervetch; Strigose Deerweed; Strigose Trefoil. DESCRIPTION: Terrestrial annual forb/herb (spreading and clambering prostrate, procumbent and ascending stems 2 to 10 inches in length; one prostrate plant mat was observed and described as being 2½ inches in height and 16 inches to 2 feet in width, prostrate to ascending plants were observed and described as being 8 to 12 inches in height and 12 inches in width); the leaves may be gray-green, grayish or dark green; the flowers may be pale golden-yellow, orange-yellow, pale yellow, yellow and yellow-orange & reddish-orange aging to cream-orange, cream-yellow, orange, orange-red, orange-yellow, red, reddish or yellow-orange; flowering generally takes place between mid-January and mid-July (additional records: two for early August, one for late August, one for early September and one for early October). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; bedrock, bouldery and rocky mountainsides; sandy mesas; plateaus; stony-gravelly bases of cliffs; canyons; bouldery-gravelly-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, gravelly-sandy, gravelly-sandy-loamy, sandy and sandy-loam canyon bottoms; clayey-loamy and silty-loamy ridges; along sandy-loamy and clayey-loamy ridgetops; bouldery meadows; cindery cinder cones; foothills; bouldery, rocky, sandy, loamy, clayey and silty-loamy hills; rocky and rocky-clayey-loamy hilltops; rocky and sandy-clayey hillsides; rocky-cobbly bases of hills; escarpments; along bedrock, bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cobbly-sandy-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy-loamy, clayey-loamy, loamy, loamy-clayey and clayey slopes; rocky-sandy-loamy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks, rocky coves; lava fields; sand hills; sand dunes; bajadas; clayey banks; rocky berms; plains; rocky-sandy-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy and loamy flats; basins; along rocky, gravelly, gravelly-sandy, sandy, clayey and silty roadsides; within sandy arroyos; sandy draws; springs; along streams; rocky-sandy streambeds; along creeks; along sandy creekbeds; sandy riverbeds; along and in rocky, rocky-sandy, stony-sandy-silty, gravelly, gravelly-sandy and sandy washes; gravelly and sandy drainages; gravelly drainage ways; (muddy, gravelly and sandy) banks of arroyos, creeks, rivers, washes and lakes; edges of marshes; margins of washes; gravel and sand bars; benches; sandy cutbanks; gravelly-sandy and sandy terraces; loamy bottomlands; floodplains; bouldery-gravelly-sandy, rocky-gravelly-sandy and rocky-sandy riparian areas; recently burned areas in woodlands

and scrub, and disturbed areas growing in muddy and wet, moist and dry desert pavement; bouldery, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-cobbly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, stony-gravelly, cobbly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, sandy clay, loamy clay and clay ground, and stony-sandy silty and silty ground, occurring from sea level to 7.600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Lotus strigosus* is native to southwest-central and southern North America. *5, 6, 15, 16 (recorded as *Lotus tomentellus* Greene), 28 (recorded as *Lotus tomentellus*, color photograph 505), 43 (021110), 44 (110412 - listings of Common Names located under *Acmispon strigosus*), 46 (recorded as *Lotus tomentellus* Greene, Page 427), 48 (genus), 63 (110712 - color presentation), 77, **85** (110712 - color presentation), 115 (color presentation of *L.s.* var. *tomentellus*), 124 (110412 - no record of species; genus record), 127*

***Lotus strigosus* (T. Nuttall) E.L. Greene var. *tomentellus* D. Isely: Strigose Bird's-foot Trefoil**

SYNONYMY: *Hosackia tomentella* (E.L. Greene) L. Abrams; *Lotus tomentellus* E.L. Greene. COMMON NAMES: Annual Lotus (a name applied to other taxa); Desert Deer Vetch (a name applied to other taxa); Desert Deer-vetch (a name applied to other taxa); Desert Deervetch (a name applied to other taxa); Desert Lotus (a name applied to other taxa); Greene's Desert Deervetch (a name also applied to the species); Hairy Deer Vetch (a name applied to other taxa); Hairy Lotus (a name applied to other taxa); Strigose Bird's-foot Trefoil (a name also applied to the species). DESCRIPTION: Terrestrial annual forb/herb (prostrate stems 2 to 10 inches in length); the herbage is gray-green or dark green; the flowers are light yellow or yellow; flowering generally takes place between mid-January and late May (additional record: one for early September); the fruits are purple-brown. HABITAT: Within the range of this species it has been reported from mountains; bedrock, bouldery and rocky mountainsides; mesas; stony-gravelly bases of cliffs; canyons; bouldery, rocky and sandy-loamy canyon bottoms; foothills; bouldery and sandy hills; rocky hilltops; bouldery-sandy and rocky hillsides; along bedrock, bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly and sandy slopes; alluvial fans; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks, lava fields; sand hills; sand dunes; gravelly banks; plains; gravelly, gravelly-sandy and sandy flats; sandy valley bottoms; sandy coastal flats; along rocky, sandy and silty roadsides; rocky arroyos; sandy draws; springs; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; gravelly drainage ways; backwater playas; margins of washes; gravel bars; rocky benches; sandy terraces; loamy bottomlands; floodplains; along canals; canal banks, and riparian areas growing in damp and dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam and loam ground; silty ground, and chalky ground, occurring from sea level to 4,400 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: The species, *Lotus strigosus*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The foliage may appear to be somewhat succulent. *Lotus strigosus* var. *tomentellus* is native to southwest-central and southern North America. *5, 6, 15, 16 (recorded as *Lotus tomentellus* Greene), 28 (recorded as *Lotus tomentellus*, color photograph 505), 43 (021010), 44 (110412 - no listings under Common Names, listings of Common Names located under *Acmispon strigosus* for species; genus record), 46 (recorded as *Lotus tomentellus* Greene, Page 427), 48 (genus), 63 (110712), 77, **85** (110712 - color presentation of dried material), **89** (reported as being a winter annual herb located on the Mesa-like Mountain slopes, recorded as *Hosackia humilis* (Greene) Abrams), 115 (color presentation), 124 (110412 - no record of variety or species; genus record), 127 (species)*

Lotus tomentellus (see *Lotus strigosus* var. *tomentellus*)

***Lupinus concinnus* J.G. Agardh: Bajada Lupine**

COMMON NAMES: Agardh Lupine (var. *agardhianus* - Invalid; *Lupinus agardhianus* A.A. Heller - Valid); Agardh's Lupine (var. *agardhianus* - Invalid; *Lupinus agardhianus* A.A. Heller - Valid); Annual Lupine; Bajada Bluebonnet; Bajada Lupin; Bajada Lupine; Bluebonnet (Blue Bonnet is a name that is applied to the genus *Lupinus*); Concinnus Annual Lupine; Elegant Lupine (a name also applied to other taxa); Lupine (Blue Bonnet is a name that is applied to the genus *Lupinus*); Lupino (Spanish); Orcutt Bajada Lupine (subsp. *orcuttii*); Orcutt Lupine (subsp. *orcuttii*); Orcutt's Bajada Lupine (subsp. *orcuttii*); Orcutt's Lupine (subsp. *orcuttii*); Scarlet Lupine; Trébola (Spanish). DESCRIPTION: Terrestrial annual forb/herb (decumbent and/or erect stems 3 to 18 inches in height); the stems may be red; the woolly herbage may be grayish or gray-green; the flowers may be blue, blue-magenta, blue-purple, blue &white, blue & light yellow, deep blue-purple & white, cream & purple, cream & rose-purple, pale lavender, dark lavender, lavender-pink, lavender-purple, lavender-rose, lavender & white, magenta-lavender, pink, pink-lavender, pink-purple & white-cream, pink-purple &white tinged with lavender, pink & white, pinkish-blue, pinkish-purple, light purple & yellow, purple, purple-blue, purple-lavender, purple-magenta, purple-magenta & white, purple-pink, purple & white, purple & yellow, purplish, red-purple, reddish-purple, violet, white rimed with pink, yellow & pink or yellowish-purplish; flowering generally takes place between late February and late June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, gravelly, sandy and sandy-clayey-loamy mesas; bases of cliffs; rocky canyons; bouldery-sandy, rocky and sandy canyon bottoms; chasms; bouldery and clayey ridges; sandy ridgetops; ridgelines; openings in forests; sandy foothills; rocky, gravelly and clayey hills; sandy hillsides; along bouldery, rocky, rocky-gravelly-sandy, gravelly, sandy, clayey-loamy and clayey slopes; rocky-sandy alluvial fans; bajadas; amongst boulders and rocks; boulder fields; blow-sand deposits; sandy banks; berms; sandy and sandy-silty plains; gravelly and sandy flats; basins; sandy-silty valley

floors; along gravelly, gravelly-sandy and sandy roadsides; within arroyos; gulches; ravines; around streams; rocky streambeds; along creeks; along and in gravelly-sandy and gravelly-silty creekbeds; along rivers; sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; within rocky drainage ways; (gravelly, gravelly-sandy and sandy) banks of arroyos, creeks, rivers and washes; borders of washes; along (cobbly) edges of rivers and washes; along margins of washes; (sandy) sides of washes; gravelly and sandy benches; sandy terraces; gravelly and loamy bottomlands; rocky-sandy, cobbly-sandy, gravelly and sandy floodplains; along ditches; along gravelly-clayey-loamy banks of ditches; rocky-sandy, gravelly-sandy and sandy riparian areas; recently burned areas in woodlands and scrub, and disturbed areas growing in dry bouldery, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, cobbly clay, loamy clay and clay ground, and gravelly silty and sandy silty ground, occurring from 100 to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lupinus concinnus* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 28 (color photograph 765), 43 (021110), 44 (110812 - color photograph), 46 (Page 417), 48 (genus), 58, 63 (110812 - color presentation), **77** (color photograph #80), 80 (Some, but not all, species of the genus *Lupinus* are considered to be Secondary Poisonous Range Plants. "The lupines contain numerous poisonous alkaloids. They are mostly dangerous to sheep but cattle, goats, horses, hogs and deer have also been poisoned. The seeds and pods are most poisonous but both young and dried plants may be dangerous. However, not all species are poisonous and some may furnish moderately palatable and nutritious forage for sheep. ... Animals will seldom eat a toxic dose if desirable forage is available. Losses can generally be avoided by good range management to improve forage, by keeping animals away from dense lupine patches (particularly in late summer or on the trail), or by grazing with cattle." See text for additional information.), **85** (110812 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (110812 - no record of species, genus record), 140 (Page 292)*

Lupinus leptophyllus (see footnote 89 under *Lupinus sparsiflorus*)

***Lupinus sparsiflorus* G. Bentham: Coulter's Lupine**

COMMON NAMES: Altramuz (Spanish); Arizona Lupine; Chicharito (Spanish); Coulter Lupin; Coulter Lupine; Coulter's Lupin; Coulter's Lupine; Desert Lupine (a name also applied to other species); Few-flowered Lupine; Loose-flowered Lupine (a name also applied to other species); Loose-flowered Annual Lupine; Loosely-flowered Annual Lupine; Lupine (a name also applied to other species and the genus *Lupinus*); Lupino (a name also applied to other species, Spanish); Mojave Lupine (a name also applied to other species); Sparse-flowered Lupine; Tash Mahad (or possibly Tash Mahot - River Pima); Trébola (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb (6 to 32 inches in height; one plant was observed and described as being 11 inches in height and 12 inches in width); the leaves are dark green; the flowers may be light blue-lavender-white, blue, dark blue, blue-lavender, blue-lavender-reddish, blue-lilac, blue-purple, blue-violet, blue & white, magenta-pink, magenta-pink with a yellow spot on the banner, magenta & purple, pinkish, pinkish-lavender, light purple, purple, purplish-blue, violet, deep violet, violet-blue or white; flowering generally takes place between early January and late June (additional records: three for early September, one for early October and one for early November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; sandy rims of canyons; cliffs; rocky, rocky-gravelly and stony canyons; along sandy-loamy canyon bottoms; scree; talus slopes; buttes; rocky and sandy ridges; ridgetops; clearings in forests; sandy meadows; gravelly-sandy and sandy foothills; rocky hills; bases of hills; rocky hilltops; rocky and sandy hillsides; rocky, rocky-stony, rocky-clayey-loamy, stony, cobbly-sandy-loamy, gravelly, gravelly-loamy, sandy, sandy-loamy and sandy-clayey slopes; rocky alluvial fans; gravelly bajadas; gravel slides; rocky outcrops; amongst rocks; shelves; gravelly plains; gravelly and sandy flats; basins; sandy hollows; sandy valley floors; along railroad right-of-ways; along rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and clayey roadsides; within arroyos; in gravelly-silty draws; along gravelly-loamy ravines; springs; along streams; rocky-sandy streambeds; along creeks; along and in gravelly-sandy creekbeds; along rivers; sandy riverbeds; along and in bouldery-sandy, rocky, cobbly, gravelly, gravelly-sandy and sandy washes; drainages; within cobbly, gravelly, sandy and sandy-loamy drainage ways; along (gravelly, gravelly-sandy, sandy and sandy-clayey) banks of arroyos, streams, rivers, washes and drainage ways; (rocky) edges of rivulets, rivers and washes; margins of washes; gravelly-sand and sand bars; gravelly benches; gravelly and sandy terraces; sandy and loamy bottomlands; cobbly and cobbly-sandy floodplains; ditches; bouldery, rocky-clayey, gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-stony, rocky-gravelly, rocky-sandy, stony, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; rocky clay, sandy clay and clay ground, and gravelly-sandy silty and gravelly silty ground, occurring from 100 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lupinus sparsiflorus* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 28 (color photograph 767), 43 (071409), 44 (071711 - color photograph), 46 (Page 416), 48 (genus), 58, 63 (110912 - color presentation), 77 (color photograph #81), 80 (This species is listed as a Secondary Poisonous Range Plant. "The lupines contain numerous poisonous alkaloids. They are mostly dangerous to sheep but cattle, goats, horses, hogs and deer have also been poisoned. The seeds and pods are most poisonous but both young and dried plants may be dangerous. However, not all species are poisonous and some may furnish moderately palatable and nutritious forage for sheep. ... Animals will seldom eat a toxic dose if desirable forage is available. Losses can generally be avoided by good range management to improve forage, by keeping animals away from dense lupine patches (particularly in late

summer or on the trail), or by grazing with cattle." See text for additional information.), **85** (111012 - color presentation), 86 (color photograph), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Lupinus leptophyllus* Benth.), 115 (color presentation), 124 (110912 - no record of species; genus record), 140 (Page 293)*

***Lupinus sparsiflorus* G. Bentham subsp. *mohavensis* C.T. Dziekanowski & D.B. Dunn: Coulter's Lupine**

SYNONYMY: *Lupinus sparsiflorus* G. Bentham var. *mohavensis* (C.T. Dziekanowski & D.B. Dunn) S.L. Welsh. COMMON NAME: Coulter Lupine (a name also applied to the species); Coulter's Lupine (a name also applied to the species); Mojave Lupine (a name also applied to the species and to other species). DESCRIPTION: Terrestrial annual forb/herb (8 to 20 inches in height); the leaves are dark green; the flowers may be blue, blue-purple, blue-white, lilac, purple, purple & white or white; flowering generally takes place between mid-January and mid-May (additional records: one for early September, one for early October and one for early November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of mountains; mesas; rocky canyons; canyon bottoms; bases of cliffs; buttes; ridgetops; clearings in forests; foothills; rocky hills; rocky hillsides; rocky, rocky-stony, gravelly and sandy slopes; bajadas; gravel slides; lava fields; sandy flats; sandy valley floors; rocky, gravelly, gravelly-sandy and sandy roadsides; gullies; springs; sandy streambeds; creeks; along and in rocky, rocky-sandy, gravelly, sandy and silty washes; gravelly-sandy banks of rivers; shores of lakes; sandy beaches; sandy terraces; bottomlands; sandy mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-stony, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam ground, and silty ground, occurring from 800 to 6,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lupinus sparsiflorus* subsp. *mohavensis* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph of species 767, species), 43 (071409), 44 (110912 - no listings under Common Names), 46 (species, Page 416), 48 (genus), 63 (110912), 80 (The species is listed as a Secondary Poisonous Range Plant. "The lupines contain numerous poisonous alkaloids. They are mostly dangerous to sheep but cattle, goats, horses, hogs and deer have also been poisoned. The seeds and pods are most poisonous but both young and dried plants may be dangerous. However, not all species are poisonous and some may furnish moderately palatable and nutritious forage for sheep. ... Animals will seldom eat a toxic dose if desirable forage is available. Losses can generally be avoided by good range management to improve forage, by keeping animals away from dense lupine patches (particularly in late summer or on the trail), or by grazing with cattle." See text for additional information.), **85** (111012 - color presentation of dried material), 86 (color photograph of species, species), 115 (color presentation of the species), 124 (110912 - no record of subspecies or species; genus record)*

Lupinus sparsiflorus var. *mohavensis* (see *Lupinus sparsiflorus* subsp. *mohavensis*)

***Marina parryi* (J. Torrey & A. Gray) R.C. Barneby: Parry's False Prairie-clover**

SYNONYMY: *Dalea parryi* J. Torrey & A. Gray. COMMON NAMES: Parry Dalea; Parry False Prairie Clover; Parry False Prairie-clover; Parry False Prairieclover; Parry Indigo Pea; Parry Indigo-bush; Parry Indigobush; Parry Marina; Parry's Dalea; Parry's False Dalea; Parry's False Prairie Clover; Parry's False Prairie-clover; Parry's False Prairieclover; Parry's Indigo-bush; Parry's Indigobush; Parry's Marina; Silk Dalea. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 8 to 50 inches (to over 13 feet [4.0 m] reported) in height; one plant was observed and described as being 16 inches in height with a crown 16 inches in width, plants were observed and described as being 30 inches in height with a crown 40 inches in width); the reddish-purple stems are more or less woody; the leaves may be gray-green or green; the flowers may be blue, blue-violet, blue & white, dark blue, dark blue-indigo, dark blue-purple, indigo, indigo-blue, indigo & blue-purple, deep indigo, deep indigo-violet, magenta-violet, purple, dark purple, dark purple-blue, purplish, purple-blue, purple-indigo, purple & white, violet or yellow; flowering generally takes place between late December and early June and again from late August to early December (additional records: flowering March thru June and year-round have also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; cliffs; rocky canyons; rocky canyon sides; rocky, gravelly and gravelly-sandy canyon bottoms; rocky talus; rocky ridgetops; foothills; rocky hills; hilltops; rocky, rocky-sandy and sandy hillsides; along bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-loamy, sandy and sandy-silty slopes; rocky and sandy alluvial fans; bajadas; rocky outcrops; amongst rocks; sand dunes; gravelly-sandy outwash fans; gravelly-sandy-loamy and sandy plains; rocky, rocky-sandy, gravelly, gravelly-sandy and sandy flats; basins; sandy valley floors; beach dunes; coastal shores; along gravelly and silty-clayey roadsides; along and in rocky, gravelly-sandy-loamy and sandy arroyos; along sandy-silty bottoms of arroyos; gulches; rocky gullies; silty springs; along streams; streambeds; creekbeds; along and in rocky, gravelly and sandy washes; gravelly drainages; within drainage ways; silty depressions; along (sandy) banks of arroyos, creeks and lakes; borders of washes; (gravelly-sandy and sandy) edges of washes and tinajas; mudflats; gravel and sand bars; sandy riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly-loam, gravelly-sandy loam and loam ground; silty clay ground, and silty ground, occurring from sea level to 4,700 feet in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Marina parryi* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Dalea parryi*, color photograph 763), 43 (021210), 44 (111112), 46 (recorded as *Dalea parryi* Torr. & Gray, Page 436), 63 (111112 - color presentation), 77, **85** (111112 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill, recorded as *Dalea parryi* T. & G.), 115 (color presentation), 124 (111112 - no record of species or genus)*

Medicago hispida (see *Medicago polymorpha*)

***Medicago polymorpha* C. Linnaeus: Burclover**

SYNONYMY: *Medicago hispida* J. Gaertner, *Medicago polymorpha* C. Linnaeus var. *vulgaris* (G. Bentham) L.H. Shinners. COMMON NAMES: Bur Clover; Bur Medic; Bur Trefoil; Bur-clover; Burclover; Burr Clover; California Bur Clover; California Bur-clover; California Burclover; California Clover; Carretilla (Hispanic); Carretón de Amores (Spanish); Common Bur Clover; Common Bur-clover; Common Burclover; Common Burr Clover; Common Burr Medic; Common Burr Medick; Gaejari (transcribed Korean); Hairy Medic (a name also applied to other taxa); Luzerne Hérissée (French); Medic (a name also applied to the genus *Medicago*); Medica Ispida (Italian); Nafal (Arabic); Nan Mu Xu (transcribed Chinese); Rauher Schneckenklee (German); Rough Medic; Shanghai Trefoil; Tagglusern (Swedish); Toothed Bur Clover; Toothed Bur-clover; Toothed Burclover; Toothed Burr Clover; Toothed Burr Medic; Toothed Burr Medick; Toothed Medic; Toothed Medick; Trebol (Mexico, Sonora); Trébol de Carretilla (Spanish); Trefoil-clover; Uirhijpiku Sapichu (Purépecha); Uma-goyashi (Japanese Rōmaji). DESCRIPTION: Terrestrial annual or perennial forb/herb or vine (prostrate or ascending stems 4 inches to 2 feet in length); the foliage is bright green; the flowers are yellow; flowering generally takes place between late January and late June (additional records: one for mid-July, two for late July, two for mid-August and one for early October, possibly other times when the plant has adequate moisture); the mature spiny pods are brown or straw. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; grassy mesas; plateaus; rocky canyons; bouldery-gravelly-sandy and sandy canyon bottoms; bluffs; clayey ridgetops; meadows; foothills; hills; hilltops; rocky hillsides; loamy and clayey slopes; sand dunes; rocky and clayey banks; clay lenses; clayey flats; valley floors; coastal dunes; coastal strands; along rocky, gravelly-sandy-clayey-loamy, gravelly loam, gravelly-clayey-loamy, sandy, sandy-loamy and clayey roadsides; springs; along streams; streambeds; along bouldery creeks; gravelly-sandy creekbeds; riverbeds; along sandy washes; within sandy drainage ways; cienegas; freshwater marshes; grassy swales; (rocky) banks of rivers; (sandy) margins of creeks and vernal pools; sides of creeks; sandy benches; sandy terraces; sandy bottomlands; rocky and sandy floodplains; canal and levee banks; along ditches; bouldery-gravelly-sandy riparian areas; waste places; recently burned areas in woodlands, coastal sage scrub and chaparral, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly-sandy, rocky, shaley, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and loam ground, and rocky clay, gravelly clay and clay ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland; desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. This plant may form mats. *Medicago polymorpha* is native to northern, central, eastern and southern Europe; western, central and southern Asia, and northern Africa. *5, 6, **16** (recorded as *Medicago polymorpha* L. var. *vulgaris* (Benth.) Shinners), 28 (recorded as *Medicago hispida*, color photograph 507), 30, 43 (021210), 44 (111212), 46 (recorded as *Medicago hispida* Gaertn., Page 421), 58, 63 (111212 - color presentation), 68 (recorded as *Medicago hispida* Baerin.), **77** (recorded as *Medicago polymorpha* L. var. *vulgaris* (Benth.) Shinners), 80 (This species is listed as a Poisonous Cropland and Garden Plant. "Alfalfa and Bur Clover may cause photosensitization, saponin and nitrate poisoning, and bloat."), **85** (111212 - color presentation of dried material), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb, recorded as *Medicago hispida* Gaertn.), 101 (note under *Medicago lupulina* L.), 124 (111112), 127*

Medicago polymorpha var. *vulgaris* (see *Medicago polymorpha*)

***Medicago sativa* C. Linnaeus: Alfalfa**

COMMON NAMES: Alfalfa (a name also applied subsp. *sativa*, the species and to the genus *Medicago*); Alfalfa (Spanish); Alfalfa de las Arena (Spanish - nothosubsp. *varia*); Alfalfa Amarilla (Spanish - subsp. *falcata*); Alfalfa Hybrida (Spanish - nothosubsp. *varia*); Alfalfa Sueca (Spanish - subsp. *falcata*); Alfalfa Verdadeira (Portuguese - subsp. *falcata*); Alfafa-de-provença (Portuguese (Brazil) - subsp. *falcata*); Alfalfa-falciforme (Portuguese (Brazil) - subsp. *falcata*); Alfasafat (Spanish); Bastard Medic (nothosubsp. *varia*); Bastardluzerne (German - nothosubsp. *varia*); Bauhin (Spanish); Blålusern (Swedish - subsp. *sativa*); Blaue Luzerne (German - subsp. *sativa*); Blue Alfalfa (subsp. *caerulea*); Branching Clover; Brazilian Clover; Burgundy Clover; Burgundy Hay; Burgundy Trefoil; Burgundy-hay; Burseem (Arabic); California Clover; Chilian Clover; Common Alfalfa; Common Alphalpha; Common Lucerne; Common Purple Lucerne; Cultivated Alfalfa; Cultivated Lucerne; Dutch Clover (a name also applied to other taxa); Erba Medica (Italian); Eruye (Spanish); Fisfisat (Arabic); French Clover (a name also applied to other taxa); Glandular Alfalfa (subsp. *glomerata*); Great Trefoil; Gul-lusern (Swedish - subsp. *falcata*); Hayalimna:we ("Grass that Keeps Growing" refers to the ability of the plant to re-grow from the roots after cutting, Zuni); Herba Medica (Latin); Herba Spagna (Italian); Holy Hay (a name also applied to other taxa); Holy-hay (a name also applied to other taxa); Holyhay (a name also applied to other taxa); Isfist (Persian); Jajukgaejari (Transcribed Korean); Jatt (Arabic); La Lucerne en Pelote (French - subsp. *glomerata*); Laouzerdo (morphed into Luzerne, French); Lucern (a name also applied to other taxa); Lucerne (a name also applied subsp. *sativa*, the species and to the genus *Medicago*); Lucerne en Forme de Pelote (French - subsp. *glomerata*); Lucifer; Luzerna (Portuguese - subsp. *sativa*); Luzerna de Sequeiro (Portuguese - subsp. *falcata*); Luzerna-bastarda (Portuguese (Brazil) - subsp. *falcata*); Luzerne (French - subsp. *sativa*); Luzerne (German - subsp. *sativa*); Luzerne Bigarrée (French - nothosubsp. *varia*); Luzerne de Suède (French - subsp. *falcata*); Luzerne Intermédiaire (French - nothosubsp. *varia*); Luzerne Jaune (French - subsp. *falcata*); Luzerna-de-sequeiro (Portuguese - subsp. *falcata*); Medica (Italian, Latin); Medicai (Greek); Medick (a name also applied to the genus *Medicago*); Melga (Spanish); Mielga <melga> (Spanish - subsp. *sativa*); Monthly Clover; Murasaki-umagoyashi (Japanese Rōmaji - subsp. *sativa*); Purple Alfalfa; Purple Lucern; Purple Lucerne; Purple Medic; Purple Medicile; Purple Medick; Sainfoin (a name also applied to other taxa); Sand Lucerne (nothosubsp. *varia*); Sandluzerne (German -

nothosubsp. *varia*); Sichelklee (German - subsp. *falcata*); Sichelluzerne (German - subsp. *falcata*); Sicilian Clover; Sichelklee (German - subsp. *falcata*); Sichelluzerne (German - subsp. *falcata*); Sickle Medic (subsp. *falcata*); Sickle Alfalfa (subsp. *falcata*); Sickle Medic (subsp. *falcata*); Sickle Medick (subsp. *falcata*); Snail Clover (a name also applied to other taxa including the genus *Medicago*); Snailclover; Spanish Medick (a name also applied to other taxa); Spanish Trefoil (a name also applied to other taxa); Yellow Alfalfa (subsp. *falcata*); Stem Clover; Styrian Clover; Userdas (Catalan); Variegated Alfalfa (nothosubsp. *varia*); Variegated Lucerne (nothosubsp. *varia*); Violet-flower Lucerne (subsp. *sativa*); Ye Mu Xu (transcribed Chinese - subsp. *falcata*); Yellow Alfalfa (subsp. *falcata*); Yellow Lucerne (subsp. *falcata*); Yellow-flower Alfalfa (subsp. *falcata*); Yellow-flower Lucerne (subsp. *falcata*); Za Jiao Mu Xu (transcribed Chinese - nothosubsp. *varia*); Zi Mu Xu (transcribed Chinese - subsp. *sativa*). DESCRIPTION: Terrestrial annual or perennial forb/herb (decumbent, ascending to generally erect stems 8 inches to 5 feet in height); the leaves are dark green; the flowers may be blue, deep blue, blue-purple, blue-deep purple, bluish-purple, blue-violet, light lavender-purple, lavender, purple, dark purple, purplish, purplish-blue, purple-blue, purple-violet, violet, violet-blue, white or yellow; flowering generally takes place between mid-March and late October (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; along mesas; rocky canyons; canyon bottoms; clearings in forests; rocky, gravelly-clayey-loamy, sandy, sandy-silty and silty meadows; rocky and sandy-loamy hills; rocky hillsides; rocky, shaley, gravelly and silty-clayey slopes; sand dunes; benchlands; terraces; sandy terrace banks; prairies; sandy flats; basins; valley floors; along railroad right-of-ways; along rocky-gravelly-loamy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey-loamy and clayey roadsides; arroyos; along creeks; rocky-gravelly-sandy and sandy riverbeds; along washes; depressions; swales; along banks of creeks and rivers; (muddy) edges of streams and creeks; margins of cienegas; along shorelines of rivers; rocky and sandy beaches; oxbows; silty-loamy terraces; floodplains; lowlands; along fencelines; reservoirs; along and in ditches; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry rocky, rocky-gravelly-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky-gravely loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; gravelly-sandy clay and silty clay ground, and sandy silty and silty ground, occurring from sea level to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as fodder, as a spice (placed in cooking pits, above and below black tree lichen and camas, to add sweet flavor) and as a drug or medication. *Medicago sativa* is native to northern, central, eastern, and southern Europe; Asia, and northern Africa. *5, 6, 28 (color photograph 747), 43 (021210), 44 (111212), 46 (Pages 420-421), **56**, **57**, 63 (111212 - color presentation), 68, 77, 80 (The species is listed as a Poisonous Cropland and Garden Plant. "Alfalfa and Bur Clover may cause photosensitization, saponin and nitrate poisoning, and bloat."), **85** (111212 - color presentation), 115 (color presentation), 124 (111212), 127*

Melilotus indica (see *Melilotus indicus*)

***Melilotus indicus* (C. Linnaeus) C. Allioni: Annual Yellow Sweetclover**

SYNONYMY: *Melilotus indica* (C. Linnaeus) C. Allioni, orth. var. COMMON NAMES: Alfalfilla (Spanish); Annual Melilot; Annual Yellow Melitot; Annual Yellow Sweet Clover; Annual Yellow Sweet-clover; Annual Yellow Sweetclover; California Lucerne; Dvärgsötväppling (Swedish); Haacoz (Seri); Handaquq (Arabic); Hethamscent; Hexham-scent; Hexham-scent Melilot; India Melilot; India Sweet-clover; India Sweetclover; Indian Melilot; Indian Sweet Clover; Indian Sweet-clover; Indian Sweetclover; King Island Clover; King Island Melilot; King Island-clover; King-Island Clover; King-Island Melilot; Kleinblütiger Steinklee (German); Ko-shinagawa-hagi (Japanese - Rōmaji); Meliloto (Spanish); Meliloto a Fioro Piccolo (Italian); Mélilot de l' Inde (French); Mélilot des Indes (French); Nafal (Arabic); Senji (India); Small Melilot; Small-flowered Yellow Sweet Clover; Sour Clover (a name also applied to other species); Sour-clover (a name also applied to other species); Sourclover; Sweetclover (a name also applied to other species and the genus *Melilotus*); Trebol (Mexico, Sonora); Trébol Agrio (Spanish); Trébol Amarillo (Spanish); Trevo-de-cheiro (Portuguese); Yellow Sweet-clover (a name also applied to other species); Yin du Cao Mu Xi (transcribed Chinese). DESCRIPTION: Terrestrial annual forb/herb (spreading and/or erect 4 inches to 3 feet in height); the flowers are white or yellow fading to pink; flowering generally takes place between late January and mid-August (additional records: two for late September, two for early October, one for late October and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; bouldery-gravelly-sandy canyon bottoms; clayey ridgetops; meadows; bouldery, rocky and sandy hillsides; bouldery-sandy, gravelly-loamy, sandy-clayey-loamy and clayey slopes; rocky outcrops; bouldery and clayey flats; sandy basin bottoms; valley floors; coastal dunes; along sandy roadsides; gravelly-sandy arroyos; bottoms of arroyos; bottoms of draws; within gullies; along bottoms of gullies; seeps; springs; along streams; streambeds; along creeks; rocky and loamy creekbeds; along rivers; sandy riverbeds; along and in washes; bouldery-rocky drainages; ponds; boggy areas; cienegas; clayey freshwater and saltwater marshes; depressions; (sandy) banks of streams and lakes, rivers and lakes; along (sandy) edges of creeks and washes; margins of washes; along shores of lakes and lagoons; cobbly and sandy terraces; loamy bottomlands; along sandy floodplains; lowlands; along canals; along and in ditches; ditch banks; bouldery-gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and damp bouldery, bouldery-rocky, bouldery-gravelly-sandy, bouldery-sandy, rocky, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy-clayey loam and loam ground, and sandy clay and clay ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a toy or in games, as a drug or medication and as an insecticide (used in beds as a bed bug repellent).

Melilotus indica is native to southern Europe; western, central and southern Asia, and northern Africa. *5, 6, **16**, 43 (021310), 44 (071711), 46 (genus, no species record, Page 420), **56**, **57**, 58, 63 (111412 - color presentation), 68, **77**, 80 (Species in the genus *Melilotus* are considered to be Poisonous Cropland and Garden Plant. "Moldy, and sometimes non-moldy, hay of this legume may reduce the ability of the blood to clot and animals may die of internal or external hemorrhage."), **85** (111612 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb, recorded as *Melilotus indica* (L.) All.), 101 (note under *Melilotus officinalis*), 115 (color presentation), 124 (071711 - no record of species; genus record), 127*

Mimosa filicioides (see *Acacia angustissima* var. *filicioides*)

***Nissolia schottii* (J. Torrey) A. Gray: Schott's Yellowhood**

COMMON NAMES: Schott Yellowhood; Schott's Yellowhood. DESCRIPTION: Terrestrial perennial forb/herb or vine (twining stems 9 to 16 feet in length); the flowers are orange-yellow or yellow; flowering generally takes place between mid-July and early October (additional records: one for mid-March, one for late March, one for late May, one for late June, one for early November and one for mid-December; flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides (and flanks); gravelly mesas; cliffs; rocky and stony canyons; rocky-sandy canyon bottoms; ledges; ridges; ridgetops; foothills; rocky, stony and gravelly hills; rocky hillsides; bedrock, bouldery, rocky and gravelly slopes; bottoms of slopes; bajadas; bases of boulders; terraces; cobbly plains; gravelly and gravelly-sandy flats; basins; gravelly valley floors; coastal plains; along roadsides; sandy arroyos; sandy bottoms of arroyos; along rocky draws; along streams; streambeds; riverbeds; along and in washes; (gravelly) banks of arroyos; margins of arroyos; rocky benches; bottomlands; floodplains; mesquite bosques; around represos; rocky and gravelly riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This woody vine may be an attractive component of a restored native habitat; it is often found climbing over or up through shrubs and small trees. The stems, leaves and flowers are browsed by quail and the White-tailed Deer (*Odocoileus virginianus couesi*). *Nissolia schottii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (021310 - *Nissolia schottii* A. Gray), 44 (111612 - no record of species or genus), 46 (Page 472), 58, 63 (111612 - color photograph of seedpod), 77, **85** (111712 - color presentation), **89** (reported as being a woody climber located on Tumamoc Hill), 124 (111612 - no record of species or genus), 140 (Page 293)*

***Olneya tesota* A. Gray: Desert Ironwood**

COMMON NAMES: Arizona Ironwood; Comitín; Desert Iron Wood; Desert Ironwood; Ho Id Cam (Pima); Ironwood (a name also applied to other taxa); Palo de Hierro (a name also applied to other taxa, Spanish); Palo-de-hierro (a name also applied to other taxa, Spanish); Palo Fierro (a name also applied to other taxa, Spanish); Sonora Ironwood; Sonoran Ironwood; Tesota, Tesota (Swedish); Tésota (Spanish). DESCRIPTION: Terrestrial perennial evergreen shrub or tree (10 to 33 feet in height); the bark is gray; the twigs are gray, green or yellow-green becoming light brown; the leaves are bluish-green, gray or gray-green; the flowers may be (½ inch in length) blue & white, lavender, pink, pink-lavender, purplish, rose-purple & whitish, violet, white or yellowish; flowering generally takes place between early April and late June (additional records: one for early January, one for early March and one for mid-July) with flowering lasting for a few weeks, the mature seedpods (2 to 2½ inches in length) are brown. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; gravelly and sandy mesas; cliffs; rocky and sandy canyons; rocky canyon bottoms; along bluffs; buttes; ridges; ridgetops; rocky foothills; rocky hills; rocky hillsides; rocky, rocky-sandy and gravelly slopes; bajadas; rocky outcrops; amongst boulders; sand dunes; plains; rocky, gravelly and sandy flats; valley floors; coastal plains; coastal beaches; roadsides; rocky, gravelly and sandy arroyos; around seeping streams; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along (gravelly-sandy and sandy) banks of washes; borders of washes; along edges of washes; margins of washes; shorelines of oceans; benches; terraces; sandy floodplains; mesquite bosques; gravelly riparian areas, and disturbed areas growing in dry desert pavement and bouldery, rocky, rocky-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 3,200 feet in elevation in the scrub and desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as fuel, tools, and for musical instruments. The trees are browsed by Bighorn Sheep (*Ovis canadensis*). Hummingbirds including the Costa's Hummingbird (*Calypte costae*), Carpenter Bees (*Xylocopa* spp.) and the Solitary Bee (*Centris pallida*) have been observed visiting the flowers. The seeds are an important food for the Desert Wood Rat (*Neotoma lepida*) and other desert animals. *Olneya tesota* is native to southwest-central and southern North America. *5, 6, 10, 13 (Pages 255-256), **16**, 18, 26 (color photograph), 28 (color photograph 96), 43 (021310), 44 (111812), 46 (Pages 442-443), 48, 52 (color photograph), 53, 63 (111812 - color presentation), 77, **85** (112012 - color presentation), **89** (reported as being a tree located on the Mesa-like mountain Slopes), 91 (Pages 280-281), 115 (color presentation), 124 (111812 - no record of species or genus), 127, **WTK** (May 27, 2005)*

***Parkinsonia aculeata* C. Linnaeus: Jerusalem Thorn**

COMMON NAMES: Acacia de los Masones; Arrêtenègre (French); Bacapore; Bagota; Bagote (Spanish: Mexico, Sonora); Barbados Flowerfence (a name also applied to other species); Cacaporo (Spanish); Cina-cina (a name also applied to

other species, Portuguese: Brazil); Espinheiro-de-Jerusalém (Portuguese); Espinillo (Spanish); Espinho-de-jerusalém (Portuguese: Brazil); Espinillo (Spanish); Guacoporo (Spanish); Guacóporo (Spanish); Horse Bean (a name also applied to other species); Horse-bean (a name also applied to other species); Horsebean (a name also applied to other species); Huacapori (Spanish); Huacóporo (Spanish); Jelly Bean Tree; Jellybean Tree; Jerusalem Thorn (a name also applied to other species); Jerusalem-thorn (a name also applied to other species); Jerusalemdorn (German); Jerusalemtörne (Swedish); Junco; Junco Marino (Spanish); Long-leaf Paloverde; Mexican Palo Verde; Mexican Palo-verde; Mexican Paloverde; Mezquite Verde (Spanish); Palo de Rayo (Spanish); Palo Ver (Spanish); Palo Verde Mejicano (Spanish); Palo Verde Mexicano; Ratama; Retaima; Retama (a name also applied to other species); Rosa-da-turquia (Portuguese: Brazil); Sessaban (transliterated Arabic); Turco (Portuguese: Brazil). DESCRIPTION: Terrestrial perennial drought- and possibly cold-deciduous shrub or tree (10 to 40 feet in height); the older bark is brown or gray; the younger bark, branches and twigs are green or yellow-green; the leaves are green; the flowers (¾ to 1 inch in width) are golden-yellow, orange, yellow, yellow with orange or red spots or golden-yellow; flowering generally takes place between mid-February and early July (additional records: two for late July, four for early August, one for mid-August, two for late August, one for mid-September, two for late September, one for mid-October, three for late October, one for mid-September, one for early October, one for late October, one for early November, one for mid-November and one for late November) with the bloom generally lasting 3 to 4 weeks; the mature seedpods (2 to 4 inches in length) are brown. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and gravelly canyons; canyon bottoms; foothills; bouldery hills; rocky hillsides; rocky, rocky-gravelly-sandy-clayey-loamy slopes; bajadas; gravelly and sandy alluvial fans; sand hummocks; cobbly and sandy plains; gravelly uplands; sandy flats; basin bottoms; sandy valley floors; coastal flats; railroad right-of-ways; clayey roadcuts; along rocky-gravelly, gravelly and sandy-loamy roadsides; along sandy and sandy-silty arroyos; gravelly bottoms of arroyos; within gullies; along streams; along rocky streambeds; along rivers; along and in rocky-cobbly-sandy and sandy riverbeds; along and in sandy and silty washes; along watercourses; clayey pondbeds; banks of creeks and rivers; borders of washes; (sandy) edges of rivers, ponds and lakes; shores of rivers; (sandy) sides of rivers; beaches; terraces; bottomlands; gravelly-sandy, sandy and sandy-silty-clayey floodplains; mesquite bosques; along canals; along canal banks; along ditches; riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky-cobbly, rocky-cobbly-sandy, rocky-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, rocky-sandy loam and sandy loam ground; sandy-silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 4,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was observed as an escaped and naturalized ornamental. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. This plant may be an attractive component of a restored native habitat; however, outside of its native range it may become weedy, especially so in riparian areas and along roadsides. In Arizona, the Jerusalem Thorn is native to the Castle Dome Mountains in Yuma County and the foothills of the Baboquivari, Coyote and Quinlan Mountains in Pima County. The foliage and pods are browsed by wildlife. *Parkinsonia aculeata* is native to southwest-central and southern North America; western and southern South America, and Islands in the South Pacific Ocean. *5, 6, 13 (Pages 245-246), **16**, 18, 26 (color photograph), 28 (color photograph 93), 43 (021310), 44 (071711 - color photograph), 46 (Page 407), 48, 52 (color photograph), 53, **56**, **57**, 58, 63 (112112 - color presentation), 77, 80 (This species is listed as a Poisonous Cropland and Garden Plant. “This ornamental shrub or small tree has been reported to accumulate toxic levels of nitrate.”), **85** (112112 - color presentation), 91 (Pages 309-311), 115 (color presentation), 124 (071711 - no record of genus or species), 127, 140 (Page 293), **WTK** (October 28, 2009)*

Parkinsonia florida (G. Bentham ex A. Gray) S. Watson: Blue Paloverde

SYNONYMY: *Cercidium floridum* G. Bentham; *Cercidium floridum* G. Bentham var. *floridum*. COMMON NAMES: Blue Palo Verde; Blue Palo-verde; Blue Paloverde; Caro (Mayo); Palo Verde (a name also applied to other species and the genus *Parkinsonia*, Spanish for Green Pole, Green Stick or Green Tree); Palo Verde Azul (Spanish); Paloverde (a name also applied to other species and the genus *Parkinsonia*); Stedak U’us (Pima); Studuk U’us (Bajo Pima). DESCRIPTION: Terrestrial perennial deciduous shrub or tree (40 inches to 40 feet in height); the bark may be blue-green, green, yellow or yellow-green, and gray on the older trunks; the leaves are blue-green; the flowers (¾ to 1 inch in width) are yellow or white (rarely); flowering generally takes place between early March and mid-June (additional records: three for early February, one for late July, two for mid-August, two for early September, one for late September, one for early October, two for mid-October, one for late October, two for early November, one for mid-November and one for early December); the mature fruits (1½ to 4 inches in length) are light brown. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; along rocky canyons; canyon walls; rocky and sandy canyon bottoms; buttes; gravelly-clayey ridges; rocky ridgetops; foothills; rocky, rocky-sandy, gravelly, gravelly-loamy and sandy hills; rocky, rocky-sandy, gravelly-clayey-loamy, sandy, sandy-loamy and clayey slopes; bajadas; sand hills; sand dunes; benchlands; cobbly plains; rocky-sandy, cindery, sandy and sandy-silty flats; valley floors; valley bottoms; coastal slopes; coastal plains; along rocky-gravelly-sandy, gravelly-sandy and sandy roadsides; along gravelly and sandy arroyos; along gravelly and sandy bottoms of arroyos; rocky draws; seeps; streambeds; creekbeds; along rivers; along riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; watercourses; around ponds; playas; along (rocky and sandy) banks of arroyos, rivers and washes; borders of washes; edges of draws and washes; margins of rivers and washes; gravelly-sand bars; benches; gravelly terraces; loamy bottomlands; sandy and sandy-loamy floodplains; clayey lowlands; mesquite bosques; fencerows; catchments; stock tanks; along canals; along canal banks; gravelly-sandy riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly-sandy, rocky-sandy, cobbly, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam and loam ground; gravelly clay and clay ground, and sandy silty ground, occurring from sea level to 5,000 feet in elevation in the

woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it has a very showy display of yellow flowers in very showy in late March and April. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used for shelter and for tools. The Blue Paloverde may be useful in controlling erosion. Bighorn Sheep (*Ovis canadensis*), Mule Deer (*Odocoileus hemionus*) and other wildlife browse the fruits, leaves and twigs and the seeds are eaten by birds and rodents and used by Bruchid Beetles. *Parkinsonia florida* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Cercidium floridum* Bentham, Pages 246-247, color photograph including habitat: Plate S.2., Page 404), 15, **16** (recorded as *Cercidium floridum* Benth.), 18, 26 (recorded as *Cercidium floridum*, color photograph), 28 (recorded as *Cercidium floridum*, color photograph 91), 43 (021310 - *Cercidium floridum* Benth. ex A. Gray, *Parkinsonia florida* S. Watson), 44 (071711 - color photograph), 46 (recorded as *Cercidium floridum* Benth., Page 407), 48, 52 (recorded as *Cercidium floridum* Benth. ex Gray, color photograph), 53 (recorded as *Cercidium floridum* Benth.), **56**, **57**, 58, 63 (112112 - color presentation), 77 (recorded as *Cercidium floridum* Benth.), **85** (112412 - color presentation including habitat), 86 (recorded as *Cercidium floridum*, color photograph), **89** (reported as being a tree located on the Mesa-like Mountain Slopes, recorded as *Cercidium torreyanum* (Wats.) Sargent), 91 (recorded as *Cercidium floridum* Benth., Pages 156-157), 115 (color presentation), 124 (071711 - no record of species or genus), 127, 140 (Page 293), **WTK** (May 27, 2005; October 1, 2011: flowering (sparse) and fruiting)*

***Parkinsonia microphylla* J. Torrey: Yellow Paloverde**

SYNONYMY: *Cercidium microphyllum* (J. Torrey) J.N. Rose & I.M. Johnston. COMMON NAMES: Dipua; Foothill Palo Verde; Foothill Palo-verde; Foothill Paloverde; Foothills Palo Verde; Foothills Palo-verde; Foothills Paloverde; Hillside Palo Verde; Hillside Palo-verde; Hillside Paloverde; Horsebean (a name also applied to other species); Kuk Cehedagi (Tohono O'odham); Little Horsebean; Little Leaf Paloverde; Little-leaf Horse-bean; Little-leaf Horsebean; Little-leaf Palo Verde; Little-leaf Palo-verde; Little-leaf Paloverde; Little-leaved Palo Verde (a name also applied to other species and the genus *Parkinsonia*); Littleleaf Horsebean; Littleleaf Palo Verde; Littleleaf Paloverde; Male Palo Verde; Mesa Palo Verde; Mesa Palo-verde; Mesa Paloverde; Palo Verde (Spanish for Green Pole, Green Stick or Green Tree); Palo Verde de Hoja Finita (Spanish); Palo-verde; Paloverde; Small-leaf Palo Verde; Small-leaf Paloverde; Small-leaved Palo Verde; Smallleaf Palo Verde; Yellow Palo Verde; Yellow Palo-verde; Yellow Paloverde. DESCRIPTION: Terrestrial perennial drought deciduous shrub or tree (40 inches to 26 feet in height; one plant was observed and described as being 6 feet in height and 7 feet in width, one plant was observed and described as being 9 feet in height and width, one plant was observed and described as being 16 feet in height and width); the bark is green, olive-green or yellow-green, and gray on older trunks; the ends of the leafy branchlets are spine-like; the small leaflets are green, greenish-gray or yellow-green; the flowers (½ inch in width) are lemon-yellow, whitish & yellow, yellow, yellow-green or yellow & white; the styles are pale yellow or pale yellow-green; the filaments are pale yellow or pale yellow-green; the anthers are orange; flowering generally takes place between mid-March and mid-June (additional records: one for mid-August and one for mid-October); the mature seedpods (2 to 3 inches in length) are light brown or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; gravelly mesas; cliffs; rocky walls; rocky canyons; canyon walls; canyon bottoms; bluffs; buttes; ledges; ridges; rocky ridgetops; bouldery and rocky foothills; bases of foothills; rocky hills; rocky hillsides; rocky, gravelly and sandy slopes; alluvial fans; rocky, gravelly and gravelly-silty bajadas; boulder fields; bouldery and rocky outcrops; plains; gravelly and sandy flats; valley floors; sandy valley bottoms; along rocky and gravelly roadsides; along and in gravelly-sandy and sandy arroyos; sandy bottoms of arroyos; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; (rocky-sandy) banks of arroyos and rivers; borders of washes; along edges of washes; margins of arroyos and washes; rocky sand bars; coves; gravelly terraces; floodplains; ditches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, clay loam and loam ground; clay ground, and gravelly silty ground, occurring from sea level to 4,000 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may live to be more than 400 years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. To reduce water loss during extended periods of drought a tree may undergo a natural drought-pruning process where entire branches die back The Foothill Paloverde is a common "nurse plant" of the Saguaro or Giant Cactus (*Carnegiea gigantea*) and provides a sheltered microhabitat in which other desert plants are able to become established. Bighorn Sheep (*Ovis canadensis*), Mule Deer (*Odocoileus hemionus*), jackrabbits and other small mammals browse the fruits, leaves and twigs; the Collard Peccary (*Peccari tajacu*) feed on the fruit, and the seeds are used by Bruchid Beetles. The Foothill Paloverde is considered a significant foraging site for birds; it is used as a nesting site by the Black-tailed Gnatcatcher (*Polioptila melanura*) and Verdins, and as a roosting site by Gambel's Quail (*Callipepla gambelii* subsp. *gambelii*). The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers. *Parkinsonia microphylla* is native to southwest-central and southern North America. *5, 6, 10, 13 (recorded as *Cercidium microphyllum* (Torrey) Rose & Johnston, Pages 247-248, color photograph including habitat: Plate T.1., Page 405), 15, **16** (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnst.), 18, 26 (recorded as *Cercidium microphyllum*, color photograph), 28 (recorded as *Cercidium microphyllum*, color photograph 92), 43 (021410 - *Cercidium microphyllum* Rose & I.M. Johnst.), 44 (071811 - color photograph), 46 (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnston, Page 407), 48, 52 (recorded as *Cercidium microphyllum* (Torr.) Rose & I.M. Johnst., color photograph), 53 (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnst.), 63 (112412 - color presentation including habitat), 77 (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnst.), **85** (071811 - color presentation including habitat), 86 (note under *Cercidium floridum*), **89** (reported as being a tree

located on Tumamoc Hill), 91 (recorded as *Cercidium microphyllum* (Torr.) Rose & I.M. Johnston, Pages 157-159), 115 (color presentation), 124 (071811 - no record of genus or species), 127, 134, 140 (Page 293), **HR**, **WTK** (May 27, 2005)*

Poinciana gilliesii (see *Caesalpinia gilliesii*)

Poinciana pulcherrima (see *Caesalpinia pulcherrima*)

Poinciana pulcherrima var. *flava* (see footnote 89 under *Caesalpinia pulcherrima*)

***Prosopis glandulosa* J. Torrey var. *glandulosa*: Honey Mesquite**

SYNONYMY: *Prosopis juliflora* (O. Swartz) A.P. de Candolle var. *glandulosa* (J. Torrey) T.D. Cockerell. COMMON NAMES: Common Mesquite (a name also applied to the species); Honey Mesquite (a name also applied to the species); Mesquite (a name also applied to the species and the genus *Prosopis*, Spanish); Mezquite (a name also applied to the species and genus *Prosopis*); Mizquitl (a name also applied to the species, Aztec). DESCRIPTION: Terrestrial perennial deciduous shrub or tree (4 to 30 feet in height); the flowers are cream-yellow; flowering generally takes place between late March and late June (additional records: two for mid-July and one for early August). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyon bottoms; bluffs; rocky ridges; hills; rocky hillsides; sandy slopes; alluvial fans; clayey breaks; plains; sandy flats; valley floors; along gravelly-loamy and clayey roadsides; seeps; springs; along streams; along rivers; sandy riverbeds; along and in washes; benches; sandy bottomlands; floodplains, and stock tanks growing in dry desert pavement; rocky, gravelly-sandy and sandy ground; gravelly loam, clayey loam and loam ground, and sandy clay and clay ground, occurring from 100 to 6,600 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: Possibly an EXOTIC Plant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, beverage and/or fiber crop; it was also noted as having been used as a fuel and for tools. *Prosopis glandulosa* var. *glandulosa* is native to southwest-central and southern North America (an area ranging from southeastern Colorado to Kansas, Texas and eastern Mexico). *5, 6, 10, 13, 18 (species), 26 (color photograph), 28 (color photograph 88), 43 (021410), 44 (112412 - no record of variety; species and genus records), 46 (genus and *Prosopis juliflora* (Swartz) DC., Pages 401-402), 52 (color photograph of species, species), 53 (*Prosopis juliflora* (Sw.) DC.), **56** (noted as having been planted) **57**, 63 (112412 - not shown as being native to Arizona, but recorded under GRIN as being native, color presentation), **85** (112412 - color presentation including habitat), 101 (color photograph of species, species), 124 (112412 - no record of variety; species record), 127*

Prosopis juliflora var. *glandulosa* (see *Prosopis glandulosa* var. *glandulosa*)

Prosopis juliflora var. *velutina* (see *Prosopis velutina*)

Prosopis odorata (see footnote under *Prosopis pubescens*)

***Prosopis pubescens* G. Bentham: Screwbean Mesquite**

COMMON NAMES: Fremont Screw Bean; Frémont Screw Bean; Fremont Screw-bean; Frémont Screw-bean; Fremont Screwbean; Frémont Screwbean; Mezquite Tornillo (Spanish); Screw Bean Mesquit; Screw Bean Mesquite; Screw Mesquit; Screw Mesquite; Screw Pod Mesquit; Screw Pod Mesquite; Screw-bean (a name also applied to other taxa); Screw-bean Mesquit; Screw-bean Mesquite; Screw-pod Mesquit; Screw-pod Mesquite; Screwbean; Screwbean Mesquit; Screwbean Mesquite; Screwpod Mesquite; Tornilla; Tornilla Mesquite; Tornillo ('for screw' a name also applied to other taxa, Spanish); Twisted Bean. DESCRIPTION: Terrestrial perennial winter deciduous shrub or tree (3 to 33 feet in height, one shrub was described as being 10 to 12 feet in height and width); the bark is light brown or reddish; the twigs are gray; the leaves are gray, green or yellowish-green; the flowers (cylindrical spikes 1 to 3 inches in length) are creamy, greenish-white, greenish-yellow or yellow and are usually found in dense clusters; flowering generally takes place between late April and late October (additional record: one for early December); the mature seedpods are tightly coiled spirals (1 to 1½ inches in length) are light brown or pale yellow. HABITAT: Within the range of this species it has been reported from mountains; hillsides; bajadas; loamy flats; basins; valley floors; along gravelly-loamy roadsides; arroyos; gullies; ravines; seeps; around and in springs; along streams; streambeds; creeks; along rivers; riverbeds; in gravelly and sandy washes; along major watercourses; oases; ponds; sinks; waterholes; marshy areas; swampy areas; (gravelly) banks of creeks, rivers and marshes; along shores of rivers and lakes; terraces; bottomlands; gravelly-sandy-silty floodplains; lowlands; along mesquite bosques; along canals; along and in ditches; sandy-loamy ditch banks, and gravelly, gravelly-sandy-silty, gravelly-sandy-silty-clayey and sandy-loamy riparian areas growing in muddy and wet, moist and dry rocky-sandy, shaley, gravelly and sandy ground; gravelly loam, sandy loam, silty-clayey loam and loam ground; gravelly-sandy-silty clay and clay ground; rocky-clayey silty, gravelly-sandy silty and sandy silty ground, and powdery soils, occurring from below sea level (-75 feet) to 5,500 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, but may require a substantial amount of water to maintain growth. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop; it was also noted as having been used as a guide for determining a planting season, as fuel, as tools and as a drug or medication. The Screwbean Mesquite provides food and shelter for many species of wildlife. The seedpods are eaten by Coyotes (*Canis latrans*), rodents,

Gambel's Quail (*Callipepla gambelii*), Mearn's Quail (*Cyrtonyx montezumae*), roadrunners, rodents, and the leaves and/or seedpods may be eaten by deer, Hooded Skunks (*Mephitis macroura*), Ravens, White-winged Doves (*Zenaida asiatica*). The Screwbean Mesquite may require the presence of a fairly shallow water table, possibly to within 12 to 13 feet, and may be killed by flooding in bottomlands. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Screwbean Mesquite has been EXTIRPATED from this township. *Prosopis pubescens* is native to southwest-central and southern North America. *5, 6, 13, 18, 26, 28 (color photograph 89), 43 (021510), 44 (112412), 46 (Page 402), 48, 52 (color photograph), 53, 63 (112412 - color presentation), **85** (112512 - color presentation), **89** (reported as being a tree located on the Santa Cruz Flood-plain, recorded as *Prosopis odorata* Torr. & Frem.), 91, 124 (112412 - no record of species or genus), 127*

Prosopis velutina E.O. Wooton: Velvet Mesquite

SYNONYMY: *Prosopis juliflora* (O. Swartz) A.P. de Candolle var. *velutina* (E.O. Wooton) C.S. Sargent. COMMON NAMES: Algarroba <algoroba> (Spanish: Texas, Colima)[140]; Ana'l$_y$ (Yuman: Maricopa)[140]; Anáhl (Yuman: Kumiai)[140]; ^{a}Nāl^{a} <anāl^{e}, na:l> (Yuman: Walapai)[140]; Arizona Mesquite; Arizona Velvet Mesquite; Ava (Yuman: Mohave)[140]; Chachaca (Spanish); Chachaka <chúcata> (Spanish: Michoacán)[140]; ʾÉ:-la (Uto-Aztecan: Luiseño)[140]; Eva^{c} (Yuman: Yuma)[140]; Fluweelprosopis (Afrikaans); Haas <ʾaas> (Hokan: Seri)[140]; Hu'upa (Uto-Aztecan: Yaqui)[140]; Iyáa (Yuman: Havasupai)[140]; Iyah <iiyáá> ("The Pod", Athapascan: Western Apache)[140]; Kui (Uto-Aztecan: Akimel O'odham, Hiá Ceḍ O'odham, Tohono O'odham)[140]; Kui <k'ui> (Uto-Aztecan: Onavas Pima)[140]; Kwayúły <anyal> (Yuman: Cocopa)[140]; Meskít (Uto-Aztecan: Mountain Pima)[140]; Mesquit (a name also applied to other species and the genus *Prosopis*, Spanish); Mesquite (a name also applied to other species and the genus *Prosopis*, Spanish); Mesquite (English)[140]; Mezquite (a name also applied to other species and the genus *Prosopis*); Mezquite (Spanish: Sonora)[140]; Mezquite Amargo (Spanish); Mizquitl; Nastane <natase> ("That Which Lies About", Athapascan: Chiricahua and Mescalero Apache)[140]; Ohpimpü (Uto-Aztecan: Panamint)[140]; Opi(m)b~~ɨ~~ (Uto-Aztecan: Kawaiisu)[140]; Péchita (Spanish: Arizona, Chihuahua, Sonora)[140]; Quiot (Uto-Aztecan: Ópata, Sonora)[140]; Sako (Uto-Aztecan: Mountain Pima)[140]; Tají (Oto-Manguean: Otomí)[140]; Tziritzecua (Tarascan: Purépecha)[140]; Uhpalá (Uto-Aztecan: Guarijío)[140]; Upárai (Uto-Aztecan: Northern Tepehuan)[140]; Velvet Mesquite. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (2 to 56 feet in height; one plant was observed and described as being 6½ feet in height with a canopy 6½ feet in width, one plant was observed and described as being 13 feet in height with a canopy 16½ feet in width, one tree was observed and described as being 20 feet in height with a crown 40 feet in width); the bark on the trunk and older branches is dark brown, dark brownish-green or dark gray; the leaves are gray-green; the flowers (cylindrical spikes 2 to 5 inches in length) may be cream, cream-white, cream-yellow, green-yellow, greenish-white, pale yellow, yellow, yellow-green, pale yellowish or yellowish-green; flowering generally takes place between mid-March and early September (additional records: one for early October and one for early November); the mature seedpods (3 to 8 inches in length) are red, tan, yellow or mottled. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; plateaus; rocky canyons; along rocky and sandy canyon bottoms; rocky bases of cliffs; buttes; bedrock, rocky and sandy ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; rocky, rocky-loamy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy and clayey slopes; alluvial fans; gravelly bajadas; rocky outcrops; sand dunes; terraces; rocky and cobbly plains; gravelly, gravelly-sandy, sandy and sandy-loamy flats; basins; sandy valley floors; valley bottoms; coastal plains; coastal beaches; along rocky-gravelly-loamy, gravelly-clayey-sandy-loamy and silty-clayey roadsides; along and in rocky, gravelly and sandy arroyos; rocky and sandy bottoms of arroyos; rocky-gravelly-loamy draws; seeps; springs; around seeping streams; along streams; along rocky streambeds; along creeks; creekbeds; along rivers; along rocky-sandy riverbeds; along and in rocky, cobbly, gravelly-sandy and sandy washes; along drainages; within drainage ways; around ponds; playas; ciénegas; (sandy) banks of streams, creeks, rivers and washes; borders of washes; (gravelly and sandy) edges of rivers, washes and ponds; sandy-loamy benches; gravelly and gravelly-sandy terraces; bottomlands; rocky-gravelly floodplains; mesquite bosques; along fencelines; around stock tanks (represos); around reservoirs; along canals; canal banks; ditches; along ditch banks; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; silty clay and clay ground, and sandy silty, clayey silty and silty ground, occurring from sea level to 6,300 feet in elevation in the forest, woodland, scrub, grassland,

desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it may live to be more than several hundred years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, fiber and/or dye or paint (boiled resin used as a pottery paint) crop; it was also noted as having been used as fuel, as a tool, as toys, as a drug or medication and as a guide for determining a planting season. The Velvet Mesquite is a common "nurse plant" of the Saguaro or Giant Cactus (*Carnegiea gigantea*). The flowers are pollinated by native bees. The Velvet Mesquite provides food and shelter for many species of wildlife. The plant is a food source for quail, Desert Mule Deer (*Odocoileus hemionus crooki*) and Desert Bighorn Sheep (*Ovis canadensis mexicana*). The Giant Mesquite Bug (*Thassus acutangulus*) feeds on the sap. Coyotes (*Canis latrans*), Desert Cottontails (*Sylvilagus audubonii*), Round-tailed Ground Squirrels (*Spermophilus tereticaudus*) and many other wild animals feed on the seed pods. Velvet Mesquite is the host for a Drywood Termite (*Incisitermes banksi*). Bruchid Beetles feed on the fruits and seeds. Much of the mesquite forest (bosques) originally found along the desert water courses have been lost to fuel wood cutting and clearing for agricultural fields and commercial and residential development. Velvet Mesquite Bosques were small, open, park-like woodlands with the Velvet Mesquite often occurring in nearly pure stands and interspersed with other common species such as the Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Mexican Elder (*Sambucus nigra* subsp. *canadensis*), Desert Hackberry (*Celtis ehrenbergiana*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Wolfberry (*Lycium* spp.), Four-wing Salt-bush (*Atriplex canescens*) and Vine Mesquite Grass (*Panicum obtusum*). *Prosopis velutina* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Prosopis juliflora* (Swartz) DC. var. *velutina* (Wooten) Sarg., Pages 238-240, color photograph: Plate R.2., Page 403), 15, **16**, 18, 26 (color photograph), 28 (color photograph 90), 43 (071609), 44 (040211), 46 (recorded as *Prosopis juliflora* (Swartz) DC. var. *velutina* (Wooten) Sarg., Page 402), 48, 52 (color photograph), 53 (species: recorded as *Prosopis juliflora* (Sw.) DC.), **56**, **57**, 58, 63 (112512), 68, 77, 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Heavy, long-continued consumption of pods and leaves of these common desert shrubs may cause rumen impaction and poisoning."), **85** (112612 - color presentation including habitat), **89** (reported as being a tree located on the Santa Cruz Flood-plain), 91 (Pages 330-333), 115 (color presentation), 124 (040211 - no record of genus or species), 127, 134, 140 (Pages 146-147 & 293), ADS (Arizona Daily Star, Sunday, July 26, 2009, Tucson & Region, B1: Mesquite Pods are of Consuming Interest), **WTK** (May 27, 2005)*

Senegalia greggii (see *Acacia greggii*)

***Senna bauhinioides* (A. Gray) H.S. Irwin & R.C. Barneby: Twinleaf Senna**

SYNONYMY: *Cassia bauhinioides* A. Gray, *Cassia bauhinioides* A. Gray var. *arizonica* B.L. Robinson ex J.F. MacBride. COMMON NAMES: Bauhinia Senna; Daisillo (Spanish); Senna (a name also applied to the genus *Senna*); Shrubby Senna; Twinleaf Senna; Two-leaf Desert Senna; Two-leaved Senna. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (spreading stems 4 inches to 2 feet in height); the foliage is gray-green or grayish; the flowers may be orange-yellow, white, yellow, dark yellow, pale yellow-orange, yellow-light orange, yellow-orange or yellowish-orange; flowering generally takes place between mid-April and early November (additional record: one for late March). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; grassy mesas; gravelly cliffs; canyons; rocky and rocky clayey ridges; foothills; rocky and sandy hills; hilltops; rocky, stony and gravelly hillsides; escarpments; rocky and sandy-loamy slopes; gravelly bajadas; rocky outcrops; sand dunes; tablelands; plains; rocky, sandy and sandy-loamy flats; valley floors; along rocky-gravelly-sandy-loamy, gravelly-clayey, gravelly-clayey-loamy and sandy-loamy roadsides; within arroyos; draws; gulches; gullies; creekbeds; along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; drainages; depressions; fringes of playas; sandy beaches; benches; terraces; floodplains; riparian areas, and disturbed areas growing in damp and dry rocky desert pavement; rocky, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy loam, gravelly-sandy loam, gravelly-sandy-clayey loam and sandy loam ground, and rocky clay and gravelly clay ground, occurring from 2,000 to 6,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Senna bauhinioides* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (021610 - *Cassia bauhinioides* A. Gray var. *arizonica* B.L. Robins.), 44 (112712 - no record of species; genus record), 46 (recorded as *Cassia bauhinioides* Gray, Page 406 and *Cassia bauhinioides* Gray var. *arizonica* Robins., Page 406), 58 (recorded as *Cassia bauhinioides* Gray var. *arizonica* Robins.), 63 (112812 - color presentation), 68, 77 (color photograph #35), **85** (112812 - color presentation), 86 (recorded as *Cassia bauhinioides*, color photograph), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Cassia bauhinioides* Gray), 124 (112712 - no record of species; genus record)*

***Senna covesii* (A. Gray) H.S. Irwin & R.C. Barneby: Coues' Cassia**

SYNONYMY: *Cassia covesii* A. Gray. COMMON NAMES: Coues Cassia; Coues Senna; Coues' Cassia; Coues' Senna; Coues's Cassia; Coues's Senna; Coves (error) Cassia; Coves' (error) Cassia; Cove (error) Senna; Coves (error) Senna; Coves' (error) Senna; Coves's (error) Senna; Dais; Daisillo (Spanish); Desert Senna (a name also applied to other species); Ejotillo (Spanish); Hojasen; Hojasén (Spanish); Kau Ohasen (Yaqui); Ojosón (Spanish); Oyasón (Spanish); Rosamaria (Spanish); Rosemaria; Rattlebox; Rattlebox Senna; Rattleweed; Senna (a name applied to other species and the genus *Senna*). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (10 to 32 inches in height); the leaves are gray or gray-green; the flowers (½ to 1 inch in width) golden, orange-yellow, rusty-yellow, pale yellow, yellow, yellow-orange or yellow with reddish veins; flowering generally takes place between early March and early December (additional records: one for early February and two for mid-February); the mature seedpods (1 to 2 inches in length) are brown. HABITAT: Within the range of this species it

has been reported from mountains; rocky mountainsides; gravelly mesas; cliffs; canyons; canyonsides; rocky and gravelly canyon bottoms; along rocky and rocky-sandy ridges; rocky ridgetops; foothills; rocky hills; rocky and sandy hillsides; along rocky, rocky-gravelly, rocky-clayey and gravelly slopes; alluvial fans; gravelly bajadas; amongst grasses; terraces; sandy-loamy plains; rocky, gravelly, sandy and silty flats; basins; valley floors; coastal plains; coastal beaches; along rocky, gravelly, gravelly-sandy and sandy roadsides; rocky, gravelly and sandy arroyos; gravelly and sandy bottoms of arroyos; gulches; along streams; within streambeds; creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; gravelly drainage ways; waterholes; around ponds; (gravelly and gravelly-sandy) banks of rivers, washes and lakes; borders of washes; margins of washes; (gravelly) shorelines of lakes; gravel bars; sandy beaches; sandy loamy benches; gravelly terraces; sandy, sandy-loamy, loamy and silty floodplains; mesquite bosques; gravelly-sandy shorelines of reservoirs; gravelly and sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, sandy loam, sandy-clayey loam and loam ground; rocky clay ground, and silty ground, occurring from sea level to 6,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Cove Cassia is a larval food plant of the Cloudless Sulfur (*Phoebis sennae*) and Sleepy Orange (*Eurema nicippe*) and is used for food by Gambel's Quail (*Callipepla gambelii gambelii*). *Senna covesii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Cassia covesii*, color photograph 501), 43 (021710), 44 (071911), 46 (recorded as *Cassia covesii* Gray, Page 406), 63 (120212 - color presentation), 68, 77, 82, **85** (110312 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill, recorded as *Cassia covesii* Gray), 115 (color presentation), 124 (071911 - no record of species; genus record), **HR** *

***Sphinctospermum constrictum* (S. Watson) J.N. Rose: Hourglass Peaseed**

COMMON NAME: Hourglass Peaseed; Tight Sphincter Seed. DESCRIPTION: Terrestrial annual forb/herb (stems 6 to 9 inches in height); the stems are delicate; the inconspicuous flowers may be light blue, cream, lavender, pale purple or purple; flowering generally takes place between mid-August and early October (flowering beginning as early as July has been reported); the seeds are shaped like an hourglass. HABITAT: Within the range of this species it has been reported from mountains; rocky peaks; canyons; rocky hills; rocky hilltops; rocky hillsides; rocky slopes; rocky outcrops; grassy flats; cobbly roadbeds; roadsides; sandy arroyos; along sandy washes; floodplains, and sandy riparian areas growing in dry rocky, cobbly and sandy ground, occurring from 100 to 5,600 feet in elevation in the forest, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Sphinctospermum constrictum* is native to southwestern and southern North America. *5, 6, **16**, 43 (021710), 44 (120512 - no record of species or genus), 46 (Page 444), 63 (021710 - color presentation of seed), 77, **85** (021710 - color presentation), 124 (120512 - no record of species or genus), 140 (Page 293)*

Tephrosia tenella (see *Tephrosia vicioides*)

***Tephrosia vicioides* D.F. Schlechtendal: Red Hoarypea**

SYNONYMY: *Tephrosia tenella* A. Gray. COMMON NAME: Red Hoary-pea; Red Hoarypea. DESCRIPTION: Terrestrial perennial forb/herb (spreading decumbent and/or ascending stems 12 to 20 inches in height/length); the flowers may be copper, lavender, lavender-pink, pink, pink-lavender, pink-magenta, pink-purple, dark pink, pale pinkish-lavender, dark pinkish, purple, light purplish, purplish, purplish-pink, rose-purple, violet or violet-pink; flowering generally takes place between mid-August and mid-November (additional records: one for early January, two for late February, one for early March, one for mid-March, one for early May, three for late May, one for early June, two for late June, two for early July, three for late July and three for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; rocky canyons; along rocky-sandy and sandy canyon bottoms; talus slopes; crevices in bedrock and rocks; pockets of soil on rocky outcrops, crests of buttes; rocky-gravelly ledges; ridges; gravelly ridgetops; openings in forests; foothills; hills; rocky hillsides; rocky, gravelly, gravelly-sandy, sandy and clayey slopes; gravelly bajadas; outwash plains; bouldery and rocky outcrops; amongst boulders and rocks; rocky banks; sandy-loamy plains; sandy and clayey flats; along sandy-loamy roadsides; sandy arroyos; gravelly and sandy bottoms of arroyos; creeks; along and in rocky-pebbly, gravelly and sandy washes; drainages; waterholes; edges of arroyos; upper beaches; floodplains; in rocks along reservoirs; around and in stock tanks, and riparian areas growing in dry bouldery, rocky, rocky-gravelly, rocky-pebbly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam ground, and clay ground, occurring from sea level to 6,100 feet (one record for 8,000 feet) in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant is suspected of being poisonous. *Tephrosia vicioides* is native to southwest-central and southern North America and Central America. *5, 6, 15 (recorded as *Tephrosia tenella* Gray), 43 (011011), 44 (120512 - no record of species or genus), 46 (recorded as *Tephrosia tenella* Gray, Page 441), 58 (recorded as *Tephrosia tenella* Gray), 63 (011011 - color presentation of seed), 77 (recorded as *Tephrosia tenella* A. Gray), **85** (120512 - color presentation of dried material), 124 (011011 - no record of species; genus record), 140 (recorded as *Tephrosia tenella* A. Gray, Page 293)*

Vachellia constricta (see *Acacia constricta*)

Vicia exigua (see *Vicia ludoviciana*)

Vicia hassei (see footnote 89 under *Vicia ludoviciana* subsp. *ludoviciana*)

***Vicia ludoviciana* T. Nuttall (subsp. *ludoviciana* is the subspecies reported as occurring in Arizona): Louisiana Vetch**

SYNONYMY: (for subsp. *ludoviciana*: *Vicia exigua* T. Nuttall). COMMON NAMES: Deer Pea Vetch; Deer Pea-vetch; Deer Peavetch; Deer-pea Vetch; Deerpea Vetch; Leavenworth's Vetch (subsp. *leavenworthii*); Little White Vetch; Louisiana Vetch; Slender Vetch (a name also applied to other taxa); Slim Vetch; Texas Vetch (subsp. *ludoviciana*); Vetch (a name also applied to the genus *Vicia*); White Vetch (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb or vine (twining and vining stems 4 inches to 3 feet in height/length); the flowers are pale blue, blue, pale blue-lavender, blue & white, cream, cream & purple, pale lavender, lavender, lavender-white, pink, pinkish; pinkish-purple, pinkish, pinkish-white, light purple, purpled tinged pink, purple-red, violet, violet & white, white, white & blue-lavender, white-lavender or whitish-pink; flowering generally takes place between late February and early June (additional records: three for early February, one for early July, two for mid-July, one for mid-August and one for mid- September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; plateaus; rock cliffs; bases of cliffs; bouldery canyons; rocky canyon bottoms; scree slopes; talus slopes; crevices in rocks; buttes; ledges; ridges; rocky ridgetops; clearings in juniper savannas; foothills; rocky hills; bouldery, rocky, rocky-clayey and gravelly-sandy hillsides; rocky, rocky-gravelly, rocky-clayey, stony, gravelly, gravelly loamy, sandy and clayey slopes; bedrock bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; lava fields; sand dunes; clay lenses; loamy and clayey flats; basins; valley floors; railroad right-of-ways; along rocky-sandy, gravelly and sandy roadsides; gullies; seeps; springs; along sandy streams; along and in streambeds; along creeks; along rivers; along and in rocky, rocky-gravelly, rocky-loamy, gravelly-loamy and sandy washes; in bouldery-rocky and sandy drainages; sandy banks of arroyos, streams and washes; borders of washes; edges of washes; sandy-silty and silty depressions; banks of creeks; (cobbly) edges of washes; benches; floodplains; mesquite bosques; loamy floodplains; sandy riparian areas, and disturbed areas growing in moist, damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-sandy, stony, cobbly, gravelly and sandy ground; rocky loam, gravelly loam, sandy loam and loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from 300 to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Vicia ludoviciana* is native to south-central and southern North America. *5, 6, **16**, 43 (021810), 44 (120512), 46 (recorded as *Vicia exigua* Nutt., Page 477), 48 (genus), 58, 63 (120612 - color presentation of seeds), 77, 80 (Species of the genus *Vicia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Cultivated species of Vetch may cause liver damage, cyanide poisoning, and photosensitization, but native species have not been incriminated." and also Poisonous Cropland and Garden Plants. "Species of Vetch occasionally develop lethal concentrations of cyanogenetic glycosides or produce photosensitization but are rarely responsible for deaths."), **85** (120612 - color presentation), 124 (120512), 140 (records for both *Vicia exigua* Nuttall and *Vicia ludoviciana* Nuttall, Page 293)*

***Vicia ludoviciana* T. Nuttall subsp. *ludoviciana*: Louisiana Vetch**

SYNONYMY: *Vicia exigua* T. Nuttall. COMMON NAMES: Slender Vetch (a name also applied to other taxa); Texas Vetch; Typical Deer Pea Vetch; Typical Deer Pea-vetch; Typical Deer Peavetch; Typical Deer-pea Vetch; Typical Deerpea Vetch; Typical Little White Vetch; Typical Louisiana Vetch; Typical Slim Vetch; Vetch (a name applied to the species, other species and to the genus *Vicia*); White Vetch (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb or vine (sprawling or twining stems 4 inches to 3 feet in height/length); the flowers may be pale blue, pale blue & white, blue, bluish-purple, bluish-white, blue & white, cream, cream & purple, light lavender, lavender, lavender-white, pink, pinkish; pinkish-purple, pinkish, pinkish-white, pale purple, purplish-blue, sky blue, violet, violet & white, white, white & blue-lavender or white-lavender; flowering generally takes place between early March and early June (additional records: one for early February, one for early July, two for mid-July, one for mid-August and one for mid- September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; rock cliffs; bases of cliffs; canyons; bouldery, rocky and gravelly-sandy canyon bottoms; talus slopes; crevices in lava flows; grassy bluffs; buttes; knolls; ledges; rocky ridgetops; foothills; rocky hills; bouldery, rocky, rocky-gravelly and rocky-clayey hillsides; rocky escarpments; rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-loamy, rocky-clayey, stony, gravelly, gravelly-loamy, sandy, loamy and clayey slopes; rocky outcrops; amongst boulders and rocks; sandy lava flows; lava fields; gravelly-sandy prairies; loamy and clayey flats; basins; valley floors; railroad right-of-ways; along rocky-gravelly-loamy, rocky-loamy, rocky-sandy, gravelly, sandy-loamy and clayey-loamy roadsides; within rocky and sandy arroyos; gullies; seeps; along sandy streams; along and in streambeds; along creeks; along rivers; along sandy-loamy riverbeds; along and in rocky, rocky-gravelly, rocky-loamy, gravelly-loamy and sandy washes; within sandy drainage ways; in rocks around ponds; swampy areas; sandy-silty and silty depressions; banks of streams and washes; borders of washes; edges of washes; bottomlands; loamy floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in moist, damp and dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from 300 to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Vicia ludoviciana* subsp. *ludoviciana* is native to south-central and southern North America. *5, 6, 15, 43 (021810), 44 (071911 - Common Names recorded under *Vicia ludoviciana* var. *ludoviciana*), 46 (recorded as *Vicia exigua* Nutt., Page 477), 48 (genus), 58 (recorded as *Vicia ludoviciana* Nutt. [*V. exigua* Nutt. in "Arizona Flora"]), 63 (120612 - color presentation of seed), 77 (recorded as *Vicia ludoviciana* Nutt. [*V. exigua* Nutt.]), 80 (Species of the genus *Vicia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Cultivated species of Vetch may cause liver damage, cyanide poisoning, and photosensitization, but native species have not been incriminated." and also

Poisonous Cropland and Garden Plants. “Species of Vetch occasionally develop lethal concentrations of cyanogenetic glycosides or produce photosensitization but are rarely responsible for deaths.”), **85** (120612 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Vicia hassei* Wats.), 124 (120512), 140 (records for both *Vicia exigua* Nuttall and *Vicia ludoviciana* Nuttall, Page 293) *

Fouquieriaceae: The Ocotillo Family

Fouquieria splendens G. Engelmann: Ocotillo

SYNONYMY: *Fouquieria splendens* G. Engelmann subsp. *splendens* G. Engelmann. COMMON NAMES: Albarda <barda> (“Pack Saddle”, Spanish: Coahuila, Sonora, Zacatecas)[140]; Apache Whipping Stick (English)[140]; Barba (“Beard”, Spanish: Coahuila)[140]; Barda (Spanish); Candle Bush (English)[140]; Candlewood (English: Texas)[140]; Chimuchi Chuwara <simuchi chuwara> (Uto-Aztecan: Tarahumara)[140]; Chumari (Spanish: Sonora)[140], Chunari (Uto-Aztecan: Cahita); Cirio (“Wax Candle”, Spanish: Baja California)[140]; Coach Whip (a name also applied to the genus *Fouquieria*); Coach-whip (a name also applied to the genus *Fouquieria*); Coach-whip (English: Arizona)[140]; Coach-whip Cactus; Coach-whip Ocotillo; Coachwhip (a name also applied to the genus *Fouquieria*); Coachwhip Cactus; Coachwhip Ocotillo; Colorín Cimmarón (“Wild Red One”, Spanish: Mexico)[140]; Cunuri (Uto-Aztecan: Guarijío)[140]; Flamingsword; Í’i’qimie <igamye> (Yuman: Walapai)[140]; I’ikumadhí (Yuman: Maricopa)[140]; ʔI:nʸáy (Yuman: Cocopa)[140]; Jacob’s Staff [Wand] (English)[140]; Jacob’s Wand; Melhog <mïrok, mïro’k> (Uto-Aztecan: Hiá Ceḍ O’odham, Tohono O’odham)[140]; Merihog <nuri’og> (Uto-Aztecan: Onavas Pima; should possibly be applied to *Fouquieria macdougalii*)[140]; Monkey-tail; Mureo (Uto-Aztecan: Yaqui)[140]; Ocotillo (a name also applied to the genus *Fouquieria*, Spanish: Mexico; Ocotillo [de Corral] (“[Corral] Little Torch”, Spanish: New Mexico, Texas, Baja California, Chihuahua, Coahuila, Sonora, Zacatecas)[140]; Ocotillo del Corral (Spanish); Palo de Adán (“Adam’s Tree”, Spanish: Baja California)[140]; Saar (Uto-Aztecan: Mountain Pima)[140]; Slimwood (English: Arizona)[140]; Tarákovara (Uto-Aztecan: Northern Tepehuan)[140]; T’iis Ts’ǫz <ges choze> (Athapascan: Western Apache)[140]; Utush <otosh> (Uto-Aztecan: Cahuilla)[140]; Vine Cactus; Vine-cactus (English)[140]; Xomxéziz <xeshish> (Hokan: Seri)[140]; Wolf’s Candles; Xong (Hokan: Seri)[140]. DESCRIPTION: Terrestrial perennial cold- and drought-deciduous semi- and stem-succulent shrub (sinuously-ascending or erect spreading stems 5 to 33 feet in height with a crown width of 5 to 15 feet); the stems (wand-like and branching from the base in clusters of up to 100 stems) are gray, gray & dark gray, gray-green or green; the leaves are green; the flowers (in 2 to 10 inch long clusters at the tips of the stems) may be coral-red, cream, cream-white, orange, orange-red, pinkish-purple, red, reddish-orange, red & yellow, salmon, scarlet, scarlet-coral, white or yellow; flowering generally takes place over a period of 50 to 60 days between early February and early August (additional records: two for late August, two for mid-September, one for late September, one for mid-October, two for late October, two for early November and two for early December); the mature fruits are capsules containing winged seeds. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, gravelly, gravelly-sandy and sandy mesas; crags; canyon rims; cliffs; bouldery and rocky canyons; rocky canyon bottoms; talus slopes; crevices in rocks; bedrock and gravelly ridges; rocky and gravelly ridgetops; ridgelines; bases of lava domes; rocky foothills; rocky and rocky-sandy hills; rocky hilltops; rocky and gravelly hillsides; bedrock, bouldery-cobbly, rocky, rocky-gravelly, shaley-sandy, stony, gravelly, gravelly-sandy and gravelly-loamy slopes; alluvial fans; rocky and sandy bajadas; rocky outcrops; amongst boulders; lava flows; sand hills; sand dunes; dune swales; gravelly outwash fans; terraces; gravelly and sandy plains; rocky, gravelly, gravelly-sandy and sandy flats; basins; rocky and sandy valley floors; valley bottoms; coastal plains; coastal beaches; along gravelly roadsides; within rocky arroyos; gravelly arroyo bottoms; gullies; streambeds; along rivers; riverbeds; along cobbly and sandy washes; within gravelly drainages; (bedrock, bouldery-cobbly and sandy) banks of rivers and washes; borders of washes; (rocky-sandy) shores of lakes; bottomlands; benches; along floodplains and riparian areas growing in dry desert pavement; bouldery, bouldery-cobbly, rocky, rocky-gravelly, rocky-sandy, shaley-sandy, stony, cobbly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam ground, and clay ground, occurring from sea level to 8,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop; it was also noted as having been used as a fuel, tool, drug or medication, ceremonial item and as an ornamental landscape plant. Older plants may be 150 to 200 years of age. This “vase-shaped” plant has been described by Benson and Darrow as being “one of the most distinctive shrubs in the Southwestern Deserts, and it is one of the plants giving outstanding character to the flora of the region”. Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*), Mule Deer (*Odocoileus hemionus*) and White-tailed Deer (*Odocoileus virginianus* subsp. *couesi*) browse this plant. Solitary Bees, Butterflies, Carpenter Bees (*Xylocopa californica*), House Finches (*Carpodacus mexicanus*), Lesser Goldfinches (*Carduelis psaltria*), Syrphid Flies, Broad-billed Hummingbirds (*Cynanthus latirostris*), Costa’s Hummingbirds (*Calypte costae*), Rufous Hummingbirds (*Selasphorus rufus*), Hooded Orioles (*Icterus cucullatus*), Scott’s Orioles (*Icterus parisorum*), Pyrrhuloxias (*Cardinalis sinuatus*), Verdins (*Auriparus flaviceps*), and Warblers have been observed visiting the flowers. The Ocotillo is a preferred food plant of the Costa’s Hummingbird. *Fouquieria splendens* is native to southwest-central and southern North America. *5, 6, 10, 13 (Pages 178-179, color photograph: Plate N., Page 401), 15, **16**, 18, 26 (color photograph), 28 (color photograph 553 A&B), 43 (080309), 44 (071911 - color photograph), 45 (color photograph), 46 (Page 640), 48, 58, 63 (120612 - color presentation including habitat), 77 (color photograph #27), **85** (121212 - color presentation), 86 (color photograph), **89** (reported as being a shrub located on Tumamoc Hill), 91 (Pages 224-226), 106 (021810 - color presentation), 107, 115 (color presentation), 124 (071911 - no record of

genus or species), 127, 140 (recorded as *Fouquieria splendens* Engelmann subsp. *splendens*, Pages 152-153 & 293), **WTK** (August 12, 2005)*

Fouquieria splendens subsp. *splendens* (see *Fouquieria splendens*)

Fumariaceae: The Fumitory Family

***Corydalis aurea* C.L. von Wildenow: Scrambled Eggs**

SYNONYMY: *Corydalis aurea* C.L. von Willdenow subsp. *aurea*. COMMON NAMES: Bílátah Łitso Tsoh <bilátah łcoi coh> (Athapascan: Navajo)[140]; Chooyin 'Azee' <co'in ʔazéʔ> ("Menstruation Medicine", Athapascan: Navajo)[140]; Colic Weed (English)[140]; Coridale (Spanish: Mexico)[140]; Corydalis Dorée (French); Dutchman's Breeches; Fitweed; Fumaria (Spanish: Mexico)[140]; Fumitory; Gáagii Binát'oh <gâgi binát'oh> ("Raven's Tobacco", Athapascan: Navajo)[140]; Gold Smoke (English)[140]; Golden Corydalis (English)[140]; Golden Fume Wort; Golden Fume-wort; Golden Fumewort; Golden Smoke; Hasbídídą́ą' <hasbididáʔ> (Athapascan: Navajo)[140]; Mountain Corydalis; Nikookáá' Łitso <naxoká' łoci> (Athapascan: Navajo)[140]; Scrambled Eggs; Scrambled-eggs (English: Arizona, New Mexico)[140]; Scrambledeggs; Småblommig Nunneört (Swedish); Tązhii Halchiin Ałts'íísígíí <tązhilčin ʔałc'ísí, tazhii yilchiin ałts'íísígíí> (Athapascan: Navajo)[140]; Ts'yaa Tł'ohdeeí <ciyah~~h~~' oh de> (Athapascan: Navajo)[140]. DESCRIPTION: Terrestrial annual or biennial forb/herb (prostrate, decumbent-ascending, ascending and/or erect stems 4 inches to 2 feet in height; as it ages may become prostrate, may form low sprawling mounds); the leaves are bluish-green, pale gray-green, gray-green, light green or silvery-bluish-green; the flowers (3/8 to3/4 inch in length) are golden, golden-yellow, bright lemon yellow, purple to pink, pale yellow, bright yellow, yellow, dark yellow tinged with dark red, yellow fringed with red or yellowish-orange; flowering generally takes place between early February and mid-September (additional records: one for mid-October, one for late October, one for mid-December and two for late December); the seedpods (½ to 1 inch in length) are bluish-green. HABITAT: Within the range of this species it has been reported from mountains; bouldery mountaintops; gravelly-loamy mountainsides; bases of mountains; sandy mesas; gravelly-loamy plateaus; canyon rims; cliffs; bases of cliffs; along rocky canyons; canyonsides; along rocky-clayey, sandy and clayey canyon bottoms; chasms; shaley scree; talus; bases of cliffs; crevices in rocks; rocky and gravelly bluffs; rocky ledges; rocky and gravelly ridges; meadows; humusy edges of meadows; rocky foothills; clayey hills; bouldery hilltops; bouldery-rocky-cobbly, rocky, gravelly and humusy hillsides; bouldery, bouldery-clayey, rocky, rocky-loamy, stony, gravelly, gravelly-sandy, sandy, sandy-loamy, loamy and clayey slopes; rocky outcrops; amongst boulders and rocks, bases of rocks; sandy lava flows; sand hills; stabilized sand dunes; rocky, gravelly-humusy and sandy banks; terraces; rocky, sandy, sandy-clayey and clayey prairies; rocky, cindery, sandy-loamy and sandy flats, clayey basins; valley floors; valley bottoms; along railroad right-of-ways; sandy roadbeds; shaley roadcuts; along rocky, rocky-sandy, rocky-loamy, gravelly, sandy, sandy-clayey, loamy and humusy roadsides; within rocky and sandy arroyos; bottoms of arroyos; draws, gulches; gullies; within ravines; seeps; springs; along streams; along and in rocky-gravelly-sandy and sandy streambeds; in sandy soils along creeks; creekbeds; in sand along rivers; riverbeds; along and in rocky, cobbly and sandy washes; along and in drainages; watercourses; lakebeds; bouldery ciénegas; rocky-gravelly-sandy-clayey and sandy depressions; silty-clayey swales; along rocky and sandy banks of gullies, streams, creeks, rivers and washes; along margins of creeks and lakes; rocky and sandy shores; terraces; sandy bottomlands; sandy and silty floodplains; lowlands; rocky mesquite bosques; ditches; along clayey-loamy banks of canals; gravelly-sandy and sandy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-rocky-cobbly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-sandy-clayey loam, rocky loam, rocky-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; bouldery clay, rocky clay, rocky-gravelly-sandy clay, sandy clay, silty clay and clay ground; silty ground, and gravelly humusy and humusy ground, occurring from 1,500 to 12,100 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, plants may be killed or defoliated by frosts. This plant was reported to have been utilized by native peoples of North America; it was also noted as having been used as a drug or medication and as a fertilizer (cold infusion used to soak watermelon seeds in, in order to increase production). *Corydalis aurea* is native to northwestern, northern, central and southern North America. *5, 6, **16**, 28 (color photograph 499), 43 (072109), 44 (121212 - color photograph), 46 (placed in the Papaveraceae, Page 325), 58, 63 (121212 - color presentation), 68 (placed in the Papaveraceae), **77**, 80 (This species is listed as a Secondary Poisonous Range Plant. "Golden Corydalis has been reported to contain up to 10 alkaloids. The plant is relished by sheep and as little as 2% of the animal's weight will cause symptoms, and less than 5% can be fatal. Cattle and horses also may be poisoned. This plant probably causes some losses in Arizona to both livestock and game." See text for additional information.), **85** (121312 - color presentation), 86 (color photograph), 115 (color presentation), 124 (121212), 127, 140 (recorded as *Corydalis aurea* Willdenow subsp. *occidentalis* (Engelmann ex A. Gray) G.B. Ownbey, Pages 185-187 & 294)*

Corydalis aurea subsp. *aurea* (see *Corydalis aurea*)

Corydalis aurea subsp. *occidentalis* (see *Corydalis curvisiliqua* subsp. *occidentalis*)

Corydalis aurea var. *occidentalis* (see *Corydalis curvisiliqua* subsp. *occidentalis*)

***Corydalis curvisiliqua* G. Engelmann ex A. Gray subsp. *occidentalis* (G. Engelmann ex A. Gray) W.A. Weber: Curvepod Fumewort**

SYNONYMY: *Corydalis aurea* C.L. von Willdenow subsp. *occidentalis* (G. Engelmann ex A. Gray) G.B. Ownbey; *Corydalis aurea* C.L. von Willdenow var. *occidentalis* G. Engelmann ex A. Gray. COMMON NAMES: Bílátah Łitso Tsoh <bilátah łcoi coh> (Athapascan: Navajo)[140]; Chooyin 'Azee' <co'in ʾazéʾ> ("Menstruation Medicine", Athapascan: Navajo)[140]; Colic Weed (English)[140]; Corídale (Spanish: Mexico)[140]; Curvepod Corydalis; Curve-pod Fumewort; Curvepod Fumewort (a name also applied to the species); Fumaria (Spanish: Mexico)[140]; Gáagii Binát'oh <gâgi binát'oh> ("Raven's Tobacco", Athapascan: Navajo)[140]; Gold Smoke (English)[140]; Golden Corydalis (a name also applied to other species); Golden Corydalis (English)[140]; Hasbídídą́ą́' <hasbididáʾ> (Athapascan: Navajo)[140]; Large-bracted Corydalis (a name also applied to the species, Iowa); Nikookáá' Łitso <naxoká' łoci> (Athapascan: Navajo)[140]; Mountain Corydalis; Scrambled-eggs (English: Arizona, New Mexico)[140]; Squirrel-corn; Tązhii Halchiin Ałts'íísígíí <tążilčin ʾałc'ísí, tazhii yilchiin ałts'íísígíí > (Athapascan: Navajo)[140]; Ts'yaa Tł'ohdeeí <ciyahɬ' oh de> (Athapascan: Navajo)[140]. DESCRIPTION: Terrestrial annual or biennial forb/herb (decumbent, ascending and/or erect stems 4 to 20 inches in height); the flowers are yellow; flowering generally takes place between late February and early September. HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy plateaus; canyon rims; cliffs; rocky canyons; scree; gravelly slides; talus slopes; crevices; pockets of soil in bedrock; sandy bluffs; rocky ridges; openings in woodlands; rocky meadows; gravelly foothills; rocky hills; rocky hilltops; gravelly hillsides; bedrock, rocky, rocky-sandy, rocky-clayey, cindery, gravelly, sandy, sandy-loamy, sandy-clayey, loamy and humusy slopes; alluvial fans; bajadas; rock outcrops; boulder fields; sand hills; sandy banks; breaks; uplands; sandy prairies; plains; gravelly, sandy and silty flats; grassy basins; valley floors; along railroad right-of-ways; roadcuts; along rocky, gravelly, sandy and loamy roadsides; sandy draws; stony bottoms of gullies; gulches; gullies; rocky ravines; along streams; along bouldery, rocky and sandy streambeds; along creeks; cobbly creekbeds; along rivers; riverbeds; along and in rocky and sandy washes; within drainages; ciénegas; sandy and clayey depressions; along (bouldery and sandy) banks of gulches, washes, streams, creeks and lakes; edges of ciénegas; along margins of streams, rivers and washes; shores of lakes; sandy areas of drawdown; benches; terraces; sandy bottomlands; sandy floodplains; mesquite bosques; shorelines of reservoirs; along canals; ditches; riparian areas, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-sandy, shaley, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, sandy loam, clayey loam and loam ground; rocky clay, sandy clay and clay ground; silty ground, and humusy ground, occurring from 900 to 10,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. *Corydalis curvisiliqua* subsp. *occidentalis* is native to south-central and southern North America. *5, 6, 15 (recorded as *Corydalis aurea* Willd. subsp. *occidentalis* (Engelm.) G.B. Ownbey placed in the Papaveraceae), 28, 43 (021910), 44 (071911 - no record of species; genus record), 46 (recorded as *Corydalis aurea* Willd. subsp. *occidentalis* (Engelm.) G.B. Ownbey placed in the Papaveraceae, Page 325), 63 (121412), 68 (recorded as *Corydalis aurea*), (80 Note: [The species *Corydalis aurea* is listed as a Secondary Poisonous Range Plant. "Golden Corydalis has been reported to contain up to 10 alkaloids. The plant is relished by sheep and perhaps as little as 2% of the animal's weight will cause symptoms, and less than 5% can be fatal. Cattle and horses also may be poisoned. This plant probably causes some losses in Arizona to both livestock and game."] See text for additional information.), **85** (121412 - color presentation), 86, **89** (reported as being a winter annual herb located on the Santa Cruz Floodplain, recorded as *Corydalis aurea* Wild. var. *occidentalis* Engelm.), 124 (071911), 140 (recorded as *Corydalis aurea* Willdenow subsp. *occidentalis* (Engelmann ex A. Gray) G.B. Ownbey, Pages 185-187 & 294)*

***Fumaria parviflora* J.B. de Lamarck: Fineleaf Fumitory**

COMMON NAMES: Fine Leaf Fumitory; Fine Leaved Fumitory; Fine-leaf Fumitory; Fine-leaved Fumitory; Fineleaf Fumitory; Fineleaved Fumitory; Fumitory (a name also applied to the Fumariaceae); Hierba de la Culebra (Chili); Hierba del Lagarto (Chili); Indian Fumitory; Small Flowered Fumitory; Small White Fumitory; Small-flower Fumitory; Smallflower Fumitory; Small-flowered Fumitory; Smallflowered Fumitory. DESCRIPTION: Terrestrial annual forb/herb (stems to 2 feet in height); the flowers may be cream, cream with purple tips, pink, purple, white or white with pink-purple, light purple, purple or purplish tips; based on few records located flowering generally takes place between early January and mid-September (flowering records: one for early January, two for late February, one for early March, one for mid-March, one for March flowering, one for early April, two for mid-April and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; plateaus; in crevices; bedrock ridges; hills; slopes; basins; sandy valley floors; along roadsides; arroyos; washes; drainages; (sandy) banks of riverbeds; margins of rivers and washes; waste places, and disturbed areas growing in dry sandy ground and loam ground, occurring from sea level to 6,600 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Fumaria parviflora* is considered native to northern, eastern, central and southern Europe; western and central Asia, and northern Africa and coastal islands in the North Atlantic Ocean; however, its exact native range is obscure. *5, 6, 43 (021910), 44 (121412), 46 (Supplement, Page 1050), 63 (121412 - color presentation of seed), **85** (121412 - color presentation), 124 (121412 - unable to access)*

Gentianaceae: The Gentian Family

***Centaurium arizonicum* (A. Gray) A.A. Heller: Arizona Centaury**

SYNONYMY: *Centaurium calycosum* (S.B. Buckley) M.L. Fernald var. *arizonicum* (A. Gray) I. Tidestrøm. COMMON NAMES: Arizona Centaury; Canchalagua; Centaury (a name also applied to other taxa and the genus *Centaurium*);

Rosita. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 5 to 32 inches in height, plants 12 inches in height and 8 inches in width were observed and recorded); the leaves are light green or yellow-green; the flowers (to 1 inch in diameter) may be cerise-pink, lavender, magenta, magenta-purple with a white throat, orangish-dark pink, bright pink, pink, pink-purple, pink & white, pink & yellow, pinkish-purple, purple-pink, rose-pink, rose-purple & yellow, scarlet, violet or white (rarely), the anthers are bright yellow; flowering generally takes place between late March and late October (additional records: one for early January, one for mid-February, one for mid-November and one for mid-December; flowering beginning as early as February and ending as late as November has been reported; flowering year-round in favorable locations has also been reported). HABITAT: Within the range of this species it has been reported from mountains; hanging gardens; bases of cliffs; rocky canyons; canyon bottoms; ridges; meadows; hills; hillsides; slopes; bases of slopes; amongst rocks; prairies; grassy flats; along rocky-sandy-loamy roadsides; rocky and gravelly arroyos; sandy draws; within gulches; silty ravines; bottoms of ravines; within sandy-loamy seeps; around and in sandy springs; in sand along streams; along and in sandy streambeds; in gravel along creeks; within rocky-gravelly creekbeds; along rivers; riverbeds; along and in gravelly and sandy washes; along sandy drainages; around pools; ciénegas; in marshes and marshy areas; along (sandy-loamy) banks of streams, streambeds and rivers; along edges of seeps, creeks, rivers and ponds; margins of creeks; shores of rivers; sand bars; mud banks; rocky beaches; grassy bottomlands; sandy floodplains; along ditches; stock tanks; riparian areas, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry rocky, rocky-gravelly, gravelly and sandy ground; rocky-sandy loam, sandy loam and loam ground; silty clay ground, and silty ground, occurring from 150 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Variety *arizonicum* was the variety of *Centaurium calycosum* reported as occurring in Arizona. *Centaurium arizonicum* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Centaurium calycosum* (Buckl.) Fern.), 28 (recorded as *Centaurium calycosum*, color photograph 602), 43 (081810), 44 (121612 - redirected to *Zeltnera arizonica* (A. Gray) E. Mans.), 46 (recorded as *Centaurium calycosum* (Buckl.) Fern., Page 646), 63 (121612 - identifies *Centaurium calycosum* (S.B. Buckley) M.L. Fernald var. *arizonicum* as the taxa occurring in Arizona), 77 (recorded as *Centaurium calycosum* (Buckl.) Fern., color photograph #28), **85** (121612 - reported as *Centaurium calycosum* (S.B. Buckley) M.L. Fernald redirected to *Zeltnera calycosa* (Buckley) G. Mans. - the species reportedly does not occur in Arizona; *Centaurium calycosum* var. *arizonicum* (A. Gray) I. Tidestrøm redirected to *Zeltnera arizonica* (A. Gray) E. Mans., color presentation), 86, 124 (072011 - no record of species; genus record), 140 (recorded as *Centaurium calycosum* (Buckley) Fernald, Page 294)*

Centaurium calycosum (see NOTES and footnotes 15, 28, 63, 77, 85 and 140 under *Centaurium arizonicum*)

Centaurium calycosum var. *arizonicum* (see *Centaurium arizonicum*)

Zeltnera arizonica (see footnotes 44 and 85 under *Centaurium arizonicum*)

Geraniaceae: The Geranium Family

***Erodium cicutarium* (C. Linnaeus) C.L. L'Héritier de Brutelle ex W. Aiton (subsp. *cicutarium* is the subspecies reported as occurring in Arizona): Redstem Stork's Bill**

COMMON NAMES: Afilaree; Aguaje del Pastor ("Shepherd's Needle", Spanish: Mexico)[140]; Aguja del Pastor (Spanish); Agujitas ("Little Needle", Spanish: Sonora)[140]; Alfilaree (a name also applied to the genus *Erodium*); Alfilaria (a name also applied to the genus *Erodium*); Alfilaria (a name also applied to the genus *Erodium*, Spanish); Alfilaria [Alfilario, de Pastor] ("[Shepherd's] Little Needle" a name also applied to the genus *Erodium*, Spanish: California, New Mexico to Edo. México, Guerrero)[140]; Alfilarilla (a name also applied to the genus *Erodium*, Spanish); Alfileres [Alfileritos] ("[Little] Needles", Spanish: Spain)[140]; Alfileria (Spanish); Alfilerilla (a name also applied to the genus *Erodium*, Spanish); Alfillarilla (a name also applied to the genus *Erodium*, Spanish); Alfirerillo (Spanish); Alfiliria (a name also applied to the genus *Erodium*, Spanish); Arete (Hispanic); California Filaree (a name also applied to other species); Chikwi (Chumash: Barbareño Chumash)[140]; Chooyin 'azee' <čoyn ʾazeʾ> (Athapascan: Navajo)[140]; Clocks; Coastal Heron's Bill; Coastal Heron's-bill; Common Crowfoot; Common Erodium; Common Heron's Bill; Common Heron's-bill; Common Herons Bill; Common Herons-bill; Common Heronsbill; Common Stork's Bill (a name also applied to other species); Common Stork's-bill (a name also applied to other species); Crane's Bill (a name also applied to other species and the genus *Erodium*); Crane's Bill (English)[140]; Cranesbill (a name also applied to other species); Cut-leaf Filaree; Cutleaf Filaree; Dah Yiitíhídą́ą́' <dahitíhídą́ʔ> ("Hummingbird's Food", Athapascan: Navajo)[140]; Dahmiyet el-Ghazal (Arabic); Dzílí Bíláshgaan <tzílí pilackaan> (Athapascan: Navajo)[140]; Filaree (a name also applied to the genus *Erodium*, Spanish); [Red-stem] Filaree (English)[140]; Filaria; Fileree (a name also applied to the genus *Erodium*, Spanish); Filerie (a name also applied to the genus *Erodium*, Spanish); Hawañ Ta:tad (Uto-Aztecan: Tohono O'odham)[140]; Hemlock Geranium; Hemlock Heron's Bill; Hemlock Heron's-bill; Hemlock Stork's Bill; Hemlock Stork's-bill; Hemlock Storksbill; Herba de la Coralina ("Little Pink Herb", Spanish: Mexico)[140]; Heron Bill (a name also applied to the genus *Erodium*); Heron's Bill (a name also applied to the genus *Erodium*); Heron-bill (a name also applied to the genus *Erodium*); Heron's-bill (a name also applied to the genus *Erodium*); Heronbill (a name also applied to the genus *Erodium*); Hierba de Chuparrosa [Yerba de Chuparrosa] ("Hummingbird Herb", Spanish: Chihuahua)[140]; Hoho'ibaḍ (Uto-Aztecan: Akimel O'odham, Hiá Ceḍ O'odham, Tohono O'odham)[140]; Ko:koḍ Oipij (Uto-Aztecan: Tohono O'odham)[140]; Kwł'łn (Chumash: Ventureño Chumash)[140]; Min^{a}m^{é}n'yá' <min'min'ya> (Yuman: Walapai)[140]; Muutanavɨzivɨ [Muutanamuzuvɨ] ("Hummingbird Beak", Uto-Aztecan:

Kawaiisu)[140]; Pa'boiäts (Uto-Aztecan: Ute)[140]; Pakhanat (Uto-Aztecan: Cahuilla)[140]; Peine de Bruja (Spanish); Piene de Bruja ("Witch's Comb", Spanish: Edo. México)[140]; Pico de Cigüeña ("Crane's Bill", Spanish: Mexico)[140]; Pikuku Jasi (Purépecha); Pin Grass (a name also applied to other species and the genus *Erodium*); Pin Weed (a name also applied to other species); Pin-clover (a name also applied to the genus *Erodium*); Pin-clover (English)[140]; Pin-grass (a name also applied to other species and the genus *Erodium*); Pin-weed (a name also applied to other species); Pinclover; Pine-needle; Pingrass; Pink Filaree; Pink Needle; Pink-needle; Pinweed; Powk-needle; Purple Filaree; Red Alfilaree; Red Stem Alfilaree; Red Stemmed Filaree; Red Stemmed Stork's Bill; Red-stem (English)[140]; Red-stem Alfilaree; Red-stem Filaree; Red-stem Stork's Bill; Red-stem Stork's-bill; Red-stemmed Filaree; Red-stemmed Filarel; Red-stemmed Stork's Bill; Red-stemmed Stork's-bill Filaree; Redstem Alfilaree; Redstem Filaree; Redstem Filaria; Redstem Stork's Bill; Redstem Stork's-bill; Redstem Storksbill; S'u'wlima' (Chumash: Ineseño Chumash)[140]; Semuči (Uto-Aztecan: Tarahumara)[140]; Semuchi (Hispanic); Small-flowered Stork's Bill; Small-flowered Stork's-bill; Stick-pile; Stork's Bill (a name also applied to the genus *Erodium*); [Red-stem] Stork's Bill [Storkbill] (a name also applied to the genus *Erodium*, English)[140]; Stork's-bill (a name also applied to the genus *Erodium*); Storks' Bill (a name also applied to the genus *Erodium*); Storksbill (a name also applied to the genus *Erodium*); Tenedorcitos ("Little Forks", Spanish: Spain)[140]; Tsís'ná dáá' ("Bee Food", Athapascan: Navajo)[140]; Wild Musk; Yam'pagwanûp (Uto-Aztecan: Shoshoni)[140]. DESCRIPTION: Terrestrial annual or biennial forb/herb (prostrate, decumbent, ascending and/or erect stems 2 to over 32 inches in height/length); the stems may be reddish; the green leaves forming a basal rosette; the flowers may be blue, blue-violet, fuchsia, lavender, lavender-pink, lilac, magenta, magenta-lavender, magenta-rose, light pink with lavender stripes, pink, dark pink, pink-lavender, pink-magenta, pink-purple, pinkish-violet, light purple; purple, purple-pink, red-lavender, rose-lavender, rosy-purple or violet; flowering generally takes place between late December and early November. HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; bouldery mountainsides; gravelly, gravelly-sandy, sandy, pebbly-sandy-silty and clayey mesas; sandy bases of mesas; plateaus; cliffs; rocky walls; rocky-gravelly-sandy-humusy bases of cliffs; along and in rocky and sandy canyons; bouldery-gravelly-sandy, rocky-sandy and sandy canyon bottoms; clayey-cindery talus slopes; buttes; knolls; rocky ledges; bouldery, rocky and gravelly ridges; shaley ridgetops; sandy openings in scrub; grassy meadows; cinder cones; rocky and sandy foothills; bouldery, rocky and sandy hills; bases of hills; rocky-gravelly hilltops; bouldery, rocky, rocky-gravelly, rocky-silty, gravelly and loamy hillsides; bouldery, rocky, rocky-pebbly-clayey-loamy, rocky-sandy-loamy, rocky-loamy, rocky-loamy-clayey, rocky-clayey, rocky-clayey-loamy, shaley, shaley-gravelly, stony, stony-cobbly, cindery, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, sandy, sandy-clayey, sandy-clayey-loamy, loamy, clayey, clayey-loamy, silty-loamy and humusy slopes; rocky alluvial fans; sandy bases of alluvial fans; rocky and gravelly bajadas; rocky outcrops; amongst rocks; bases of domes; lava flows; sand and sandy-clayey dunes; rocky banks; benches; benchlands; breaks; steppes; prairies; plains; sandy fields; muddy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy, sandy-loamy, sandy-clayey and loamy flats; uplands; rocky and sandy basins; valley floors; valley bottoms; coastal prairies; coastal plains; along cindery railroad right-of-ways; rocky roadbeds; roadcuts; along rocky, gravelly, gravelly-sandy-clayey-loamy, gravelly-sandy-silty, sandy and sandy-loamy roadsides; along rocky-sandy and sandy arroyos; along bottoms of arroyos; gravelly and sandy draws; rocky gulches; sandy bottoms of gulches; rocky ravines; seeps; springs; along streams; streambeds; along creeks; along sandy creekbeds; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in sandy and silty drainages; in rocks around ponds; silty lakebeds; gravelly depressions; swales; along (gravelly and gravelly-sandy) banks of streams, creeks and rivers, washes, ponds and lakes; borders of washes; (muddy, rocky and sandy) edges of springs and washes, salt marshes and washes; (cobbly-gravelly) margins of washes; shores of lakes; cobbly and sandy beaches; rocky-sandy, stony-loamy and sandy benches; rocky terraces; sandy and loamy bottomlands; rocky-sandy, cobbly-silty and sandy floodplains, mesquite bosques; margins of stock tanks; receding shorelines of reservoirs; along ditches; recently burned areas of scrub; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry rimrock pavement; cryptogamic; bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony, stony-cobbly, cobbly, cobbly-gravelly, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy ground; rocky loam, rocky-pebbly-clayey loam, rocky-sandy loam, rocky-clayey loam, stony loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty-clayey loam, silty loam and loam ground; rocky clay, rocky-loamy clay, shaley clay, gravelly clay, sandy clay and clay ground; rocky silty, cobbly silty, pebbly-sandy silty and silty ground, and rocky-gravelly-sandy humusy and humusy ground, occurring from sea level to 11,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as fodder, for protection (dried and powdered plant parts were mixed with watermelon seeds during storage and planting to prevent disease), as a drug or medication and as a ceremonial item. The fruits are collected by Harvester Ants. *Erodium cicutarium* is native to northern, central, eastern and southern Europe and coastal islands in the Mediterranean Sea and North Atlantic Ocean; northern, western, central and southern Asia and islands in the Mediterranean Sea and East China Sea, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, **16**, 22 (color photograph), 28 (color photograph 593), 30, 43 (021910 - *Erodium cicutarium* (L.) L'Hér. ex Aiton), 44 (072111), 46 (Page 486), **57**, 58, 63 (121612 - color presentation), 77, 80 (This species is listed as a Secondary Poisonous Range Plant. "Filaree is a valuable forage plant that furnishes good forage in both the green and dry state. However, plants occasionally develop high concentrations of nitrate that may cause loss of livestock. In Arizona, there have been several instances of heavy death loss in cattle showing typical symptoms of nitrate poisoning that have been associated with high nitrate content in Filaree plants. ... Danger is highest during the flush period of growth. ... Control of Filaree is not generally desirable because of its forage value, therefore, animals may need to be moved to less dangerous pastures during the critical period." See text for additional information.), **85** (122212 - C.H. Bowen reported the following in a collection record dated May 13, 1920: "This plant is a native

of the Mediterranean region having spread from there over large portions of Europe, Asia, Africa and North and South America. It is believed to have been introduced into the western hemisphere by the early Spanish explorers either in Mexico or Central America and later in California from whence it has spread over considerable areas principally in California, Nevada, Utah, Arizona and New Mexico. It seems to thrive best between elevations of 1500 and 4500 feet and where abundant is often considered to double the spring carrying capacity of the range. Relished by all classes of stock especially by sheep.", color presentation), 86 (color photograph), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb), 101 (color photograph), 115 (color presentation), 124 (072011), 127, 140 (Pages 153-155 & 294), **WTK** (February 6, 2012)*

***Erodium texanum* A. Gray: Texas Stork's Bill**

COMMON NAMES: Alfilerilla (a name also applied to the genus *Erodium*, Spanish); Bull Filaree; Desert Filaree; Desert Heron's Bill; Desert Heron's-bill; Desert Stork's Bill; Desert Storksbill (a name also applied to other taxa); False Filaree; Heron Bill (a name also applied to the genus *Erodium*); Heron's Bill (a name also applied to the genus *Erodium*); Heron-bill (a name also applied to the genus *Erodium*); Large Flowered Stork's Bill; Large-flower Stork's Bill; Large-flower Stork's-bill; Large-flower Storksbill; Large-flowered Stork's Bill; Large-flowered Stork's-bill; Largeflower Stork's Bill; Pine Needle; Stork's Bill; Texas Filaree; Texas Fillarie; Texas Heron's Bill; Texas Heron's-bill; Texas Heronbill; Texas Stork's Bill; Texas Stork's-bill; Texas Storksbill; Tufted Filaree. DESCRIPTION: Terrestrial annual or biennial forb/herb (prostrate to ascending stems 2 inches to 2 feet in height/length); the basal rosette leaves are green with red spots; the flowers may be lavender, magenta, pink-purple, purple-magenta, reddish-purple, rose-magenta, purple, purplish-red, rose-magenta, rose-pink, violet or violet-red; flowering generally takes place between late January and mid-May (additional records: one for early June, one for mid-September and one for early October); the fruits are reddish. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; pebbly-sandy-silty, sandy and sandy-silty mesas; bases of cliffs; stony canyons; gorges; buttes; rocky ledges; rocky and chalky ridges; ridgetops; meadows; foothills; muddy-clayey, rocky, gravelly, sandy and sandy-clayey hills; hillsides; bouldery, bouldery-gravelly, rocky, rocky-cobbly, rocky-cobbly-sandy, rocky-loamy, stony, gravelly, gravelly-sandy-loamy and sandy slopes; rocky-sandy, gravelly, gravelly-loamy and sandy bajadas; bouldery and rocky outcrops; amongst boulders; boulder fields; sandy lava flows; sandy lava fields; dunes; berms; prairies; gravelly, sandy-loamy clayey-loamy plains; rocky, stony, stony-chalky, gravelly, gravelly-sandy, pebbly-sandy-silty and sandy flats; basins; valley floors; along gravelly, gravelly-sandy, gravelly-loamy and sandy roadsides; rocky arroyos; bottoms of arroyos; gulches; gullies; creekbeds; riverbeds; along and in gravelly, sandy and sandy-silty washes; along gravelly drainages; silty lakebeds; marshes; silty depressions; swales; (rocky) banks of creeks, creekbeds and washes; benches; gravelly, gravelly-sandy and gravelly-sandy-loamy terraces; beds of silty-clayey impoundments; margins of stock tanks; canals; canal banks; sandy riparian areas, and disturbed areas growing in muddy and damp and dry rocky, cobbly and sandy desert pavements; bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; sandy clay and silty clay ground; pebbly-sandy silty, sandy silty and silty ground, and chalky ground, occurring from sea level to 7,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: These low growing and sprawling or widely spreading plants may be an attractive component of a restored native habitat. The Texas Stork's Bill is browsed by food by quail. *Erodium texanum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (022010), 44 (122212), 46 (Page 486), 58, 63 (122212 - color presentation), 77 (color photograph #76), **85** (122412 - color presentation), 86 (note), **89** (reported as being a winter annual herb located on Tumamoc Hill), 115 (color presentation), 140 (Page 294), **WTK** (March 10, 2012)*

Hydrophyllaceae: The Waterleaf Family

Ellisia torreyi (see footnote 89 under *Eucrypta micrantha*)

***Eucrypta chrysanthemifolia* (G. Bentham) E.L. Greene (var. *bipinnatifida* (J. Torrey) L. Constance is the variety reported as occurring in Arizona): Spotted Hideseed**

COMMON NAMES: Chrysanthemum-leaved Eucrypta; Chrysanthemum-leaved Hideseed; Common Eucrypta; Green Spotted Hideseed; Spotted Eucrypta; Spotted Hideseed; Torrey Eucrypta (var. *bipinnatifida*) ; Torrey's Eucrypta (var. *bipinnatifida*). DESCRIPTION: Terrestrial annual forb/herb (sprawling, trialing and/or erect stems 4 to 40 inches in height/length); the bell-shaped flowers may be pale blue, blue, cream-white, lavender, pinkish-white, pale purple, white, white-blue or yellow-white; flowering generally takes place between mid-January and early June (additional records: four for late June and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; rocky cliffs; rocky canyons; canyon walls; along bouldery-sandy, rocky, rocky-sandy, sandy and sandy-loamy canyon bottoms; talus; bases of cliffs; crevices in rocks; buttes; rocky knobs; ledges; rocky ridges; ridgetops; sandy meadows; bouldery and rocky hills; stony-sandy-silty and clayey hilltops; rocky, loamy and clayey hillsides; bouldery, rocky, rocky-gravelly, stony, gravelly, gravelly-loamy, gravelly-clayey, sandy, loamy-clayey, clayey and clayey-loamy slopes; bouldery-stony-gravelly-sandy and rocky alluvial fans; sandy bajadas; rocky and shaley outcrops; bases of outcrops; amongst boulders and rocks; bases of boulders and rocks; boulder fields; sand dunes; banks; sandy-loamy and clayey plains; gravelly and sandy flats; basins; sandy valley floors; coastal plains; along rocky and rocky-gravelly roadsides; arroyos; gullies; ravines; seeps; springs; along streams; along seeping streams; along creeks; along sandy creekbeds; along rivers; rocky-sandy riverbeds; along and in rocky-sandy, stony-sandy, gravelly-sandy, gravelly-sandy-silty and sandy washes; within drainages;

vernal pools; rocky depressions; along banks of rivers and washes; along (rocky) edges of streams and rivers; margins of creeks; shores of lakes; benches; sandy terraces; rocky-sandy bottomlands; floodplains; riparian areas; recently burned areas, and disturbed areas often found in the shade of rocks or shrubs or trees growing in moist and dry bouldery, bouldery-stony-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, stony-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay, loamy clay and clay ground, and stony-sandy silty and gravelly-sandy silty ground, occurring from sea level to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The foliage may be sweet-scented. *Eucrypta chrysanthemifolia* is native to southwest-central and southern North America. *5, 6, **16**, 43 (072209), 44 (1224112), 46 (Page 698), 63 (122412), 77, **85** (122712 - color presentation)*

***Eucrypta micrantha* (J. Torrey) A.A. Heller: Dainty Desert Hideseed**

COMMON NAMES: Dainty Desert Hideseed; Desert Eucrypta; Desert Hideseed; Peluda; Small-flower Eucrypta; Smallflower Eucrypta; Small-flower Eucrypta; Small Flowered Eucrypta; Small-flowered Eucrypta. DESCRIPTION: Terrestrial annual forb/herb (weak stems 2 inches to 1 foot in height); the stems may appear to be vining; the leaves are dark green; the cup-shaped flowers may be pale blue-purple, blue, blue-magenta, blue-purple, pale lavender, pale pink-lavender, pale purple-pink, purple, purple with a yellow center, reddish-purple with a yellow throat, pale violet, violet or white; the anthers are blue; flowering generally takes place between mid-January and mid-June (additional record: one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; cliffs; bases of cliffs; along canyons; rocky canyon walls; bouldery, rocky and sandy canyon bottoms; talus slopes; crevices in rocks; knolls; ledges; rocky ridges; bouldery ridgetops; cinder cones; foothills; rocky and gravelly-sandy hills; mud hills; rocky and sandy-loamy hillsides; bases of hillsides; bouldery, bouldery-gravelly, rocky, rocky-stony, rocky-gravelly, rocky-sandy, rocky-clayey, cobbly-gravelly-sandy, gravelly, gravelly-loamy, gravelly-silty and sandy slopes; alluvial fans; rocky, rocky-sandy and sandy bajadas; rocky outcrops; amongst boulders and rocks; bases of rocks; lava flows; sand hills; sand dunes; terraces; sandy plains; gravelly flats; basins; valley floors; along railroad right-of-ways; along gravelly roadsides; two-tracks; within rocky, rocky-sandy and sandy arroyos; along draws; gulches; ravines; along streams; along rivers; along and in rocky, rocky-sandy, rocky-silty, cobbly-silty-loamy, gravelly, gravelly-sandy and sandy washes; along drainages; lakebeds; sandy and clayey depressions; along (gravelly-sandy and sandy) banks of rivers and washes; edges of washes and lakes; shores of lakes; sand bars; benches; gravelly terraces; sandy bottomlands; floodplains; riparian areas, and disturbed areas growing in dry rocky-cobbly and cobbly-gravelly-sandy desert pavement; bouldery, bouldery-gravelly, rocky, rocky-stony, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-sandy-clayey loam, cobbly-silty loam, gravelly loam, sandy loam, sandy-clayey loam and silty loam ground; rocky-clayey and clayey ground, and rocky silty, gravelly-sandy silty and gravelly silty ground often n the shade of boulders, rocks, shrubs and trees, occurring from 100 to 8,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eucrypta micrantha* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 696), 43 (022110), 44 (072211), 46 (Page 697), 58, 63 (022110 - color presentation), 77, **85** (122712 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Ellisia torreyi* Gray), 115 (color presentation), 115 (color presentation), 124 (072211 - no record of species or genus), 140 (Page 294)*

***Nama hispidum* A. Gray: Bristly Nama**

SYNONYMY: *Nama hispidum* A. Gray var. *mentzelii* A. Brand; *Nama hispidum* A. Gray var. *revolutum* W.L. Jepson; *Nama hispidum* A. Gray var. *spathulatum* (J. Torrey) C.L. Hitchcock. COMMON NAMES: Bristly Nama; Bristly Purple Mat; Curled Nama; Flor Morada (Spanish); Hairy Nama; Hispid Nama; Hispid Purple Mat; Hohr-oohit (Seri); Morada; Purple Mat (a name also applied to the genus *Nama*); Purple Roll Leaf; Purple Roll-leaf; Rough Fiddleleaf; Rough Nama; Rough Purple Mat; Sand Bells (Oklahoma, Texas); Sand Bells; Sand-bell; Sand-bells; Sandbell; Sandbells (Oklahoma, Texas). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 inches to 1 foot in height and up to 16 inches in width; plants were observed and described as being 3½ inches in height and 7 inches in width, plants were observed and described as being 3 inches in height and 9½ inches in width, plants were observed and described as being 4 inches in height and width, plants were observed and described as being 4 inches in height and 8 inches in width,, one plant was observed and described as being 6 inches in height and 3½ inches in width, one plant was observed and described as being 10 inches in height and 12 inches in width); the leaves are pale green or white; the flowers may be blue, blue-purple, dark blue, pale lavender, lavender, lavender-pink, magenta, bright pink-magenta with a yellow throat, pink-purple, pinkish-lavender, pinkish-magenta, pinkish-purple, purple, purple-magenta; purple-white, red-purple, rose, rose-magenta, violet, violet-blue or white; flowering generally takes place between late January and early November (additional records: two for mid-December). HABITAT: Within the range of this species it has been reported from mountains; cobbly-gravelly-loamy mountainsides; gravelly, gravelly-sandy-loamy and sandy mesas; plateaus; rocky canyons; rocky canyon walls; sandy canyon bottoms; talus slopes; knolls; sandy foothills; rocky and sandy hills; rocky-sandy hilltops; escarpments; bedrock, rocky, sandy, sandy-loamy, sandy-clayey, and sandy-clayey-loamy slopes; gravelly and sandy alluvial fans; sandy bajadas; lava flows; lava beds; sand hills; sand dunes; sand hummocks; sand sheets; stony tablelands; sandy-clayey prairies; cobbly and sandy plains; gravelly, gravelly-loamy, sandy, sandy-clayey, sandy-clayey-loamy and sandy-silty flats; sandy valley floors; coastal plains; beach dunes; along gravelly, gravelly-sandy, gravelly-loamy, gravelly-sandy-loamy, sandy, sandy-loamy and clayey roadsides; rocky, gravelly, sandy and sandy-loamy arroyos; sandy bottoms of arroyos; rocky, gravelly and sandy draws; sandy bottoms of draws; ravines; along streams; along sandy streambeds; along creeks; along rivers; rocky-cobbly-sandy and sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy

and clayey washes; sandy-silty playas; swales; along (sandy and silty) banks of streams, rivers and washes; along (gravelly-sandy) edges of streams and playas; (rocky-sandy) shores of lakes; sandy beaches; benches; sandy terraces, sandy bottomlands; lowlands; cobbly, cobbly-silty, sandy, clayey and silty floodplains; mesquite bosques; margins of stock tanks; canal walls; along ditches; ditch banks and edges; sandy riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam and loam ground; sandy clay, silty clay and clay ground; cobbly silty, gravelly-sandy silty, sandy silty and silty ground, and silty powdery ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Nama hispidum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (022110 - *Nama hispida* A. Gray, *Nama hispida* A. Gray var. *mentzelii* Brand, *Nama hispidum* A. Gray var. *revoluta* Jepson and *Nama hispida* A. Gray var. *spathulata* (Torr.) C.L. Hitchc.), 44 (072311), 46 (Page 706), 58, 63 (122712 - color presentation), **77**, **85** (122712 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Floodplain, recorded as *Nama hispidus* Gray), 115 (color presentation), 124 (072311), 127, 140 (Page 294)*

Nama hispidum var. *mentzelii* (see *Nama hispidum*)

Nama hispidum var. *revolutum* (see *Nama hispidum*)

Nama hispidum var. *spathulatum* (see *Nama hispidum*)

Nama hispidus (see footnote 89 under *Nama hispidum*)

Nemophila arizonica (see *Pholistoma auritum* var. *arizonicum*)

***Phacelia affinis* A. Gray: Limestone Phacelia**

COMMON NAMES: Ally Phacelia; Caterpillar Weed (a name also applied to other species); Limestone Phacelia (a name also applied to other species); Limestone Scorpion Weed; Limestone Scorpion-weed; Limestone Scorpionweed; Purple Bell; Purple Bell Caterpillar Weed; Purple Bell Phacelia; Purple-bell Caterpillar-weed; Purple-bell Phacelia; Purple-bell Scorpion-weed; Purple-bell Scorpionweed; Purplebell Phacelia; Purplebell Scorpionweed. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 14 inches in height); the herbage may be gray-green, green and/or purple-green, the flowers may be pale blue, light blue-purple, blue, blue-purple, bluish, bluish-white, pale lavender, pale lavender-purple, lavender, pale pink, pale pinkish-lavender, purple, red-purple, white (aging blue/purple), whitish or yellowish-white; flowering generally takes place between late February and early July (additional record: one for early February). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; plateaus; rock walls; canyons; bouldery-gravelly, rocky, sandy and sandy-loamy canyon bottoms; rocky talus slopes; bases of cliffs; rocky ridges; ridgetops; foothills; gravelly hills; hilltops; rocky hillsides; bedrock, rocky, rocky-sandy-loamy, gravelly, gravelly-silty, sandy, sandy-silty and silty slopes; alluvial fans; bajadas; bedrock, boulder and rocky outcrops; amongst rocks; rocky banks; terraces; pebbly plains; sandy and sandy-silty flats; valley floors; arroyos; draws; seeps; along streams; along and in gravelly-sandy creekbeds; along and in sandy washes; drainages; banks of arroyos and washes; along margins of washes; benches; sandy-loamy interfluves; terraces; sandy floodplains; riparian areas; recently burned areas in woodlands, and disturbed areas growing in damp and dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-sandy loam, sandy loam and silty loam ground; clay ground, and gravelly silty, sandy silty and silty ground, occurring from 400 to 8,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Phacelia affinis* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (022210), 44 (122712 - color photograph), 46 (Page 702), 58, 63 (122712), **77**, **85** (122712 - color presentation), 140 (Page 294)*

Phacelia ambigua (see *Phacelia crenulata* var. *ambigua*)

Phacelia ambigua var. *ambigua* (see *Phacelia crenulata* var. *ambigua*)

***Phacelia arizonica* A. Gray: Arizona Phacelia**

SYNONYMY: *Phacelia popei* J. Torrey & A. Gray var. *arizonica* (A. Gray) J.W. Voss. COMMON NAMES: Arizona Phacelia; Arizona Scorpion-weed; Arizona Scorpionweed; Caterpillar Weed (a name also applied to other species). DESCRIPTION: Terrestrial perennial forb/herb (prostrate and/or decumbent stems 1 to 16 inches in height); the flowers may be light blue, pale blue-purplish, blue-purple, blue-purplish, pale bluish-purple, pale lavender, lavender, lavender-white, pale pink-lavender, pink, pinkish with darker mid-stripes, pale purple, pale purplish, purple, dusty rose, pale violet, white, white with a lavender tinge, white with a pale maroon center, whitish or whitish with a rose mid-vein on each petal; the filaments are mauve; the anthers are blue; flowering generally takes place between late February and early June (additional records: one for early February, two for mid-July, three for early September and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky and gravelly canyons; sandy canyon bottoms; ledges; gravelly openings

in mesquite and cat claw and mesquite and creosote bush; foothills; rocky hills; hilltops; rocky, gravelly and gravelly-loamy slopes; rocky-sandy and sandy alluvial fans; sandy bajadas; amongst grasses; lava flows; plains; sandy flats; valley floors; along rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and loamy roadsides; gravelly bottoms of arroyos; gravelly streambeds; along creeks; along rivers; riverbeds; along rocky-gravelly, gravelly and sandy washes; drainages; cobbly-sandy-loamy bottoms of swales; (sandy) banks of washes; gravel bars; terraces; bottomlands; along sandy floodplains; lowlands; sandy mesquite woodlands; sandy riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly loam, clayey loam and loam ground, and gravelly-sandy silty ground, occurring from 1,500 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Phacelia arizonica* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (072209), 44 (072311 - no record of species; genus record), 46 (Page 703), 58, 63 (122812 - color presentation), 77, 85 (122812 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 124 (072311 - no record of species; genus record), 140 (Page 294)*

Phacelia caerulea (see *Phacelia coerulea*)

***Phacelia campanularia* A. Gray (var. *campanularia* is the variety reported as occurring in Arizona): Desertbells**

COMMON NAMES: Annual Desert Bluebell; Bell-flowered Phacelia; California Bell-flower Phacelia; California Bluebell (a name also applied to other taxa); California Desert Blue-bell; California Desert Blue-bells; California Desert Blue-bell; Campanulata Phacelia; Campanulate Phacelia; Desert Blue Bell; Desert Blue Bells; Desert Blue-bell; Desert Blue-bells; Desert Bluebell; Desert Bluebells; California Desert Bluebells; Campanulata Phacelia; Campanulate Phacelia; Charlotte's Phacelia; Desertbells; Desert Canterbury Bell; Desert Canterbury Bells; Desert Canterbury-bell; Desert Canterbury-bells; Desert Bell; Desert Bells; Desert-bell; Desert-bells; Desertbells; Desert Scorpion-weed; Desert Scorpionweed; Glockenblumen-Büschelschön (German); Klockfacelia (Swedish). DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 30 inches in height and about the same in width); the leaves are gray-green; the bell-shaped flowers are blue, blue-purple, blue-violet, dark blue, deep blue-violet, bluish-purple, bluish-violet, indigo, purple with cream lines, purple-cream, dark purple, violet or deep violet; flowering generally takes place between early March and late June (additional records: one for late January, four for mid-February, two fro early October and two for early November). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; gravelly-sandy canyon bottoms; rocky talus slopes; crevices in rocks; ridges; foothills; bouldery hills; rocky hillsides; bases of hills; alluvial fans; bedrock, bouldery-rocky-gravelly-sandy, bouldery-gravelly-sandy, rocky, gravelly and sandy slopes; gravelly and sandy alluvial fans; bajadas; rocky outcrops; bases of rock outcrops; amongst boulders and rocks; bases of boulders and rocks; blow-sand deposits; rocky-sandy outwash fans; rocky-sandy debris flows; sandy benches; shelves; gravelly flats; sandy valley floors; roadcuts; along sandy roadsides; along sandy creekbeds; along and in bouldery, bouldery-rocky-gravelly-sandy, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-sandy, gravelly-sandy and sandy washes; banks of washes; (rocky) margins of washes, and disturbed areas growing in damp and dry gravelly desert pavement; bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground, occurring from 1,000 to 5,200 feet in elevation in the woodland, scrub and desertscrub ecological formations. NOTES: EXOTIC Plant (the Germplasm Resources Information Network (GRIN) [Online Database] does not recognize this species as being native to Arizona). *Phacelia campanularia* is native to southwest-central North America. *18, 28 (color photograph 698), 43 (022310), 44 (072411 - color photograph), 46 (no record of species; genus, Pages 698-704), 63 (122812 - Germplasm Resources Information Network (GRIN) [Online Database] does not recognize this species as being native to Arizona, color presentation), **77**, **85** (0122812 - color presentation including habitat), 86 (color photograph), 115 (color presentation), 124 (072411 - no record of species; genus record)*

***Phacelia coerulea* E.L. Greene: Skyblue Phacelia**

SYNONYMY: *Phacelia caerulea* E.L. Greene [orthographic variant]. COMMON NAMES: Blue Phacelia (a name also applied to other taxa); Caterpillar Weed (a name also applied to other taxa); Sky Blue Phacelia; Sky-blue Caterpillar Weed; Sky-blue Phacelia; Sky-blue Scorpion-weed; Skyblue Phacelia; Skyblue Scorpionweed. DESCRIPTION: Terrestrial annual forb/herb (stems 4 to 20 inches in height); the flowers may be pale blue-violet, blue, bluish-purple, pale lavender, pale lavender-white, lavender, lavender-white, light lilac, magenta, purple, dark purple, pale violet, violet or whitish; flowering generally takes place between late February and early June. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bouldery mountainsides; mesas; along rocky canyons; canyon bottoms; rocky talus slopes; knolls; along rocky ridges, ridgetops; foothills; rocky and gravelly hills; hilltops; rocky and rocky-gravelly hillsides; rocky, rocky-gravelly, gravelly-loamy, sandy, sandy-clayey, sandy-clayey-loamy, loamy and clayey slopes; gravelly bajadas; amongst rocks; sandy lava flows; gravelly and sandy banks; rocky shelves; sandy plains; gravelly, sandy, sandy-clayey and silty flats; valley floors; railroad right-of-ways, along rocky, rocky-gravelly, gravelly and sandy roadsides; rocky arroyos; draws; along streams; sandy creekbeds; riverbeds; along and in gravelly-sandy and sandy washes; drainages; (gravelly) banks of draws and rivers; margins of rivers; channel bars; sandy-loamy terraces; floodplains, and sandy riparian areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and loam ground; sandy clay and clay ground, and silty ground, occurring from 900 to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Phacelia coerulea* is native to southwest-central and southern North America. *5, 6, 15, 43 (022310 -

Phacelia coerulea Auct.), 44 (122812 - color photograph), 46 (Page 704), 58, 63 (122812 - color presentation), 77, **85** (122812 - color presentation), 124 (111310 - no record of species; genus record), 140 (Page 294)*

***Phacelia crenulata* J. Torrey ex S. Watson: Cleftleaf Wildheliotrope**

COMMON NAMES: Caterpillar Plant; Caterpillar Weed (a name also applied to other species); Caterpillar-weed; Cleft Leaf Wild Heliotrope; Cleft-leaf Caterpillar-weed; Cleft-leaf Caterpillarweed; Cleft-leaf Phacelia; Cleft-leaf Scorpion-weed; Cleft-leaf Scorpionweed; Cleft-leaf Wild Heliotrope; Cleft-leaf Wild-heliotrope; Cleftleaf Phacelia; Cleftleaf Scorpion-weed; Cleftleaf Scorpionweed; Cleftleaf Wild Heliotrope; Cleftleaf Wildheliotrope; Common Phacelia; Crenate Phacelia; Crenulate Phacelia; Crenulate-leaved Phacelia; Desert Heliotrope; Heliotrope Phacelia; Notch Leaf Scorpion Weed; Notch-leaf Caterpillar Weed; Notch-leaf Phacelia; Notch-leaf Scorpion-weed; Notch-leaf Scorpionweed; Notch-leafed Phacelia; Notch-leaved Phacelia; Notchleaf Phacelia; Phacelia (a name applied to other species and the genus *Phacelia*); Purplestem Phacelia; Purplestem Scorpionweed; Scalloped Phacelia, Scorpion-weed (Scorpion Weed is a name applied to other species and the genus *Phacelia*); Wild Heliotrope; Wild-heliotrope; Violet Caterpillar Weed; Ytamoosh-oohit (Desert Tortoise Food). DESCRIPTION: Terrestrial annual forb/herb (erect stems 3 to 18 inches in height); the stems may be brown-green; herbage may be dark green or yellow-green; the anthers are yellow; the bell-shaped flowers may be blue, blue-lavender, blue-magenta, blue-purple, dark blue-violet, cream-white, indigo-purple, lavender with white centers; lavender-blue-purple, lavender-purple, magenta-lavender, pink-purple, purple, purple-blue, purple-white, purplish-blue, rose-purple, pale violet, violet, violet-purple, violet-white or white; flowering generally takes place between early January and early July (additional records: one for early August, one for early September, one for mid-October and two for mid-December). HABITAT: Within the range of this species it has been reported from mountains; gravelly-clayey mountainsides; rocky mesas; plateaus; rocky and gravelly rims of canyons; cliffs; bases of cliffs; gravelly canyons; scree; talus slopes; buttes; bouldery-gravelly knolls; ledges; bouldery-gravelly, rocky and clayey ridges; ridgetops; cinder cones; foothills; rocky and clayey hills; rocky-gravelly hilltops; rocky, rocky-gravelly, shaley, shaley-clayey and gravelly hillsides; along sandy escarpments; bouldery, rocky, rocky-sandy-loamy, shaley, shaley-stony, cindery, gravelly, gravelly-sandy, sandy and clayey slopes; rocky and clayey alluvial fans; gravelly and gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; lava flows; lava fields; sand dunes; sandy outwash fans; barren breaks; terraces; gravelly-sandy steppes; plains; rocky-sandy fields; gravelly, gravelly-sandy, sandy, loamy and silty flats; basins; sandy valley floors; railroad right-of-ways; clayey roadcuts; along rocky, gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; arroyos; along bouldery draws; gulches; gullies; along creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in bouldery, bouldery-gravelly, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; silty lakebeds; gravelly-silty depressions; (gravelly, gravelly-sandy and sandy) banks of creeks, rivers and washes; shores of lakes; gravelly-sand bars; sandy beaches; benches; gravelly and gravelly-sandy terraces; floodplains; banks and shores of reservoirs; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, shaley-stony, shaley-sandy, stony, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky-sandy loam, cobbly-silty loam, gravelly loam, sandy loam, clayey loam and loam ground; shaley clay, cobbly-clayey, gravelly clay, sandy clay, silty clay and clay ground, gravelly silty, sandy silty and silty ground, occurring from sea level to 8,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted that it was used as a veterinary aid. *Phacelia crenulata* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph 712), 43 (022410), 44 (072411), 46 (Page 704), 63 (122912 - color presentation including habitat), 77, 80 (Phacelia (*Phacelia crenulata* and *Phacelia pedicellata*) is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “These annual forbs have caused liver damage in horses, hogs and cattle. Also their glandular hairs may cause severe dermatitis to susceptible persons.”), **85** (123112 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 127*

***Phacelia crenulata* J. Torrey ex S. Watson var. *ambigua* (M.E. Jones) J.F. Macbride: Purplestem Phacelia**

SYNONYMY: *Phacelia ambigua* M.E. Jones. COMMON NAMES: Caterpillar Plant; Caterpillar Weed (a name also applied to this species and other species); Caterpillar-weed (a name also applied to this species and other species); Jone’s (error) Phacelia; Jones’ Phacelia; Notch-leaf Phacelia; Notch-leaved Phacelia; Phacelia (a name applied to the species, other species and to the genus *Phacelia*); Purple-stem Caterpillar-weed; Purple-stem Phacelia; Purple-stem Scorpion-weed; Purple-stem Scorpionweed; Purplestem Caterpillarweed; Purplestem Phacelia; Purplestem Scorpionweed; Scorpion-weed (a name applied to this species and the genus *Phacelia*); Wild Heliotrope (a name also applied to this species and other species); Wild-heliotrope (a name also applied to this species and other species); Ytamoosh-oohit (Desert Tortoise Food). DESCRIPTION: Terrestrial annual forb/herb (stems 4 to 40 inches in height); the foliage may be yellow-green; the flowers may be blue, blue-lavender, blue-purple, blue-violet, dark blue-purple with a white throat, lavender, lavender-blue, purple or violet; flowering generally takes place between early January and early June (additional records: one for early September, one for mid-November, one for late November, one for early December and three for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky and gravelly mesas; bases of cliffs; rocky canyons; along gravelly canyon bottoms; crevices in rocks; bases of bluffs; mud-clay, ledges; ridges; craters; foothills; rocky, gravelly, sandy, sandy-clayey and silty hills; rocky, rocky-gravelly, stony and gravelly hillsides; rocky, rocky-gravelly-sandy, rocky-loamy, gravelly and silty slopes; rocky and sandy alluvial fans; bajadas, gravelly-sandy pediments; amongst rocks; bases of rock outcrops; sandy lava fields; sand dunes; breaks; plains; rocky-gravelly-sandy, gravelly, sandy and loamy flats; basins; stony valley floors; along rocky, rocky-sandy, gravelly, gravelly-sandy and sandy roadsides; arroyos; rocky draws; gulches; gravelly gullies; gravelly springs;

along creeks; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; (gravelly, gravelly-sandy and sandy) banks of rivers and washes; (cobbly-gravelly-sandy) edges of washes; margins of washes and playas; along shores of lakes; gravelly-sand bars; benches; bases of sandy ramps; rocky shelves; along edges and banks of canals; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, stony-sandy, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, clayey loam ground; sandy clay ground, and sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Phacelia crenulata*, was reported to have been utilized by native peoples of North America; it was also noted as having been used as a veterinary aid. *Phacelia crenulata* var. *ambigua* is native to southwest-central and southern North America. *5, 6, 28 (color photograph of the species 712), 43 (022410), 44 (072411), 46 (Page 704), **56** (recorded as *Phacelia ambigua* M.E. Jones), **57** (recorded as *Phacelia ambigua* M.E. Jones), 63 (122912 - color presentation), 80 (Phacelia (*Phacelia crenulata* and *Phacelia pedicellata*) is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "These annual forbs have caused liver damage in horses, hogs and cattle. Also their glandular hairs may cause severe dermatitis to susceptible persons."), **85** (072411 - color presentation), 115 (color presentation of the species), 124 (072411 - no record of species; genus record), 127 (species)*

***Phacelia distans* G. Bentham: Distant Phacelia**

SYNONYMY: *Phacelia distans* G. Bentham var. *australis* A. Brand. COMMON NAMES: Blue Phacelia; Blue-eyed Phacelia; Blue-eyed Scorpionweed; Caterpillar Phacelia; Caterpillar Weed (a name also applied to other species); Distant Phacelia; Distant Scorpion Weed; Distant Scorpion-weed; Distant Scorpionweed; Fern Phacelia; Fern-leaf Phacelia; Fern-phacelia; Scorpion-weed (a name also applied to other species and the genus *Phacelia*); Wild Heliotrope (a name also applied to other species). DESCRIPTION: Terrestrial annual or perennial forb/herb (decumbent, ascending and/or erect stems 3 to 44 inches in height; one plant was observed and described as being 20 inches in height and width); the fern-like leaves are green, the anthers are yellow; the flowers may be light blue, light blue-purple, light blue-violet, blue, blue-lavender, blue-lavender-purple, blue-pink, blue-purple, blue-purplish, blue-violet, bluish, bluish-lavender, bluish-purple, bluish-white, pale lavender, lavender, dark lavender, lavender-blue, lavender-pink, pale purple, pale purple-lavender, purple, dark purple, purple-blue, purplish-blue, dark purplish-blue, pale violet, violet-blue, white or whitish; flowering generally takes place between mid-January and late June (additional records: one for mid-July, one for late July, one for early August, one for early September, two for early November, one for mid-November and two for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of mountains; gravelly-loamy mesas; sandy plateaus; bases of cliffs; rocky and rocky-silty canyons; bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy canyon bottoms; chasms; rocky scree; bluffs; sandy bases of faults; rocky knobs; rocky ridges; sandy ridgetops; meadows; foothills; bouldery and rocky hills; clayey hilltops; bouldery, rocky and clayey hillsides; bases of hills; bouldery, rocky, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, cobbly-rocky-sandy, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, clayey and silty-clayey slopes; rocky, rocky-gravelly, rocky-sandy and rocky-sandy-loamy alluvial fans; rocky, gravelly, gravelly-sandy and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders and rocks; sand dunes; sandy-loamy plains; gravelly, gravelly-sandy, sandy and clayey flats; basins; rocky, gravelly and sandy valley floors; sandy coastal bluffs; coastal plains; sandy coastal strands; sandy railroad right-of-ways; along gravelly, gravelly-sandy and sandy roadsides; along and in sandy arroyos; along bottoms of arroyos; rocky draws; gullies; ravines; seeps; springs; along streams; sandy streambeds; along creeks; creekbeds; riverbeds; along and in bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; in gravelly-sandy and sandy drainages; sandy lakebeds; ponds; bogs; rocky-sandy depressions; (sandy) banks of arroyos, streams, creeks, creekbeds, rivers and washes; along (gravelly-sandy) edges of streams, rivers and washes; along margins of creeks and washes; along rocky-sandy, rocky-loamy, gravelly and sandy benches; rocky, sandy and silty-loamy terraces; loamy bottomlands; sandy floodplains; along canals; bouldery-sandy and sandy riparian areas; recently burned areas of woodland, chamise chaparral and sage scrub, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-gravelly-sandy bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony-sandy, cobbly-rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, silty loam and loam ground; silty clay and clay ground, and rocky silty ground often in the shade of boulders, shrubs and trees, occurring from sea level to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Phacelia distans* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 713), 43 (022410 - *Phacelia distans* var. *australis* Brand), 44 (072411), 46 (Page 703), 58, 63 (010313 - color presentation), 77 (color photograph 29), **85** (010513 - color presentation), 86 (color photograph), **89** (reported as being a winter annual herb located on Tumamoc Hill), 115 (color presentation), 124 (072411 - no record of species; genus record), 127, 140 (Page 294)*

Phacelia distans var. *australis* (see *Phacelia distans*)

***Phacelia parryi* J. Torrey: Parry's Phacelia**

COMMON NAMES: Parry Canterbury Bell; Parry Canterbury Bells; Parry Canterbury-bell; Parry Canterbury-bells; Parry Phacelia; Parry Scorpion-weed; Parry Scorpionweed; Parry's Canterbury Bell; Parry's Canterbury Bells; Parry's Canterbury-bell; Parry's Canterbury-bells; Parry's Phacelia; Parry's Scorpion-weed; Parry's Scorpionweed; Parry's Phacelia;

Parry Scorpion-weed; Safirfacelia (Swedish). DESCRIPTION: Terrestrial annual forb/herb (erect stems 8 to 30 inches in height); the stems may be red; the flowers are blue, deep blue, blue-purple with white spots, blue-violet, indigo blue, navy blue, purple, purple with white spots, dark purple, violet or deep violet; flowering generally takes place between early March and mid-July (additional records: one for mid-February, one for early July, one for mid-July and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; canyons; loamy canyonsides; sandy canyon bottoms; cobbly-sandy-loamy ridges; ridgetops; clayey foothills; bouldery-rocky-clayey and rocky hills; rocky and sandy hillsides; bases of hillsides; rocky , rocky-sandy, rocky-clayey, cobbly-sandy-loamy, gravelly and loamy slopes; gravelly and sandy flats; valley floors; coastal slopes; coastal flats; silty-loamy roadcuts; along silty-loamy roadsides; arroyos; along creekbeds; riverbeds; along gravelly, gravelly-sandy and sandy washes; within drainages; banks of streams and streambeds; edges of rivers and washes; sandy riparian areas; recently burned areas in woodlands, and disturbed areas growing in muddy and wet, moist and dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, silty loam and loam ground, and bouldery-rocky clay, rocky clay and clay ground, occurring from sea level to 3,100 feet (one record reported up to 7,900 feet) in elevation in the woodland, scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC Plant. *Phacelia parryi* is native to southwestern and southern North America. *5, 6, **16**, 43 (022510), 44 (010613 - color photograph), 46 (genus, Page 698), 63 (010613 - color presentation), 85 (010613 - color presentation including habitat)*

Phacelia popei var. *arizonica* (see *Phacelia arizonica*)

***Pholistoma auritum* (J. Lindley) N. Lilja: Blue Fiestaflower**

COMMON NAMES: Arizona Fiesta Flower (var. *arizonicum*); Arizona Fiesta-flower (var. *arizonicum*); Arizona Fiestaflower (var. *arizonicum*); Arizona Pholistoma (var. *arizonicum*); Blue Fiesta Flower; Blue Fiesta-flower; Blue Fiestaflower; Climbing Nemophila; Common Fiesta Flower; Common Fiesta-flower; Desert Fiesta-flower; Desert Fiestaflower; Fiesta-flower (a name that is also applied to the genus *Pholistoma*); Lilja Fiesta Flower; Purple Fiesta flower; Purple Fiesta-flower; Sticky Waterleaf. DESCRIPTION: Terrestrial annual forb/herb or vine (clambering, sprawling, trailing ascending stems 3 to 40 inches in height/length; one dense patch of this plant was reported to be about 10 feet in diameter); the flowers may be pale blue-lavender, blue, blue-lavender, blue-purple, blue-purple-lavender, bluish-purple, light lavender-blue, lavender, pink-purple, pale purple, purple, dark purple, purplish-blue, violet, violet-purple or white; flowering generally takes place between mid-January and mid-May (additional records: one for early June, one for mid-June and two for mid-July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bases of cliffs; rocky canyons; canyon bottoms; talus slopes; crevices in boulders and rocks; bluffs; rocky ledges; ridges; rocky ridgetops; openings in forests and woodlands; meadows; rocky foothills; rocky and gravelly hills; rocky and gravelly hillsides; bouldery, rocky, sandy and loamy slopes; rocky outcrops; amongst boulders and rocks; shaded rocky banks; sandy basins; valley floors; coastal bluffs; along roadsides; along arroyos; ravines; seeps; springs; along streams; along creeks; creekbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within sandy drainages; along (rocky and sandy) banks of streams, creeks, creekbeds; rivers and washes; loamy bottomlands; floodplains; ditches; rocky riparian areas, and disturbed areas growing in moist, damp and dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam and loam ground, and clay ground often reported as growing beneath shrubs and trees and in shaded and sheltered areas, occurring from sea level to 6,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pholistoma auritum* is native to southwest-central and southern North America. *5, 6, 43 (022510 - *Pholistoma aurita* (Lindl.) Lilja), 44 (010613), 46 (Page 697), 63 (010613), 77, **85** (010613 - color presentation), 115 (color presentation)*

***Pholistoma auritum* (J. Lindley) N. Lilja var. *arizonicum* (M.E. Jones) L. Constance: Arizona Fiestaflower**

SYNONYMY: *Nemophila arizonica* M.E. Jones. COMMON NAMES: Arizona Fiesta Flower; Arizona Fiesta-flower; Arizona Fiestaflower; Arizona Pholistoma; Blue Fiesta Flower (a name also applied to var. *auritum* and the species); Sticky Waterleaf (a name also applied to the species). DESCRIPTION: Terrestrial annual forb/herb or vine (clambering, sprawling and/or trailing stems 3 to 40 inches in height/length); the flowers may be blue, lavender, pale purple, purple, purple-blue or white; flowering generally takes place between mid-January and mid-May (additional records: one for early June and one for mid-June). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bases of cliffs; rocky canyons; canyon bottoms; crevices in boulders and rocks; sandy bluffs; ledges; ridges; bouldery-shaley foothills; rocky and gravelly hills; rocky and gravelly hillsides; bouldery and rocky slopes; rocky outcrops; amongst boulders and rocks; basins; roadsides; along arroyos; ravines; seeps; springs; along streams; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along banks of washes; loamy bottomlands; floodplains, and riparian areas growing in moist, damp and dry bouldery, bouldery-shaley, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and rocky loam ground sometimes beneath shrubs and trees and shaded sheltered areas, occurring from 500 to 6,000 feet in elevation in the woodland, scrub, desertscrub and wetland ecological formations. NOTE: *Pholistoma auritum* var. *arizonicum* is native to southwest-central and southern North America. *5, 6, 43 (022510), 44 (010613), 46 (Page 697), 63 (010613), 77, 85 (010613 - color presentation of dried materials), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Nemophila arizonica* Jones), 115 (color presentation of the species)*

Juglandaceae: The Walnut Family

***Juglans major* (J. Torrey) A.A. Heller: Arizona Walnut**

SYNONYMY: *Juglans microcarpa* J.L. Berlandier var. *major* (J. Torrey) L.D. Benson; *Juglans rupestris* G. Engelmann ex J. Torrey var. *major* J. Torrey. COMMON NAMES: Arizona Black Walnut; Arizona Walnut; Ch'iłdiiyé [Ch'iłniiyé] <ch'il niyé> (Athapascan: Western Apache)[140]; Ha'ałtsédii <xa'ałtsyétiih> ("That Which is Cracked", Athapascan: Navajo)[140]; Hałsede <hałtsede> ("That Which is Cracked", Athapascan: Chiricahua and Mescalero Apache)[140]; Ïpïvï <ïpokai> (Uto-Aztecan: Northern Tepehuan)[140]; Ïpïvï <uupï> (Uto-Aztecan: Onavas Pima; probably Epeve or Upuvụ)[140]; Kemtcutek[a] <gamjudk> (Yuman: Walapai)[140]; Lačí (Uto-Aztecan: Tarahumara)[140]; Mụrụkátụvụáci (Uto-Aztecan: Ute)[140]; New Mexico Walnut; Noga'al U'sh (Uto-Aztecan: Mountain Pima)[140]; Nogal (a name also applied to the genus *Juglans*, the small nut is known in Spanish as "nogales"); Nogal (Spanish: Chihuahua, Sonora)[140]; Nogal Cimarrón (Hispanic); Nogal Encarcelado (Hispanic); Nogal Silvestre ("Wild Walnut", Spanish: Chihuahua, Sonora, Texas)[140]; Súhūvi (Uto-Aztecan: Comanche)[140]; U:pio (Uto-Aztecan: Tohono O'odham)[140]; Uup [Uupio] (Uto-Aztecan: Mountain Pima)[140]; Uupai (Uto-Aztecan: Northern Tepehuan)[140]; Uupio (Uto-Aztecan: Akimel O'odham)[140]; Walnut (a name also applied to the genus *Juglans* and the Juglandaceae); [Arizona] Walnut (English)[140]. DESCRIPTION: Terrestrial perennial deciduous tree (5 to 66 feet in height with a rounded crown that may be of about the same width as the height of the tree; one tree was observed and described as being 5 feet in height with a crown 4 feet in width, one tree was observed and described as being 7 feet in height with a crown 5 feet in width, one tree was observed and described as being 23 feet in height with a crown 26 feet in width); the trunk may be up to 4 feet in diameter; the bark may be brownish, light gray, gray, dark gray, grayish-brown or dark gray-brown; the young stems may be light to dark brown; the pinnately compound leaves (7 to 14 inches in length) are green or yellow-green; the flowers (male and female flowers born on separate catkins or spikes) are greenish or yellowish; flowering generally takes place between mid-March and late June (additional records: one for mid-July, one for late July, one for early September and one for mid-September); the mature fruits (1 to 1½ inches in diameter) are rusty-green or yellow-green and ripen between July and September. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; plateaus; cliffs; sandy bases of cliffs; along and in bouldery, rocky and gravelly-sandy canyons; rocky canyonsides; along bouldery, rocky and cobbly canyon bottoms; ledges; rocky ridges; foothills; hills; hilltops; rocky hillsides; rocky escarpments; bouldery, bouldery-loamy, rocky, gravelly-loamy, loamy and silty slopes; amongst boulders and rocks; flats; glens; along valley bottoms; along rocky, rocky-sandy and gravelly roadsides; rocky and sandy arroyos; sandy bottoms of arroyos; within draws; gulches; ravines; springs; along streams; bouldery, bouldery-loamy and rocky streambeds; along creeks; along and in sandy creekbeds; along rivers; along riverbeds; along rocky, stony and sandy washes; drainages; along watercourses; ciénegas; (silty) banks of streams, creeks and rivers; (gravelly) edges of streambeds, washes and drainage ways; shores of lakes; sand bars; sandy benches; terraces; rocky bottomlands; along gravelly-sandy floodplains; mesquite bosques; along ditches; bouldery, gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in well drained moist and dry bouldery, rocky, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; bouldery loam, cobbly-sandy loam, gravelly loam and loam ground; silty ground, and humusy ground, occurring from 900 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and is considered to be a valuable shade tree. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, fiber (building materials) and/or dye (brown) and paint (black) crop. Consider using the Arizona Walnut as a specimen plant in a large area and in the re-vegetation of riparian areas. Once past the seedling stage the Arizona Walnut has a growth rate of about one foot per year and may live to be 400 years of age. Note that the Arizona Walnut requires deep soil and moderate water but not as much water as other riparian trees such as the Alder, Ash, Cottonwood, Sycamore and Willow Trees. Walnut trees are susceptible to aphid infestations that produce considerable amounts of honeydew. Birds, squirrels and other wildlife eat the fruits and the tree provides habitat for wildlife including cavities that are used by the Acorn Woodpecker (*Melanerpes formicivorus*). When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Arizona Walnut has been EXTIRPATED from this township. *Juglans major* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Juglans microcarpa* Berlandier var. *major* (Torrey) L. Benson), 15, 18, 28 (color photograph 94), 30, 43 (080409), 44 (072411 - no record of species; genus record), 46, 48, 52 (color photograph), 53, 58, 63 (010713 - color presentation), 85

(010713 - color presentation), **89** (reported as being a tree located on the Santa Cruz Floodplain), 124 (072411 - no record of species; genus record), 127, 140 (Pages 156-157 & 294)*

Juglans microcarpa var. *major* (see *Juglans major*)

Juglans rupestris var. *major* (see *Juglans major*)

Krameriaceae: The Ratany Family

Krameria canescens (see footnoe 89 under *Krameria grayi*)

***Krameria erecta* C.L. von Wildenow ex J.A. Schultes: Littleleaf Ratany**

SYNONYMY: *Krameria parvifolia* G. Bentham; *Krameria parvifolia* G. Bentham var. *imparata* J.F. Macbride. COMMON NAMES: Chacate (Uto-Aztecan: Tohono O'odham)[140]; Chacate (Yuman: Maricopa)[140]; Coashui, Cósahui (Uto-Aztecan: Hiá Ceḍ O'odham, Yaqui)[140]; Desert Ratany; Desert Rhatany; 'Eḍho, He:ḍ (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Eḍho <'edho, e'eḍho> (Uto-Aztecan: Tohono O'odham)[140]; Eeḍho (Uto-Aztecan: Akimel O'odham)[140]; Glandular Ratany; Glandular Rhatany; Haxz Iztim ("Dog's Hipbone", Hokan: Seri)[140]; Kosawi <cosawi> (Uto-Aztecan: Onavas Pima)[140]; Little Leaf Ratany; Little Leaved Ratany; Little-leaf Kramaria; Little-leaf Ratany; Little-leaf Rhatany; Little-leaved Ratany; Little-leaved Rhatany; Littleleaf Krameria; Littleleaf Ratany; Littleleaf Rhatany; Littleleaved Ratany; Mezquitillo ("Little Mesquite", Spanish: Mexico)[140]; Pima; Pima [Little-leaved, Little-leaf, Range] Ratany (English)[140]; Pima Rhatany; Purple Heather (a name also applied to other species); Purple Heather (English)[140]; Range Ratany (a name also applied to other species); Range Rhatany (a name also applied to other species); Ratany (a name applied to the genus *Krameria*); Small-flower Ratany; Spiny Little-leaf Kramaria; Sticky Little-leaf Kramaria; Sticky Range Ratany; Tahué <tajué, tajuí> (Uto-Aztecan: Guarijío)[140]; Tajimsi ("Sun Beard", Uto-Aztecan: Mayo)[140]; Tamichil (Uto-Aztecan: Sonora)[140]; Wetahúpatci (Uto-Aztecan: Tarahumara)[140]; Wood Ratany; Zarsaparilla ("Thorny Vine", Spanish: San Luis Potosí)[140]. DESCRIPTION: Terrestrial perennial subshrub or shrub (2 to 40 inches (or possibly to 79 inches) in height; one plant was observed and described as being 8 to 10 inches in height and 3 feet in width, one plant was observed and described as being 12 inches in height and 16 inches in width, one plant was observed and described as being 20 inches in height and 6½ feet in width); the older stems may be gray or greenish; the leaves are blue-gray-green, gray, gray-green, gray-red or greenish; the flowers may be burgundy, lavender-purple, magenta, maroon, maroon-magenta, maroon-purple, maroon-red, pink, pink-purple, purple, dark purple, purple-magenta, purple-pink, purple-red, reddish, red-purple, reddish-violet, rose-pink, rose-purple, scarlet-purple, violet-red and white turning pink; flowering generally takes place between early March and late November (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky, sandy and sandy-loamy mesas; along cliffs; bases of rocky cliffs; bouldery and rocky canyons; canyon sides; rocky canyon bottoms; buttes; sandy and clayey knolls; sandy ledges; rocky and rocky-gravelly ridges; bouldery, rocky and gravelly ridgetops; rocky-gravelly ridgelines; foothills; rocky, gravelly and sandy hills; rocky-gravelly hilltops; rocky, rocky-sandy, rocky-sandy-loamy, stony, gravelly and sandy hillsides; bedrock, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy-clayey-loamy, sandy and sandy-clayey-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders; boulder fields; lava slopes; lava flows; sand dunes; gravelly, gravelly-sandy-loamy, gravelly-loamy and sandy plains; rocky, gravelly, pebbly-sandy and sandy flats; basins; sandy valley floors; along gravelly-loamy and sandy roadsides; arroyos; along bottoms of arroyos; rocky draws; gulches; along creeks; along rivers; along and in rocky-gravelly, gravelly and sandy washes; along and in rocky drainages; playas; depressions; sandy-clayey-loamy swales; banks of rivers and washes; borders of washes; (sandy) edges of washes and drainage ways; (silty) margins of playas; benches, and riparian areas growing in dry bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, pebbly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground; rocky clay, silty clay and clay ground; sandy silty and silty ground, and chalky ground, occurring from sea level to 6,100 (one record at 9,400 feet) feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used as a drug or medication. The roots of this plant form grafts (haustoria) on the roots of other Littleleaf Ratany plants and a broad range of other species. This plant is browsed by Mule Deer (*Odocoileus hemionus crooki*) and Whitetail Deer (*Odocoileus virginianus couesi*) and a bee(s) in the genus *Centris* visits the flowers. Pocket mice, rattlesnakes, whiptails and other animals use the plant for cover. *Krameria erecta* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Krameria parvifolia* Bentham, Pages 126-127), 15 (recorded as *Krameria parvifolia* Benth.), **16** (recorded as *Krameria parvifolia* Benth.), 28 (recorded as *Krameria parvifolia*, color photograph 662), 43 (022610 - *Krameria parvifolia* var. *imparata* J.F. Macbr.), 44 (031211), 46 (recorded as *Krameria parvifolia* Benth., Page 404), 48 (genus), 58 (recorded as *Krameria parvifolia* Benth. var. *imparata* Macbr.), 63 (010713 - color presentation), 77 (color photograph #30), **85** (010713 - color presentation), **89** (reported as being a dwarf shrub located on Tumamoc Hill, recorded as *Krameria glandulosa* Rose), 115 (color presentation), 124 (031211 - no record of species; genus record), 127, 140 (Pages 143, 157-159 & 294), **HR***

Krameria glandulosa (see footnote 89 under *Krameria erecta*)

***Krameria grayi* J.N. Rose & J.H. Painter: White Ratany**

COMMON NAMES: Chacate; Cosahui; Crimson-beak; Eḍho (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Gray Krameria; Gray Ratany; Gray's Krameria; Gray's Ratany; Naka ʾBɔrïnanïmp (Uto-Aztecan: Southern Paiute)[140]; Range Ratany (a name also applied to other species); Ratany (a name applied to the genus *Krameria*); White Ratany; White Rhatany. DESCRIPTION: Terrestrial perennial subshrub or shrub (8 inches to 5 feet in height and to 5 feet in width; one plant was observed and reported to be 18 inches in height with a crown 24 inches in width, one plant was observed and reported to be 2 feet in height with a crown 30 inches in width, one plant was observed and reported to be 28 inches in height with a crown 40 inches in width, one plant was observed and reported to be 30 inches in height with a crown 36 inches in width, one plant was observed and reported to be 40 inches in height with a crown 52 inches in width, one plant was observed and reported to be 4 feet in height with a crown 5 feet in width); the foliage is blue-gray, blue-green, gray, grayish-purple or purple, the flowers may be lavender, deep lavender, magenta, maroon, maroon-purple, pink, dark pink-purple, pinkish-purple, light purple fading to white, purple, dull raspberry-red, red-purple, red-violet, reddish-purple, rose, rose-purple, violet, violet-purple or white turning pink or purple; flowering generally takes place between mid-March and mid-July and again between early September and late November (additional records: one for early January, one for mid-February, two for mid-August and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; cliffs; bouldery canyons; rocky canyon bottoms; rocky talus slopes; rocky ledges; ridges; rocky ridgetops; along rocky ridgelines; bouldery and rocky foothills; rocky, gravelly and gravelly-sandy hills; hilltops; rocky and gravelly hillsides; bedrock, bouldery, bouldery-rocky-sandy, bouldery-cobbly, rocky, rocky-gravelly-sandy, gravelly and sandy slopes; gravelly-sandy and sandy alluvial fans; gravelly and sandy bajadas; bouldery and rocky outcrops; amongst boulders; sand dunes; gravelly and sandy plains; rocky, gravelly, sandy and sandy-clayey-loamy flats; loamy basins; sandy valley floors; beach dunes; coastal plains; coastal beaches; along rocky roadsides; along arroyos; rocky bottoms of arroyos; rocky gullies; around seeping streams; along and in gravelly, gravelly-sandy and sandy washes; rocky drainages; ciénegas; swampy areas; (rocky) banks of washes; borders of washes; edges of washes; benches; rocky terraces; bottomlands; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky-sandy, bouldery-cobbly, rocky, rocky-gravelly-sandy, shaley, gravelly, gravelly-sandy and sandy ground; sandy-clayey loam and loam ground, and clay ground, occurring from sea level to 4,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used as a drug or medication. The roots of this plant form grafts with other White Ratany plants, as well as, other species. White Ratany is browsed by Black-tailed Jack Rabbits (*Lepus californicus*), Desert Bighorn Sheep (*Ovis canadensis mexicana*), Mule Deer (*Odocoileus hemionus crooki*) and Whitetail Deer (*Odocoileus virginianus couesi*) and the Scaled Quail (*Callipepla squamata*) feeds on the seeds. *Krameria grayi* is native to southwest-central and southern North America. *5, 6, 13, **16**, 28 (color photographs 550 A-B), 43 (022610), 44 (010913 - no listings under Common Name, listings located under *Krameria bicolor*, color photograph), 46 (Page 404), 48 (genus), 63 (010913 - color presentation), 77, **85** (011513 - color presentation), **89** (reported as being a dwarf shrub located on Tumamoc Hill, recorded as *Krameria canescens* Gray), 115 (color presentation), 127, 140 (Page 158), **WTK** (August 12, 2005)*

Krameria parvifolia (see *Krameria erecta*)

Krameria parvifolia var. *imparata* (see *Krameria erecta*)

Lamiaceae (Labiatae): The Mint Family

***Hedeoma nana* (J. Torrey) J.I. Briquet: Dwarf False Pennyroyal**

COMMON NAMES: California False Pennyroyal (subsp. *californica*); California False-pennyroyal (subsp. *californica*); California Mock Pennyroyal (subsp. *californica*); California Mock-pennyroyal (subsp. *californica*); Dwarf False Pennyroyal; Dwarf False-pennyroyal; Dwarf Mock Pennyroyal; Dwarf Mock-pennyroyal; Dwarf Pennyroyal; False Pennyroyal (a name also applied to other species); Falsepennyroyal (a name also applied to other species); Low Hedeoma; Menta (Mexico: Sonora); Mock Pennyroyal (a name also applied to other species and the genus *Hedeoma*); Mock-pennyroyal (Mock Pennyroyal is a name that is applied to other species and the genus *Hedeoma*); Oregano (a name also applied to other taxa); Penny Royal (Pennyroyal is a name also applied to other taxa); Poleo (Mexico: Sonora). DESCRIPTION: Terrestrial annual or perennial forb/herb (erect stems 4 to 16 inches in height; one plant was observed and described as being 9 inches in height and 12 inches in width); the leaves may be gray-green, pale green or purple; the flowers may be albino, blue, blue-lavender, light lavender, lavender, lavender-blue, lavender-pink, lavender-purple, lavender-rose, magenta-purple, light pink, pink, pink-purple, pinkish, pinkish-purple, light purple, purple, purple-blue, rose-purple, pale violet, violet, white, whitish-lavender or whitish-purple; flowering generally takes place between mid-February and late October. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky cliffs; canyon rims; along bouldery and rocky canyons; sandy canyon walls; canyonsides; along bouldery, bouldery-rocky, rocky, gravelly and sandy canyon bottoms; crevices and fractures in bedrock and boulders; buttes; rocky ledges; bedrock and bouldery ridges; rocky and gravelly ridgetops; foothills; rocky hills; rocky and rocky-sandy hillsides; bedrock, bouldery, rocky, stony, gravelly-loamy, sandy and sandy-clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; sandy areas under rock overhangs; sandy lava flows; rocky plains; gravelly flats; esplanades; basins;

rocky valley floors; along rocky-gravelly roadsides; along gravelly arroyos; gravelly bottoms of arroyos; stony draws; springs; along streams; along streambeds; along creeks; rocky and stony creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; bouldery and bouldery-rocky drainages; marshes; banks of streams and creeks; borders of washes; edges of lakes; (sandy) shorelines of rivers; terraces; gravelly bottomlands; floodplains; riparian areas and disturbed areas growing in moist and dry rocky desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony, pebbly, gravelly and sandy ground; gravelly loam and sandy-clayey loam ground, and silty ground, occurring from 400 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or spice crop; it was also noted as having been used as a drug or medication and as a commodity used in personal hygiene. The crushed herbage is very aromatic. *Hedeoma nana* is native to southwest-central and southern North America. *5, 6, 15, 43 (022710), 44 (011713), 46 (recorded as *Hedeoma nanum* (Torr.) Briq., Page 745), 63 (011613 - color presentation), 77, **85** (011713 - color presentation), 127*

Hedeoma nanum (see footnote 46 under *Hedeoma nana*)

***Hyptis emoryi* J. Torrey: Desert Lavender**

COMMON NAMES: Bee Sage (a name also applied to other species); Bee-sage (Bee Sage is a name that is also applied to other species); “Chia” (a name given to the seeds of this plant, and also to the seeds and plants of several species of *Salvia*); Desert Lavender; Desert-lavender; Desertlavender; Emory Bee Sage; Emory Bee-sage; Emory’s Bee Sage; Emory’s Bee-sage; Lavender; Lavanda (Spanish); Mariola (Yaqui, a name also applied to other species); Salvia (a name also applied to other species, Spanish); Salvia del Desierto (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial perennial evergreen shrub (8 inches to 15 feet in height; one plant was observed and described as being 8 feet in height and 8 feet in width); the leaves are gray, gray-green, grayish-white or green-gray; the flowers may be blue, blue-lavender, blue-purple, blue-violet, dark blue, lavender, pink-purple, purple, purple-indigo, violet, violet-blue or white; the styles are purple; the filaments are white; the anthers are purple; flowering generally takes place between mid-January and mid-June and between early September and late December (additional records: one for early July, one for mid-July and two for mid-August). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; bouldery-clayey-loamy mesas; bases of cliffs; along and in bouldery, rocky and rocky-sandy canyons; along rocky, gravelly and sandy canyon bottoms; rocky talus slopes; crevices in rocks; buttes; ledges; rocky and gravelly ridges; bouldery ridgetops; rocky foothills; bases of foothills; rocky hills; bouldery, rocky, rocky-gravelly and gravelly hillsides; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-loamy, stony, gravelly and sandy slopes; bases of slopes; rocky alluvial fans, bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; tablelands; rocky-gravelly and sandy plains; gravelly flats; coastal plains; coast lines; along rocky roadsides; rocky and rocky-gravelly arroyos; along rocky and gravelly bottoms of arroyos; troughs; along seepage streams; along streambeds; bouldery-rocky-sandy creekbeds; along and in bouldery, bouldery-gravelly, bouldery-gravelly-sandy, rocky, gravelly, gravelly-sandy and sandy washes; along and in rocky and rocky-gravelly drainages; (rocky) banks of streams and washes; along (sandy) edges of washes; along margins of washes and drainage ways; (gravelly) shores; sandy ridges; floodplains; muddy-sandy shores of reservoirs; bouldery-cobbly-sandy riparian areas, and disturbed areas growing in muddy-sandy and dry desert pavement; bouldery, bouldery-rocky-sandy, bouldery-cobbly-sandy, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; bouldery-clayey loam, rocky-gravelly loam, rocky-sandy loam, sandy loam and clayey loam ground, and rocky clay and clay ground, occurring from sea level to 6,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, but is sensitive to frosts. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The foliage is fragrant, having the odor of lavender or turpentine. Native bees and hummingbirds visit the flowers and the seeds provide food for wildlife. *Hyptis emoryi* is native to southwest-central and southern North America. *5, 6, 13 (Pages 211-212), 16, 18, 28 (color photograph 773), 43 (022710), 44 (072511), 46 (Page 748), 48, 63 (011713 - color presentation), 77 (color photograph #31), **85** (011713 - color presentation), **89** (reported as being a shrub located on Tumamoc Hill), 91 (Pages 239-241), 115 (color presentation), 124 (072611 - no record of species or genus), 127, 140 (Page 294)*

***Marrubium vulgare* C. Linnaeus: Horehound**

COMMON NAMES: Andorn (German); Common Hoarhound; Common Hore-hound; Common Horehound; Common White Hoar-hound; Common White Hoarhound; Common White Hore Hound; Common White Hore-hound; Common White Horehound; Eye of the Star; Herb Horehound; Herb-horehound; Herbe Horehound; Herehoune; Horehound; Horehounde; Horehownd; Horhowne; Horone; Hound-bane; Houndbane; Houndbene; Hound’s Bane; Hound’s-bane; Houndsbane; Houndsbene; K'ameri (Purépecha); Kransborre (Swedish); Malcubio (Hispanic); Malva del Sapo (Hispanic); Malvarrubina (Hispanic); Manrrubio (Hispanic); Manrubio Blanco (Hispanic); Marribieu (Purépecha); Marroio (Portuguese); Marrube Blanc (French); Marrube Vulgaire (French); Marrubio (Spanish); Marrubio Común (Spanish); Marrufo (Spanish, Mexico: Sonora); Mastrán (Spanish, Mexico: Sonora); Mastranto (Hispanic); Mata Ceniza (Hispanic); Ou Xia Zhi Cao (transcribed Chinese); Pest Plant Horehound; Plant Hore-hound; Plant Horehound; Roubiya (Arabic); Rouwaka (Tarahumara); Šandra Obyknovennaja (transcribed Russian); Seed of Horus; Soldier’s Tea; Vitsacua (Purépecha); Vitzacua (Purépecha); White Hoar Hound; White Horehound; White Hoar-hound; White Hore-hound; White Hoarhound; White Horehound; White Wooly Horehound; Woolly

Hoarhound; Woolly Horehound; Woolly Hore-hound; Woolly Horehound; Wooly Horehound; Zekom (Arabic). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (ascending and/or erect stems 4 to 40 inches in height; one plant was observed and described as being 40 inches in height and 40 inches in width); the leaves are gray-green; the tiny flowers may be cream, cream-yellow, white, white-cream, white-green or yellowish-white; flowering generally takes place between mid-March and late October (additional records: one for mid-November, one for early December and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rock cliffs; silty bases of cliffs; rocky, gravelly and sandy canyons; rocky canyon walls; along rocky and clayey canyon bottoms; crevices in rocks; rocky-clayey ledges; ridges; meadows; rocky-gravelly-loamy foothills; rocky hills; rocky hillsides; bouldery, bouldery-rocky-loamy, rocky, gravelly, sandy-loamy, sandy-humusy, loamy, clayey and clayey-loamy slopes; rocky outcrops; sand hills; gravelly benches; berms; prairies; plains; rocky, rocky-silty-clayey, sandy, sandy-loamy, clayey and clayey-loamy flats; valley floors; along gravelly-loamy roadbeds; along rocky-gravelly, rocky-loamy, gravelly-loamy, rocky-clayey, gravelly, sandy and silty roadsides; bottoms of arroyos; along draws; ravines; seeps; springs; along streams; rocky streambeds; along creeks; along loamy creekbeds; along rivers; sandy-loamy riverbeds; along and in gravelly and sandy washes; along and in rocky and gravelly drainages; marshes; gravelly depressions; along (silty) banks of arroyos, creeks, rivers and drainage ways; ciénegas; borders of washes; edges of marshes; bouldery, rocky-loamy and loamy benches; terraces; sandy bottomlands; sandy floodplains; mesquite bosques (woodlands); sandy-clayey borders of stock tanks; ditches; sandy and sandy-silty riparian areas; silty waste places, and disturbed areas (goat and sheep bedding grounds and corrals were among those noted) growing in wet, moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-rocky loam, rocky loam, rocky-gravelly loam, gravelly loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; rocky clay, rocky-silty clay, sandy clay and clay ground; sandy silty, clayey-silty and silty ground, and sandy humusy ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used in making candy and as a drug or medication. *Marrubium vulgare* is native to northern, central, eastern and southern Europe and islands in the North Atlantic Ocean and Mediterranean Sea; western, central, eastern and southern Asia, and northern Africa. *5, 6, 15, 18, 28 (color photograph 312), 30, 43 (022710), 44 (011713), 46 (Pages 735-736), 58, 63 (011713 - color presentation), 68, **85** (011813 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a half-shrub), 101 (color photograph), 115 (color presentation), 127*

***Moluccella laevis* C. Linnaeus: Shellflower**

COMMON NAMES: Bells of Ireland; Bells-of-Ireland; Irish Bells; Molucca Balm; Molucca Balmis; Molucca-balm; Musselsyska (Swedish); Shell Flower (a name also applied to other taxa); Shellflower (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb (erect stems 24 to 40 inches in height and 10 to 12 inches in width); the leaves are pale green, the inconspicuous flowers are white or white tipped with pink with large apple green or green, bell- or shell-shaped calyces; flowering may take place throughout the year. HABITAT: Within the range of this species it has been reported from clay hills; fields; flats; along and in washes; lowlands, and disturbed areas growing in dry sandy ground; loam ground, and sandy clay and clay ground, occurring at 1,100 to 5,000 feet in elevation in the desertscrub ecological formation. NOTE: EXOTIC Plant. *Moluccella laevis* is native to eastern Europe and western and central Asia. *5, 6, **16**, 18, 43 (022710), (011813 - color picture), 46 (Page 739), 63 (011813), **77**, 85 (011813 - color presentation), 106 (011813 - color presentation)*

***Salvia columbariae* G. Bentham (var. *columbariae* is the variety reported as occurring in Arizona): Chia**

COMMON NAMES: California Chia; California Chia Sage; California Chia Salvia; California Sage; Chia (a name given to the seeds of this plant, and also to the seeds and plants of several species of *Salvia*, Spanish); Desert Chia; Desert Sage; Golden Chia; Hisopo (Spanish); Romerillo (Spanish); Sage (a name also applied to the genus *Salvia*); Salvia (Spanish); Western Chia; Ziegler's Sage (var. *ziegleri*). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 40 inches in height); the stems are square; flowers may be blue, dark blue, blue-purple, blue-violet, bluish, bluish-lavender, lavender, purple, dark purple, purplish, purplish-blue, royal blue, violet or white; flowering generally takes place between mid-January and late July (additional records: one for mid-August, one for late August and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; bouldery mountainsides; rocky, rocky-sandy and sandy mesas; rocky plateaus; along rocky cliffs; along rocky canyons; bouldery-sandy, rocky, rocky-sandy and sandy canyon bottoms; rocky bluffs; buttes; rocky and clayey-loamy ridges; rocky-gravelly-loamy ridgetops; meadows; foothills; bedrock, bouldery, rocky, rocky-loamy-clayey, gravelly, sandy and clayey hills; clayey hilltops; bouldery, bouldery-sandy, rocky, rocky-sandy and sandy hillsides; bouldery, rocky, rocky-gravelly-sandy, rocky-gravelly-loamy, rocky-sandy, rocky-loamy, rocky-clayey, shaley, cobbly-gravelly-sandy, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy, sandy-loamy, clayey, clayey-loamy and silty slopes; rocky and rocky-sandy alluvial fans; gravelly, gravelly-sandy and silty bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; blow-sand deposits; rocky-sandy outwash fans; plains; fields; bouldery-sandy, rocky, gravelly and sandy flats; bouldery-sandy valley floors; sandy bases of coastal bluffs; coastal prairies; sandy coastal bluffs; coastlines; along rocky, rocky-gravelly-loamy, gravelly and sandy roadsides; along arroyos; within draws; along streams; along creeks; along gravelly-sandy creekbeds; sandy riverbeds; along and in rocky, rocky-gravelly-sandy, rocky-sandy, rocky-clayey, stony-sandy-silty, gravelly, gravelly-sandy, pebbly-sandy, sandy and silty washes; sandy drainages; in bouldery and sandy drainage ways; around pools; silty depressions; (bouldery-sandy, gravelly, gravelly-sandy and sandy) banks of springs, arroyos, streams, creeks, rivers and washes; (sandy) edges of arroyos and washes; along margins of washes; gravel and gravelly-sand bars; sandy benches; gravelly and sandy terraces; sandy and loamy bottomlands; floodplains; silty impoundments; gravelly-sandy and sandy-silty riparian areas; recently burned areas in woodlands,

chaparral and coastal sage scrub, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly-gravelly-sandy, cindery-sandy, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky-loamy clay, rocky clay and clay ground, stony-sandy silty, sandy silty, silty and powdery silty ground, occurring from sea level to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or food, beverage, spice and/or fiber crop; it was also noted as having been used as a drug or medication. The foliage has a strong, pleasant, sweet odor of sage. *Salvia columbariae* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph 775), 43 (022710), 44 (072511 - color photograph), 46 (Page 741), 48 (genus), **56**, **57**, 63 (011813 - color presentation), 77, **85** (011813 - color presentation), 86 (color photograph), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (072511 - no record of species; genus record), 127, 140 (Page 295)*

***Teucrium canadense* C. Linnaeus: Canada Germander**

COMMON NAMES: American Germander; Canada Germander; Germander (a name also applied to other species and the genus *Teucrium*); Hairy Germander; Western Germander (var. *occidentale*); Wild Germander; Wood Sage (a name also applied to the genus *Teucrium*); Wood-sage (a name also applied to the genus *Teucrium*). DESCRIPTION: Terrestrial perennial forb/herb (stems 26 inches to 5 feet in height); the flowers may be orchid-pink, pale pink, purple, purplish or white with red-purple markings; based on few records located, flowering generally takes place between mid-April and early September (flowering records: one for mid-April, one for mid-May, two for late May, one for early June, two for early July, three for mid-July, six for late July, seventeen for early August, four for mid-August, one for late August and two for early September). HABITAT: Within the range of this species it has been reported from mountains; loamy meadows; prairies; valley bottoms; sandy coastal dunes; roadsides; along streams; along rivers; along riverbeds; within washes; along drainages; around ponds; marshy areas; along sloughs; (muddy-clayey and clayey) banks of streams, creeks and rivers; edges of marshes; shorelines of lakes; floodplains; bottomlands; within loamy ditches; shorelines of stock tanks; along shores of reservoirs; riparian areas, and disturbed areas growing in muddy and wet and moist sandy ground; loam ground, and clay ground, occurring from sea level to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Teucrium canadense* is native to central and southern North America and coastal islands in the Caribbean Sea. *5, 6, 43 (022810), 44 (011913 - no listings recorded under Common Names, color photograph), 46 (Page 733), 63 (011913 - color presentation), **85** (011913 - color presentation)*

Teucrium canadense var. *angustatum* (see *Teucrium canadense* var. *canadense*)

***Teucrium canadense* C. Linnaeus var. *canadense*: Canada Germander**

SYNONYMY: *Teucrium canadense* C. Linnaeus var. *angustatum* A. Gray. COMMON NAMES: American Germander; Canada Germander; Germander (a name also applied to the species, other species and to the genus *Teucrium*); Hairy Germander; Wild Germander; Wood Sage (a name also applied to the species and the genus *Teucrium*); Wood-sage (a name also applied to the species and the genus *Teucrium*). DESCRIPTION: Terrestrial perennial forb/herb (stems 26 to 40 inches in height); the flowers may be pale pink or purplish; flowering generally takes place between May and September (flowering records: one for late May and one for early August). HABITAT: Based on few records located, within its range, *Teucrium canadense* has been reported from meadows; prairies; sandy coastal dunes; roadsides; springy areas; along streams; along rivers; along riverbeds; around ponds; marshes; banks of streams and rivers; bottomlands, and riparian areas growing in moist sandy ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Teucrium canadense* var. *canadense* is native to central and southern North America. *5, 6, 43 (022810), 44 (011913 - no record of variety; genus and species records), 46 (recorded as *Teucrium canadense* L. var. *angustatum* Gray, Page 733), 63 (011913), **85** (011913), **89** (reported as being a perennial herb located on the Santa Cruz Floodplain, recorded as *Teucrium canadense* L. var. *angustatum* Gray)*

***Teucrium cubense* N.J. von Jacquin (var. *densum* is the variety reported as occurring in Arizona): Small Coastal Germander**

COMMON NAMES: Alkali Germander (subsp. *depressum*); Coast Germander; Coastal Germander; Combleaf Germander; Depressed Germander (subsp. *depressum*); Germander (a name also applied to other species and the genus *Teucrium*); Lou Germander (subsp. *depressum*); Small Coast Germander; Small Coastal Germander. DESCRIPTION: Terrestrial annual or perennial forb/herb (ascending and/or erect stems 6 to 28 inches in height); the flowers may be pale blue, pale bluish, pale lavender, lavender, violet & white or white; flowering generally takes place between late February and mid-May (additional records: one for late June, one for late July, one for early August, two for mid-September, two for early October, one for mid-October, two for late October, one for mid-November and two for early December). HABITAT: Within the range of this species it has been reported from sand dunes; sandy and sandy-silty flats; sandy-clayey basins; bolsons; valley floors; sandy-silty valley bottoms; along sandy roadsides; arroyos; along draws; within gullies; seeps; along streams; streambeds; along creeks; in sand along rivers; sandy, sandy-silty, clayey-loamy and silty riverbeds; along and in gravelly-sandy and sandy washes; around vernal pools; beds of vernal pools; playas; sloughs, banks of rivers and washes; edges of washes and poolbeds; margins of pools and poolbeds; bottomlands; floodplains; mesquite bosques; muddy-clayey margins of stock tanks (charcos, represos); silted-in

reservoirs; along canals; along ditches; sandy-silty riparian areas, and disturbed areas growing in muddy and wet, moist, damp and dry gravelly-sandy and sandy ground; clayey loam soils; rocky-silty clay, sandy-clay and clay ground, and sandy silty and silty ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Teucrium cubense* is native to southwest-central and southern North America. *5, 6, **16**, 43 (022810), 44 (011913), 46 (Page 733), 63 (011913 - color presentation), **77**, **85** (011913 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Floodplain)*

Linaceae: The Flax Family

***Linum lewisii* F.T. Pursh (var. *lewisii* is the variety reported as occurring in Arizona): Lewis Flax**

SYNONYMY: (for var. *lewisii*: *Linum perenne* C. Linnaeus subsp. *lewisii* (F.T. Pursh) O.E. Hultén). COMMON NAMES: Alpine Blue Flax (var. *alpicola*); Alpine Lewis Flax (var. *alpicola*); Alpine Lewis' Flax (var. *alpicola*); Alpine Lewis's Flax (var. *alpicola*); Blue Flax (a name also applied to other taxa); Blue Prairie Flax; Flax (a name also applied to other species, the genus *Linum* and to the Linaceae); Lewis Blue Flax; Lewis Flax; Lewis Wild Flax; Lewis' Blue Flax; Lewis' Flax; Lewis Wild Flax; Lewis's Blue Flax; Lewis's Flax; Lewis's Wild Flax; Meadow Flax (var. *pratense*); Perennial Blue Flax (for *L. perenne*, a closely related European relative once considered a synonym for *L. lewisii*); Prairie Blue Flax; Prairie Flax (a name also applied to other taxa); Western Blue Flax; Wild Blue Flax (a name also applied to other taxa); Wild Flax (a name also applied to other taxa). DESCRIPTION: Terrestrial semi-evergreen perennial forb/herb or subshrub (erect stems [prostrate? in var. *alpicola*] 4 to 40 inches in height); the stems are green; the leaves may be gray-green, grayish-green or green; the flowers (¾ to 2 inches in width, open at sunrise with petals falling by noon) may be pale blue, blue, bright blue, blue-purple, cerulean-blue, lavender, purple, purplish-blue, sky-blue, deep sky-blue, violet or white; flowering generally takes place between mid-February and late October (additional record: one for early January); dispersed immature seeds must undergo an after-ripening period before germination. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky and gravelly-loamy mountainsides; rocky-sandy and clayey-loamy mesas; plateaus; canyon rims; rock cliffs; rocky canyons; along canyon bottoms; talus slopes; rocky ledges; rocky ridges; ridgetops; clearing in forests; (rocky-sandy) openings in woodlands; rocky, rocky-sandy, gravelly, loamy and clayey meadows; foothills; rocky hills; hilltops; rocky and sandy-loamy hillsides; along bouldery-cobbly, rocky, rocky-clayey, shaley, shaley-sandy, gravelly, gravelly-loamy, gravelly-silty, sandy-loamy, sandy-clayey-loamy, clayey-loamy and loamy slopes; bajadas; bouldery and shaley outcrops; gravelly banks; steppes; prairies; pebbly plains; rocky and clayey-loamy flats; basins; hollows; cindery valley floors; valley bottoms; along railroad right-of-ways; rocky-clayey roadcuts; along rocky, rocky-sandy-clayey, cindery, gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; springs; along streams; along and in streambeds; along creeks; along rivers; within sandy washes; boggy areas; marshes; gravelly-clayey-loamy swampy areas; sumps; (clayey-loamy) banks of creeks and rivers; along (rocky) shores of lakes; benches; gravelly-sandy-loamy and sandy terraces; bottomlands; silty floodplains; ditches; ditch banks; gravelly-sandy and sandy riparian areas, and disturbed areas growing in wet, moist, damp and dry bouldery-cobbly, rocky, rocky-sandy, shaley, shaley-sandy, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, rocky-sandy clay and clay ground, and gravelly silty and silty ground, occurring from 1,300 to 12,200 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent and/or fiber crop; it was also noted as having been used as a drug or medication and as a commodity used in personal hygiene. This plant grows in areas receiving 10 to 23 inches of annual precipitation doing best in areas with around 16 inches of annual precipitation; taking 2 to 3 years to establish, mature and flower, the flowers open at sunrise with petal drop occurring around noon. This plant is browsed by Elk (*Cervus elaphus*), Pronghorn Antelope (*Antilocapra americana*), Mule Deer (*Odocoileus hemionus*) and White-tailed Deer (*Odocoileus virginianus*) and the seeds may be eaten by birds and deer mice. *Linum lewisii* is native to northwestern, northern, central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph 687), 43 (022810), 44 (012013), 46 (Page 489), 48 (genus), 58, 63 (012013 - color presentation), **77** (color photograph #36), 80 (*Linum lewisii*, *Linum neomexicanum* and others are considered to be Rarely Poisonous and Suspected Poisonous Range Plant. "These forbs are potentially cyanogenetic but reports of losses on rangelands have not been confirmed."), **85** (012013 - color presentation), 86 (color photograph of *Linum perenne*), **89** (recorded as being a winter annual herb located on Tumamoc Hill), 115 (color presentation), 127*

Linum perenne subsp. *lewisii* (see *Linum lewisii* var. *lewisii*)

***Linum puberulum* (G. Engelmann) A.A. Heller: Plains Flax**

COMMON NAMES: Desert Flax; Desert Yellow Flax; Hairy Flax; Plains Flax; Puberulent Flax; Puberulent Yellow Flax; Puberulent Yellow-flax; Yellow Flax (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb (stems 4 to 18 inches in height, one plant was recorded as being of 3 feet in height); the leaves may be bluish-green or grayish-green; the flowers (to 2 inches in width) may be apricot, apricot-yellow, brownish-orange, brown-yellow, buff, copper, cream-yellow, golden-yellow, orange, orange-yellow, dull orange-yellow, orangish-yellow, peach, whitish, yellow or yellow-orange and often reported with bronze, brownish-purple, maroon, purple, purple-brown, purple-red, red or reddish-brown center (eye) at the base of the petals; flowering generally takes place between late March and late October. HABITAT: Within the range of this

species it has been reported from mountains; sandy mesas; canyon rims; rocky and sandy canyons; gravelly canyon bottoms; talus slopes; sandy soil in rock basins; buttes; rocky and gravelly knolls; gravelly and sandy ledges; ridges; rocky ridgetops; meadows; foothills; rocky, shaley and gravelly-clayey hills; hilltops; rocky hillsides; bedrock, bouldery, rocky, rocky-gravelly, shaley, gravelly and gravelly-clayey slopes; bajadas; gravelly pediments; rocky and clayey outcrops; sandy lava flows; clayey mounds; shaley barrens; sandy steppes; prairies; plains; gravelly, sandy and loamy flats; fields; basins; sandy hollows; along rocky-sandy, gravelly, gravelly-sandy, gravelly-loamy and sandy roadsides; rocky draws; sandy-loamy riverbeds; gravelly-sandy-loamy and sandy washes; sandy troughs of washes; rocky-sandy drainages; sandy troughs; (clayey) edges of drainage ways; gravelly terraces; sandy bottomlands; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and sandy silty and clayey silty ground, occurring from 2,000 to 8,200 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. It was reported that the flowers open in the morning and close by noon. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye (paint) crop. *Linum puberulum* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph 532), 43 (022810), 44 (012013), 46 (Page 489), 48 (genus), 58, 63 (012013 - color presentation), 77, 80 (*Linum lewisii*, *Linum neomexicanum* and others are considered to be Rarely Poisonous and Suspected Poisonous Range Plant. “These forbs are potentially cyanogenetic but reports of losses on rangelands have not been confirmed.”), **85** (012013 - color presentation), 127*

Loasaceae: The Blazingstar Family

Mentzelia affinis E.L. Greene: Yellowcomet

COMMON NAMES: Blazing Star (a name also applied to other taxa and the Loasaceae); Buena Mujer (a name also applied to other species, Spanish); Hydra Blazingstar; Hydra Stick-leaf; Hydra Stickleaf; Pega Pega (a name also applied to other taxa); Rama Pegajosa (a name also applied to other species, Spanish); Stickleaf (a name also applied to the genus *Mentzelia*); Stickleaf Blazing Star; Triangle Seed Blazing Star; Triangle-seed; Triangle-seed Blazing Star; Triangle-seed Blazing-star; Yellow Blazing Star; Yellow Blazing-star; Yellow Blazingstar; Yellow Comet; Yellow Comet Stickleaf; Yellow-comet; Yellow-comet Stickleaf; Yellowcomet. DESCRIPTION: Terrestrial annual forb/herb (scandent spreading erect stems 6 to 20 inches in height; clumps made up of several plants were observed and described as being 6 inches in height and 2 feet in diameter); the flowers may be orange-yellow, pale yellow or yellow; flowering generally takes place between mid-February and mid-May (flowering beginning as early as January and ending as late as June has also been reported). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; bases of cliffs; rocky and stony canyons; talus slopes; knolls; rocky ledges; foothills; sandy, sandy-clayey and clayey hills; rocky and sandy-loamy hillsides; bases of hills; rocky, gravelly and sandy slopes; rocky-shaley outcrops; bases of rock outcrops; amongst rocks; bases of rocks; lava fields; berm-like sand dunes; benches; sandy plains; sandy, sandy-clayey and clayey flats; sandy valley floors; coastal bluffs; coastal dunes; in roadbeds; sandy roadcuts; along gravelly-sandy, sandy and clayey roadsides; along and in gravelly-sandy and sandy washes; playas; banks of streams and washes; edges of washes; loamy benches; sandy terraces; clayey floodplains; silty stock tanks (charcos); recently burned areas of woodland and chaparral, and disturbed areas growing in dry desert pavement; rocky, rocky-shaley, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly-silty-clayey loam ground, and sandy clay and clay ground, occurring from sea level to 4,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Mentzelia affinis* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (072010), 44 (012113), 46 (Page 565), 48 (genus), 63 (012113), 77, **85** (012113 - color presentation), 127*

Mentzelia albescens (J. Gillies ex G.A. Arnott) A.H. Grisebach: Wavyleaf Blazingstar

SYNONYMY: *Mentzelia pumila* (T. Nuttall) J. Torrey ex A. Gray var. *reverchonii* I. Urban & E.F. Gilg; *Mentzelia wrightii* A. Gray; *Nuttallia wrightii* E.L. Greene; *Touterea wrightii* P.A. Rydberg. COMMON NAMES: Wavy-leaf Blazing Star; Wavyleaf Blazingstar; Wavyleaf Mentzelia; Wright Blazingstar. DESCRIPTION: Terrestrial perennial forb/herb (stems 16 inches to 4 feet in height); the flowers are yellow; based on one flowering record located, flowering generally takes place in early July (flowering record: one for early July). HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; hills; gypsum outcrops; valley floors; within gravelly arroyos; along washes, and floodplains growing in dry gravelly ground, occurring from 900 to 8,000 feet in elevation in the woodland ecological formation. NOTES: EXOTIC Plant. This plant was most likely misidentified. This plant is not known to occur in Arizona and has not been reported from Arizona except for the reported occurrence in the 1909 J.J. Thornber Listing for Tumamoc Hill. *Mentzelia albescens* is native to south-central North America, southern South America and possibly elsewhere. *5, 6, 18 (genus), 43 (030110 - *Mentzelia pumila* (*Mentzelia pumila* Torr. ex A. Gray) var. *reverchonii* I. Urban & E.F. Gilg), 44 (012113 - no record of species; genus record), 46 (genus (no record for this species), Pages 564-567), 48 (genus), 63 (012113 - mapping does not show the occurrence of this species in Arizona), 85 (012113), **89** (reported as being a biennial herb located on the Santa Cruz Floodplain, recorded as *Mentzelia wrightii* Gray), 95 (061406 - Personal Communication), 95 (061406 - Personal Communication)*

Mentzelia albicaulis (W.J Hooker) J. Torrey & A. Gray: Whitestem Blazingstar

COMMON NAMES: Blazing Star (a name also applied to other taxa and the Loasaceae); Buena Mujer (a name also applied to other species, Spanish); Gravy Plants (English: Great Basin)[140]; Gu'ha (Uto-Aztecan: Paiute)[140]; Huwikaü (Uto-Aztecan: Hopi)[140]; Iiłtł'įįh <ʔily.'ihi> ['iiłtł'įhįih] ("[Plant Whose Leaves Are] Tenacious", Athapascan: Navajo)[140]; Iks S-hoohoidam (Uto-Aztecan: Akimel O'odham)[140]; Ikus Ho:ho'idam (Uto-Aztecan: Tohono O'odham)[140]; Ku'hua <ku'hwa> (Uto-Aztecan: Shoshoni)[140]; Kuʾu (Uto-Aztecan: Southern Paiute)[140]; Kuʾuvɨ (Uto-Aztecan: Kawaiisu)[140]; Kuha (Uto-Aztecan: Panamint)[140]; Kuhu <kuhá> (Uto-Aztecan: Northern Paiute)[140]; Kul <ku-l> (Uto-Aztecan: Tübatulabal)[140]; Pega Pega ("Stick-stick" a name also applied to other species, Spanish: Mexico)[140]; Rama Pegajosa (a name also applied to other species, Spanish); Sele' (Yuman: Walapai)[140]; Sililitaqa <silílitaqa> (Uto-Aztecan: Hopi)[140]; Small Flower Blazing Star; Small-flower Blazing Star; Small-flower Blazing-star; Small Flowered Blazing Star; Small-flowered Blazing Star; Small-flowered Blazing-star; Small-flowered [White-stem] Blazing-star (English)[140]; Small-flowered Blazingstar; White Blazingstar (a name also applied to other taxa); White Stem Blazingstar; White Stem Mentzelia; White Stemmed Blazing Star; White Stemmed Stickleaf; White-stem Blazing Star; White-stem Blazing-star; White-stem Blazingstar; White-stem Evening Star; White-stem Evening-star; White-stem Mentzelia; White-stem Stick-weed (English)[140]; White-stem Stickleaf; White-stemmed Blazing Star; White-stemmed Blazing-star; White-stemmed Evening-star; White-stemmed Mentzelia; White-stemmed Stick-leaf; White-stemmed Stickleaf; Whitestem Blazing Star; Whitestem Blazing-star; Whitestem Blazingstar (a name also applied to other taxa); Whitestem Mentzelia; Whitestem Stickleaf; Whitestemmed Blazing Star; Whitestemmed Blazingstar; Yellow Sand-lily. DESCRIPTION: Terrestrial annual forb/herb (spreading erect stems 4 inches to 2 feet in height; plants were observed and described as being 8 to 12 inches in height and 4 to 10 inches in width); the stems may be green, pink-tan or shiny white; the leaves are gray-green; the flowers may be lemon-yellow, mustard-yellow, orange-yellow, orangish, yellow, bright yellow, yellow with an orange throat and yellow-orange; flowering generally takes place between mid-February and mid-August (additional records: three for early January, two for mid-January and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; cobbly-sandy mountainsides; rocky and sandy mesas; cliffs; cliff faces; rocky and shaley canyons; canyon walls; rocky, gravelly-sandy and sandy canyon bottoms; gorges; bouldery-gravelly-silty talus slopes; bases of talus slopes; clayey bluffs; buttes; shaley knolls; rocky and gravelly ridges; rocky and gravelly-sandy ridgetops; gravelly foothills; rocky, gravelly, sandy and clayey hills; bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-loamy, cobbly, sandy and clayey hillsides; escarpments; bouldery, bouldery-gravelly, rocky, rocky-sandy, shaley, shaley-clayey, stony-gravelly, cindery, cindery-sandy; gravelly, gravelly-sandy, gravelly-silty-clayey, sandy, sandy-silty and clayey slopes; sandy alluvial fans; gravelly, gravelly-sandy and sandy bajadas; rocky outcrops; sandy bases of rock outcrops; amongst boulders and rocks; bases of rocks; sand hills; sand dunes; silty hummocks; berms; breaks; benches; clayey steppes; sandy plains; fields; cobbly-sandy, gravelly, gravelly-clayey, pebbly-sandy, sandy, sandy-loamy, sandy-clayey, sandy-powdery-loamy, silty and silty-loamy flats; basins; gravelly and sandy valley floors; valley bottoms; along railroad right-of-ways; roadbanks; along rocky, shaley, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, sandy, clayey and silty roadsides; sandy arroyos; along draws; along gulches; streambeds; along creeks; along rivers; riverbeds; along and in cobbly-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; drainages; silty lakebeds; boggy areas; sandy and clayey depressions; along (rocky, gravelly-sandy and sandy) banks of creeks and washes; (sandy) edges of washes, lakes and playas; (sandy-silty) margins of playas; (gravelly-sandy and sandy) shores of lakes; gravelly-sand bars; sandy beaches; rocky-sandy, cobbly-loamy and sandy benches; bases of sandy ramps; floodplains; lowlands; rocky mesquite bosques; along sandy fencelines; sandy ditches; recently burned areas; sandy riparian areas; waste places, and disturbed areas (including cattle-hammered cactus flats) growing in dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, stony-gravelly, cobbly, cobbly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy, pebbly, pebbly-sandy and sandy ground; rocky-gravelly loam, cobbly loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-powdery loam, clayey loam, silty loam and loam ground; shaley clay, gravelly clay, gravelly-silty clay, sandy clay and clay ground; bouldery-gravelly silty rocky silty, gravelly silty, sandy silty and silty ground, and silty-clayey chalky ground, occurring from 400 to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Mentzelia albicaulis* is native to west-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (030110 - *Mentzelia albicaulis* (Douglas ex Hook.) Douglas ex Torr. & A. Gray), 44 (012213), 46 (Page 566), 48 (genus), 58, 63 (012213 - color presentation), **77**, **85** (012213 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 127, 140 (Pages 164-165 & 295)*

Mentzelia aspera C. Linnaeus: Tropical Blazingstar

COMMON NAMES: Tropical Blazingstar; Tropical Stickleaf. DESCRIPTION: Terrestrial annual forb/herb (erect stems 8 to 30 inches; one plant was observed and described as having a sprawling stem 6½ feet in length); the flowers are orange, orange-yellow, peach, light yellow or yellow; flowering generally takes place between early August and mid-October (additional record: one for early November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky canyons; rocky canyon bottoms; rocky ledges; hills; hilltops; rocky slopes; rocky outcrops; shady banks; plains; flats; along railroad right-of-ways; along roadsides; draws; along ravines; along streams; along creeks; riverbeds; banks of arroyos; benches; mesquite bosques; sandy riparian areas, and disturbed areas growing in dry rocky and sandy ground, occurring from 100 to 6,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Mentzelia aspera* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (030210), 44 (012213 - no record of species; genus record), 46 (Page 565), 48 (genus), 63 (012213), 85 (012213 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill)*

***Mentzelia jonesii* (I. Urban & E.F. Gilg) H.J. Thompson & J.E. Roberts: Jones' Blazingstar**

SYNONYMY: *Mentzelia nitens* E.L. Greene var. *jonesii* (I. Urban & E.F. Gilg) J. Darlington; *Mentzelia nitens* E.L. Greene var. *leptocaulis* J. Darlington. COMMON NAMES: Blazing Star (a name also applied to other taxa and the Loasaceae); Blazingstar (a name also applied to other taxa and the Loasaceae); Buena Mujer (a name also applied to other species, Spanish); Jones Blazing Star; Jones Blazing-star; Jones Blazingstar; Jones Mentzelia; Jones Stickleaf; Jones' Blazing Star; Jones' Blazing-star; Jones' Blazingstar; Jones' Mentzellia; Jones' Stickleaf; Jones's Blazing Star; Jones's Blazing-star; Jones's Blazingstar; Jones's Mentzelia; Jones's Stickleaf; Rama Pegajosa (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb or vine (erect stems 4 inches to 2 feet in height/length); the stems are gray, pinkish-white or silvery-white; the flowers are lemon-yellow, white & yellow, yellow or yellow-orange; flowering generally takes place between mid-February and mid-June (additional records: one for mid-January and one for early July). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; bases of cliffs; rocky canyons; canyon bottoms; talus slopes; mud-clay, rocky and gravelly hills; bouldery and rocky hillsides; rocky, rocky-sandy and gravelly slopes; sandy alluvial fans; bajadas; rocky outcrops; amongst boulders; flats; basins; rocky and sandy valley floors; along sandy roadsides; along streams; along creeks; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; rocky drainages; sandy sloughs; (rocky and sandy) banks of streams and rivers; along (sandy) edges of washes; terraces, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam ground, and clay ground, occurring from 600 to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Mentzelia jonesii* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (030210 - *Mentzelia nitens* Greene var. *jonesii* (Urban & Gilg) Darl.), 44 (012213), 46 (*Mentzelia nitens* Greene var. *jonesii* (Urban & Gilg) J. Darl., Page 566 and *Mentzelia nitens* Greene var. *leptocaulis* J. Darl., Page 566), 48 (genus), 63 (012213), **77** (color photograph #82), **85** (012313 - color presentation), 115 (color presentation)*

***Mentzelia multiflora* (T. Nuttall) A. Gray: Adonis Blazingstar**

COMMON NAMES: Adonis Blazing Star; Adonis Blazing-star; Adonis Blazingstar; Adonis Stickleaf; Blazing Star (a name also applied to other species, the genus *Mentzelia* and to the Loasaceae); Blazingstar (a name also applied to other species, the genus *Mentzelia* and to the Loasaceae); Buena Mujer (a name also applied to other species, Spanish); Desert Blazing Star; Desert Blazingstar; Desert Mentzelia; Desert Stickleaf; Many Flowered Mentzelia; Many-flowered Blazing-star; Many-flowered Blazingstar; Many-flowered Mentzelia; Manyflowered Mentzelia; Many Flowered Stickleaf; Pega Pega (a name also applied to other taxa); Rama Pegajosa (a name also applied to other species, Spanish); Stickleaf (a name also applied to other species, the genus *Mentzelia* and to the Loasaceae). DESCRIPTION: Terrestrial biennial or perennial forb/herb (erect stems 6 to 40 inches in height; one plant was observed and described as being 6 inches in height with a crown 9 inches in width, plants were observed and described as being 8 inches in height and 4 inches in width); the stems may be gray-green, white or whitish; the leaves may be gray-green, green, dark green, pale orange, silvery-white or yellow-green; the flowers may be cream, lemon-yellow, orange-yellow, sulfur-yellow, white, white-yellow, pale yellow, yellow, dark yellow or yellow-white; flowering generally takes place between late February and mid-December (additional records: one for mid-January and two for late January). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cindery flanks of mountains; rocky-gravelly, gravelly and sandy mesas; plateaus; cliffs; sandy soil in hanging gardens; bases of cliffs; rocky walls; rims of gorges; rocky, rocky-sandy, shaley, gravelly and sandy canyons; rocky canyon walls; sandy canyon bottoms; rocky gorges; scree; shaley slides; cindery and chalky talus slopes; crevices in rocks; rims of bluffs; rocky and sandy bluffs; buttes; rocky, shaley-clayey, sandy and clayey knolls; along rocky, shaley-stony and stony-sandy ridges; meadows; cindery openings in forests; cinder cones; sandy crater floors; gravelly foothills; rocky, cindery, sandy and clayey hills; hilltops; rocky, gravelly and clayey hillsides; sandy escarpments; rocky, rocky-gravelly, rocky-sandy, rocky-silty-clayey, shaley, shaley-gravelly, stony-sandy, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, clayey and clayey-loamy slopes; alluvial fans; bajadas; rocky outcrops; sandy lava flows; lava fields; sand hills; sand dunes; sand hummocks; gypsum dunes; sandy banks; rocky and sandy breaks; rocky-sandy and sandy steppes; sandy, sandy-clayey and clayey prairies; gravelly and sandy plains; cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-clayey, clayey and silty flats; sandy-silty basins; sandy and clayey valley floors; along railroad right-of-ways; clayey roadcuts; along rocky, stony, cindery, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey and clayey roadsides; stony and sandy arroyos; rocky and sandy bottoms of arroyos; within draws; gravelly gulches; gullies; within ravines; springs; along streams; along and in rocky and sandy streambeds; along and in creeks; rocky-sandy and gravelly-sandy creekbeds; along rivers; rocky, rocky-sandy and sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; within rocky and rocky-sandy drainages; along drainage ways; along (gravelly, sandy, sandy-silty and clayey) banks of streams, creeks, rivers and washes; (sandy) borders of washes; edges of washes; along (sandy) shores of rivers; rocky-sand, stony-cobbly-gravel, gravel and sand bars; sandy benches; terraces; rocky, rocky-sandy and sandy bottomlands; gravelly-sandy-silty and sandy floodplains; mesquite bosques; fencerows; along canals; sandy-loamy ditches; gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and sandy humus riparian areas; waste places, and disturbed areas growing in dry bouldery-rocky-gravelly, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-stony, shaley-gravelly, stony, stony-cobbly-gravelly, stony-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, silty loam and loam ground; bouldery-gravelly-sandy clay, rocky-silty clay, gravelly clay, sandy clay, silty clay and clay ground; gravelly-sandy silty, sandy silty, powdery silty and silty ground; sandy humusy ground, and chalky ground, occurring from 100 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been

utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication and as a commodity used as a ceremonial item. *Mentzelia multiflora* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 43 (072209), 44 (012313 - no listings recorded under Common Names for either the variety or species; genus record), 46 (recorded as *Mentzelia pumila* (Nutt.) Torr. & Gray, Page 566; *Mentzelia pumila* (Nutt.) Torr. & Gray var. *integra* Jones, Page 566 and *Mentzelia pumila* (Nutt.) Torr. & Gray var. *multiflora* (Nut.) Urban & Gilg, Page 566), 48 (genus), 63 (012313 - color presentation), **85** (012413 - color presentation), 115 (color presentation), 124 (072611), 127, 140 (recorded as *Mentzelia pumila* Nuttall ex Torrey & A. Gray, Page 295)*

Mentzelia nitens var. *jonesii* (see *Mentzelia jonesii*)

Mentzelia nitens var. *leptocaulis* (see *Mentzelia jonesii*)

Mentzelia pumila (see footnotes 46 and 140 under *Mentzelia multiflora*)

Mentzelia pumila var. *reverchonii* (see *Mentzelia albescens*)

Mentzelia wrightii (see *Mentzelia albescens*)

Nuttallia wrightii (see *Mentzelia albescens*)

Touterea wrightii (see *Mentzelia albescens*)

Malpighiaceae: The Barbados-cherry Family

Cottsia gracilis (see footnote 140 under *Janusia gracilis*)

***Janusia gracilis* A. Gray: Slender Janusia**

COMMON NAMES: Desert Vine; Fermina (Spanish); Slender Janusia. DESCRIPTION: Terrestrial perennial deciduous forb/herb or vine (clambering, climbing, scrambling, intertwining vining stems 16 inches to 10 feet in length; one plant was observed and described as being 16 inches in height with a crown 10 inches in diameter); the leaves may be grayish-green, dark green or reddish; the flowers (to ½ inch in width) are orange-yellow or yellow; flowering generally takes place between early March and mid-November (additional records: two for early January, one for late January, one for early December, one for mid-December and one for late December); the winged fruits (paired samaras) are pink, purple-red, red, red-green or reddish. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mountainsides; mesas; cliffs; cliff faces; gravelly-sandy bases of cliffs; rocky canyons; rocky and sandy canyon bottoms; amongst crevices; rocky buttes; rocky knolls; rocky and gravelly ridges; rocky ridgetops; foothills; rocky and gravelly hills; rocky hillsides; along bedrock, bouldery-rocky, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-clayey-loamy and gravelly slopes; alluvial fans; gravelly bajadas; volcanic plugs; bouldery and rocky outcrops; amongst rocks; terraces; plains; gravelly and gravelly-sandy flats; basins; valley floors; along rocky-gravelly roadsides; along rocky arroyos; bottoms of arroyos; draws; within gullies; within ravines; along streams; along rocky streambeds; along creeks; bouldery-rocky-sandy creekbeds; along and in gravelly and sandy washes; along drainages; waterholes; palm oases; (rocky) banks of streams; borders of washes; edges of washes; benches; floodplains, and riparian areas growing in dry bouldery, bouldery-rocky, bouldery-rocky-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, gravelly, gravelly-sandy and sandy ground and rocky-clayey loam and clayey loam ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. It is small woody vine often reported as scrambling over rocks, twining among shrubs or forming small tangled shrublets. Slender Janusia is browsed by the Sonoran Desert Tortoise (*Gopherus agassizi*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*) and Whitetail Deer (*Odocoileus virginianus* subsp. *couesi*). *Janusia gracilis* is native to southwest-central and southern North America. *5, 6, 13 (Page 124), 15, **16**, 28 (color photograph 356), 43 (030310), 44 (031211 - no record of species or genus), 46 (Page 497), 48, 58, 63 (012413 - color presentation), 77 (color photograph #83), **85** (012413 - color presentation), **89** (reported as being a woody climber located on Tumamoc Hill), 115 (color presentation), 124 (031211 - no record of species or genus), 140 (Page 295 - recorded as *Cottsia gracilis* (A. Gray) W.R. Anderson & C. Davis)*

Malvaceae: The Mallow Family

***Abutilon abutiloides* (N.J. von Jacquin) C.A. Garcke ex B.P. Hochreutiner: Shrubby Indian Mallow**

COMMON NAMES: Amantillo (Spanish); Berlandier Abutilon; Indian Mallow (a name also applied to other species and the genus *Abutilon*); Malva Rasposa (Spanish); Pintapan (Spanish); Shrubby Indian Mallow. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 1 to 6½ feet in height; one plant was observed and described as being 32 inches in

height with a crown 40 inches in width); the leaves are yellow-green; the flowers are orange, orange-yellow, orangish, yellow, yellow-copper or yellow-orange; flowering generally takes place between early March and early November (additional records: two for late November, four for mid-December and three for late December; flowering occurring throughout the year has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of cliffs; rocky canyons; along rocky canyon bottoms; ridges; rocky and gravelly ridgetops; foothills, rocky and stony hills; bouldery hilltops; rocky and rocky-sandy-loamy hillsides; bedrock, bouldery, rocky, rocky-cobbly-gravelly and gravelly slopes; bajadas; amongst boulders and rocks; plains; gravelly-sandy and sandy flats; valley floors; sandy coastal flats; coastal beaches; along rocky, stony and sandy roadsides; within gravelly and sandy arroyos; bottoms of arroyos; gulches; streambeds; along and in rocky-sandy, rocky-silty and sandy washes; bouldery drainages; waterholes; along (rocky) banks of washes; edges of arroyos; bottomlands; mesquite woodlands; riparian areas; waste places, and disturbed areas growing in dry bouldery, rocky, rocky-cobbly-gravelly, stony, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam and sandy loam ground, and rocky silty ground, occurring between sea level and 6,200 feet in elevation in the forest, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers open in the evening. The Shrubby Indian Mallow is a food and nesting plant of the caterpillar of the Arizona Powdered-skipper (*Systaceae zampa*). *Abutilon abutiloides* is native to southwest-central and southern North America and coastal islands in the Caribbean Sea. *5, 6, 18 (genus), 43 (030310), 46 (recorded as *Abutilon californicum* Benth., Page 539), 63 (012413 - color presentation of seeds), 77, 85 (012413 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill, recorded as *Abutilon lemmoni* Wats.), 115 (color presentation), 124 (110610 - no record, genus), 140 (Pages 168 & 295)*

Abutilon californicum (see footnote 46 under *Abutilon abutiloides*)

Abutilon crispum (see *Herissantia crispa*)

***Abutilon incanum* (J.H. Link) R. Sweet: Pelotazo**

SYNONYMY: *Abutilon incanum* (J.H. Link) R. Sweet subsp. *incanum* (J.H. Link) R. Sweet; *Abutilon incanum* (J.H. Link) R. Sweet subsp. *pringlei* (B.P. Hochreutiner) R.S. Felger & R.T. Lowe; *Abutilon pringlei* B.P. Hochreutiner. COMMON NAMES: Caatc Ipápl ("What Grasshoppers Are Strung With", Hokan: Seri)[140]; Escoba Malva ("Broom Mallow", Spanish: Sonora)[140]; Hasla an Ihoon ("Ear Is Its Place", Hokan: Seri)[140]; Hoary Abutilon; Hoary Indian Mallow; Indian Mallow (a name also applied to other species and the genus *Abutilon*); Indian Mallow (English)[140]; Indianmallow Abutilon; Jíchiquia To'ora Cojuya ("Ash Broom", Uto-Aztecan: Mayo)[140]; Malva ("Mallow", Spanish: Sonora)[140]; Pelotazo (Spanish); Pelotazo [Chico] ("[Little] Hairy One", Spanish: Sinaloa)[140]; Pelotazo Chico (Spanish); Pringle Abutilon; Pringle's Abutilon; Pringle Indian Mallow; Rama Escoba (Spanish); Shrubby Indian Mallow; Tosaporo (Uto-Aztecan: Guarijío)[140]; Tronadora (Spanish: northern Mexico to Oaxaca)[140]. DESCRIPTION: Terrestrial perennial evergreen forb/herb or subshrub (stems usually 8 inches to 7 feet in height, rarely to 13 feet in height; one plant was observed and described as being 8 inches in height with a crown 8 inches in width, one plant was observed and described as being 12 inches in height with a crown 16 inches in width, one plant was observed and described as being 30 inches in height with a crown 30 inches in width); the stems are gray, the leaves may be gray-green or grayish; the flowers may be cream, cream & red, lavender, pale orange, orange, orange spotted with maroon, orange-red, orange-yellow, orange-yellowish, peach & maroon, light pink, pink, dark red, salmon, white, white & pink, yellow-gold, yellow-orange, yellowish-pink, yellow, yellow-gold or yellow-salmon sometimes with dark crimson, maroon, deep maroon, purple, red or dark red centers (basal spots); flowering is generally described as taking place throughout the year (between early January and late December) with the principal flowering period reported as being October through November. HABITAT: Within the range of this species it has been reported from bouldery and rocky mountains; mountaintops; bases and lower slopes of mountains; rocky crags; rocky mesas; rocky cliffs; rocky canyons; along bouldery, bouldery-sandy and rocky canyon bottoms; rocky and clayey-loamy talus slopes; crevices in rocks; buttes; knolls; rocky and gravelly ridgetops; rocky ridgelines; openings in desertscrub; foothills; rocky and stony hills; rocky and gravelly hillsides; clayey bases of hills; bouldery-rocky-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey and loamy slopes; rocky bajadas; rocky outcrops; amongst boulders; volcanic plugs; sand dunes; terraces; rocky, cobbly and gravelly plains; gravelly and sandy flats; basins; valley floors; coastal plains; coastal beaches; along gravelly and loamy roadsides; along rocky, gravelly and sandy arroyos; rocky bottoms of arroyos; around seeping streams; along and in rocky streambeds; along and in gravelly, sandy and clayey-loamy washes; within drainages; swales; banks of lakes; borders of washes; (sandy) sides of rivers; beaches; benches; mesquite bosques; around represos; riparian areas, and disturbed areas growing in wet and dry bouldery, bouldery-rocky-sandy, bouldery-sandy, rocky, rocky-sandy, stony, cobbly, gravelly, pebbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, clayey loam and loam ground, and rocky clay, gravelly clay and clay ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Abutilon incanum* is native to southwest-central and southern North America and islands in the North(-central) Pacific Ocean. *5, 6, 13 (recorded as *Abutilon pringlei* Hochreutiner, Pages 100-101), 15, **16** (recorded as *Abutilon incanum* (Link.) Sweet subsp. *pringlei* (Hochr.) Felger & Lowe), 18 (genus), 28 (color photograph 534), 43 (030410 - *Abutilon incanum* subsp. *pringlei* (Hochr.) Felger), 44 (072711 - no record of species; genus record), 46 (recorded as *Abutilon pringlei* Hochr., Page 539 and *Abutilon incanum* (Link) Sweet, Page 539), **56**, **57**, 63 (012413 - color presentation), 77 (recorded as *Abutilon incanum* (Link.) Sweet ssp. *pringlei* (Hochr.) Felger & Lowe), **85** (012413 - color

presentation), **89** (reported as being a half-shrub located on Tumamoc Hill), 91 (Page 11), 115 (color presentation), 124 (072711), 127, 140 (Pages (167-168 & 295)*

Abutilon incanum subsp. *incanum* (see *Abutilon incanum*)

Abutilon incanum subsp. *pringlei* (see *Abutilon incanum*)

Abutilon lemmoni (see footnote 89 under *Abutilon abutiloides*)

Abutilon pringlei (see *Abutilon incanum*)

***Anoda cristata* (C. Linnaeus) D.F. von Schlechtendal: Crested Anoda**

COMMON NAMES: Aguatosa (Spanish: Oaxaca)[140]; Alache (Spanish); Alachi (Oto-Manguean: Mixtec, Distrito, Federal, to Guerrero, Puebla)[140]; Altea (Spanish: Puebla)[140]; Amapola [Amapolita] [del Campo, Morada] ("[Little, Wild, Purple] Poppy", Spanish: Chiapas, Veracruz, Distrito, Federal, Edo. México, Jalisco, Puebla)[140]; Amapolita Morada (Hispanic); Anoda Weed; Balanche (Mayan: Maya)[140]; Crested Anoda; Crested [Spurred] Anoda (English: Arizona, New Mexico)[140]; Halache <halanche> (Spanish: Puebla)[140]; Huinarillo (Hispanic); Itsucua Tsipata (Purépecha); Malva [Chica, de Castilla] ("[Little, Spanish] Mallow", Spanish: Aguascalientes, Guanajuato, Guerrero, Michoacán, Morelos, Jalisco, Sonora)[140]; Malva Chica (Hispanic); Malva de Castilla Spanish); Malva Morada (Hispanic); Malvavisco (Hispanic); Pax'tamac (Totonacan: Totonac)[140]; Pie de Gallo (Spanish); Pax'tamac (Totonacan: Totonac); Pintapán (Spanish: Sonora)[140]; Quesitos ("Little Cheese", Spanish: Hidalgo, Sonora)[140]; Rehué (Uto-Aztecan: Tarahumara)[140]; Requesón (Hispanic); Rewé (Hispanic); Reweque (Hispanic); Shiipugi (Uto-Aztecan: Mountain Pima)[140]; Sinianoda; Snowcup; Spurred Anoda; Tlachpahuatla (Uto-Aztecan: Náhuatl, San Luis Potosi)[140]; Tsayaltsay <tzalyaltzai> (Spanish: Yucatán)[140]; Tsitsiki Uekutini (Purépecha); Tusi (Uto-Aztecan: Mountain Pima)[140]; Violeta (Spanish); Violeta [del Campo] ("[Wild] Violet", Spanish: Edo. México, Veracruz to Oaxaca)[140]; Violeta de Campo (Hispanic); Violeta del País (Hispanic); Violeta Silvestre ("Wild Violet", Spanish: Sinaloa)[140]; Violettas; Violetilla; Wild Cotton (a name also applied to other species); Xihuitl ("Herb", Uto-Aztecan: Náhuatl, Mexico)[140]; Yiwa Tio (Mixteco). DESCRIPTION: Terrestrial annual forb/herb (creeping and/or sprawling prostrate, decumbent, sub-erect and/or erect stems 3 inches to 5 feet in height or length); the leaves are green; the flowers may be blue, blue-purple, blue-violet, light lavender, lavender, lavender-blue, lavender-pink, lavender-white, lilac, pink, pinkish-blue, light purple, purple, purplish-blue, purplish-pink, purplish-red, violet or white (rarely); the anthers are white; flowering generally takes place between early August and early November (additional records: one for early January, one for mid-January, one for early February, four for mid-March, one for early May, one for mid-May, one for late May, two for late June, two for mid-July, two for early December, one for mid-December and three for late December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bouldery-rocky, rocky and sandy-loamy canyons; canyon bottoms; along ridgetops; sandy meadows; foothills; rocky hills; rocky and gravelly-clayey hillsides; rocky, rocky-sandy, sandy-loamy, clayey and clayey-loamy slopes; alluvial fans; bajadas; rock outcrops; breaks; fields; gravelly, clayey and clayey-loamy flats; basins; valley floors; coastal plains; along gravelly-loamy and sandy roadsides; rocky and sandy arroyos; gulches; ravines; seeps; along streams; along and in streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in gravelly-sandy sandy washes; drainage ways; along lakes; ciénegas; marshes; (sandy and silty) banks of creeks and rivers; along edges of creeks; gravel bars; gravelly benches; terraces; bottomlands; floodplains; mesquite bosques; along fencelines; along and in ditches; along canal banks; riparian areas; waste places, and disturbed areas growing in moist and dry bouldery-rocky, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground; gravelly clay, silty clay and clay ground, and silty ground, occurring from 600 to 8,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Anoda cristata* is native to southwest-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 15, 30, 43 (072409), 44 (072811), 46 (Pages 551-552), 58, 63 (012513 - color presentation of seed), 68, 85 (012513 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Floodplain), 101 (color photograph), 124 (072811), 140 (Pages 165-167 & 296)*

***Anoda pentaschista* A. Gray: Field Anoda**

COMMON NAME: Field Anoda. DESCRIPTION: Terrestrial annual herb (stems 20 to 80 inches in height); the flowers may be pale apricot, apricot, orange, orange-yellow, peach-yellow, pumpkin fading to pink, purplish, violet, pale yellow or yellow sometimes fading pink or reddish; flowering generally takes place between early August and late November (additional records: one for early January, one for late May, one for late June, one for mid-July and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; clayey knolls; meadows; foothills; rocky bases of foothills; hills; clayey hilltops; rocky, rocky-clayey, stony-clayey and clayey slopes; fields; clayey flats; valley floors; sandy railroad right-of-ways; along rocky and loamy-clayey roadsides; arroyos; riverbeds; along washes; poolbeds; playas; cienegas; silty swampy areas; rocky depressions; swales; bottomlands; floodplains, and disturbed areas growing in muddy, and moist and dry rocky and sandy ground; rocky clay, stony clay, loamy clay and clay ground, and silty ground, occurring from sea level to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Anoda pentaschista* is native to southwest-central and southern North America. *5, 6, **16**, 43 (030410), 44 (012513), 46 (Page 552), 63 (012513), **77**, **85** (012513 - color presentation), **89** (reported as being a summer annual herb located on Tumamoc Hill, recorded as *Anoda thurberi* Gray)*

Anoda thurberi (see footnote 89 under *Anoda pentaschista*)

***Eremalche exilis* (A. Gray) E.L. Greene: White Mallow**

SYNONYMY: *Malvastrum exile* A. Gray. COMMON NAMES: Five Spot; Malva (a name also applied to other taxa, Spanish); Slender Feeble Lonely Mallow; Slender, Feeble Lonely Mallow; White Eremalche; White Mallow (a name also applied to other taxa); White-mallow (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb (prostrate, decumbent and/or ascending stems 4 to 9 inches in height/length; plants were observed and described as having a 1 to 1½ foot spread); the small cup-shaped flowers may be pink, deep pink, pale lavender, lavender, purple, white or white-green; flowering generally takes place between early March and mid-May (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; ridges; cinder cones; rocky-gravelly hilltops; hillsides; rocky, shaley, sandy and clayey slopes; rocky-sandy alluvial fans; bajadas; shaley outcrops; bases of rock outcrops; sand dunes; blow-sand deposits; shelves; sandy plains; fields; gravelly-sandy, sandy and silty flats; sandy-loamy valley floors; along sandy roadsides; rocky draws; around springs; sandy creekbeds; riverbeds; along and in sandy washes; sandy and sandy-silty drainage ways; silty lakebeds; silty lakebeds; depressions; (gravelly-sandy and sandy) banks of rivers and washes; edges of washes and mudflats; (silty) margins of playas; gravelly-sand bars; gravelly-sandy and sandy riparian areas; recently burned areas in woodlands, coastal sage scrub and desertscrub, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, shaley, gravelly-sandy and sandy ground; gravelly-clayey loam and sandy loam ground, and sandy-silty and silty ground, occurring from below sea level to 5,700 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Eremalche exilis* is native to southwest-central North America. *5, 6, **16**, 43 (030410), 44 (012513), 46 (recorded as *Malvastrum exile* Gray, Page 548 and *Eremalche exilis* (Gray) Greene, supplement page 1060), 63 (012513), 77, 85 (012613 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Malvastrum exile* Gray), 127*

Gayoides crispum (see *Herissantia crispa*)

***Herissantia crispa* (C. Linnaeus) G.K. Brizicky: Bladdermallow**

SYNONYMY: *Abutilon crispum* (C. Linnaeus) F.K. Medikus; *Gayoides crispum* (C. Linnaeus) J.K. Small. COMMON NAMES: Bladder Mallow (a name also applied to the genus *Herissantia*); Bladder-mallow (a name also applied to the genus *Herissantia*); Bladdermallow (a name also applied to the genus *Herissantia*); Curly Abutilon; Curly Bladder Mallow; Curly Bladder-mallow; Curly Bladdermallow; Curly Herissantia; False Indian Mallow; Malva de Lava Prato; Netvein Herissantia; Pelotazo (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (sprawling or trailing prostrate stems 8 inches to 4 feet in height/length); the leaves are light green; the flowers may be cream, pale orange-cream, orange, orange-cream, orange-yellow, pink-orange, pale peach, salmon, white, light yellow, light yellow-orange, yellow or yellowish; the anthers are yellow; flowering generally takes place between mid-January and mid-May and again between early August and late December (additional records: one for late June, two for early July and one for mid-July; flowering has also been reported as occurring throughout the year); the fruit is green. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; rocky cliffs; bases of cliffs; rocky canyons; along rocky and gravelly canyon bottoms; rocky talus slopes; crevices in rocks; rocky ledges; rocky and gravelly ridgetops; rocky and stony hills; bouldery-rocky and rocky hillsides; bouldery and rocky slopes; rocky and sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; sandy bases of boulders and rocks; sand dunes; banks; plains; gravelly flats; valley bottoms; coastal plains; coastal beaches; along roadsides; mgravelly and sandy arroyos; bottoms of arroyos; gravelly streambeds; sandy creekbeds; along and in rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy washes; bouldery drainages; borders of washes; edges of arroyos; sandy beaches; benches; floodplains; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground and clayey loam ground, occurring from sea level to 4,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Bladdermallow is a food and nesting plant of the caterpillar of the Erichson's White-skipper (*Heliopetes domicella*). *Herissantia crispa* is native to south-central and southern North America and coastal islands in the Caribbean Sea. *5, 6, 15, **16**, 28 (color photograph 357), 43 (030410), 44 (012613 - color photograph), 46 (recorded as *Gayoides crispum* (L.) Small, Page 540), 48 (genus), 58, 63 (012613 - color presentation), 77 (color photograph #37), **85** (012613 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Abutilon crispum* (L.) Medic.), 115 (color presentation), 140 (Page 296)*

***Hibiscus coulteri* W.H. Harvey ex A. Gray: Desert Rosemallow**

COMMON NAMES: Coulter Hibiscus; Desert Hibiscus; Desert Rose Mallow; Desert Rose-mallow; Desert Rosemallow; Hibisco (Spanish); Pelotazo (a name also applied to other species, Spanish); Tulipán (Spanish). DESCRIPTION: Terrestrial perennial subshrub or shrub (erect stems 3 inches to 7 feet in height; one plant was reported to be 18 inches in height with a crown 6 inches in width); the foliage may be green, dark green with reddish margins or green-purple; the flowers are pale lemon, lemon, lemon-yellow, peach, yellow, yellowish-purple or white-pink with or without a blackish, purplish or red basal spot (area at base of the petal); flowering generally takes place between early March and late May and between late July and late December (additional records: one for mid-January, one for mid-February and one for early July, it has been reported that

flowering may take place throughout the year; however, the flower buds may be killed by frost). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of cliffs; bouldery, bouldery-gravelly-loamy and rocky canyons; canyon walls; rocky canyon bottoms; crevices in rocks; ridges; rocky and gravelly ridgetops; foothills; rocky hills; rocky hillsides; along bedrock, rocky, rocky-cobbly-gravelly, rocky-clayey-loamy, gravelly and gravelly-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders; plains; flats; along rocky and sandy arroyos; gulches; gullies; ravines; along rocky, gravelly, sandy and humus-loamy washes; within bouldery and cobbly drainages; banks of lakes; riparian areas, and disturbed areas growing in dry bouldery, rocky, cobbly, gravelly and sandy ground and bouldery-gravelly loam, rocky-clayey loam, gravelly loam and humusy loam ground, occurring from 400 to 5,000 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Hibiscus coulteri* is native to southwest-central and southern North America. *5, 6, 13 (Page 104), **16**, 28 (color photograph 358), 43 (030510 - *Hibiscus coulteri* Harv. ex A. Gray), 44 (012613 - no record of species; genus record), 46 (Page 553), 48 (genus), 63 (012613), 58, 77, **85** (012613 - color presentation), 86 (color photograph), **89** (reported as being a dwarf shrub located on Tumamoc Hill), 115 (color presentation), 124 (111310 - no record of species; genus record), 140 (Page 296)*

***Hibiscus denudatus* G. Bentham: Paleface**

SYNONYMY: *Hibiscus denudatus* G. Bentham var. *involucellatus* A. Gray. COMMON NAMES: Desert Hibiscus (a name also applied to other taxa); Naked Hibiscus; Pale Face; Pale Face Hibiscus; Pale Face Mallow; Pale Face Rose Mallow; Pale-face; Pale-face Hibiscus; Pale-face Rose Mallow; Pale-face Rose-mallow; Paleface; Paleface Hibiscus; Paleface Rose Mallow; Paleface Rose-mallow; Paleface Rosemallow; Rock Hibiscus; Rock-hibiscus; xKwáa (Seri). DESCRIPTION: Terrestrial perennial subshrub (8 to 56 inches in height); the leaves may be pale green or yellowish-green; the flowers (to 2 inches in diameter) may be light blue, blue, blue-pink, bluish-purple, creamy white, pale lavender, lavender, lavender-blue-pink, lavender-pink, orangish, light pink, pink, pink-lavender, pink-violet, pink-white, pale purple, purple, violet, white aging lavender, whitish or whitish-pink sometimes with a maroon, red, red-burgundy, reddish or rose basal spot (colored spot at the base of the petal); the stigmas may be red-burgundy; the anthers may be red-burgundy; flowering generally takes place between early February and late May and between late July and late December (additional records: flowering throughout the year has also been reported). HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; rocky mountainsides; mesas; rock cliffs; rocky and clayey canyons; walls of canyons; bouldery and gravelly canyon bottoms; talus slopes; crevices in rocks; buttes; rocky and rocky-gravelly ridgetops; foothills; rocky and gravelly hills; rocky hillsides; bedrock, bouldery, bouldery-sandy, rocky, rocky-sandy, gravelly and sandy slopes; alluvial fans; gravelly bajadas; rocky and rocky-shaley outcrops; amongst boulders and rocks; rocky coves; lava flows; plains; rocky, gravelly, sandy and silty flats; rocky bowls; rocky and sandy valley floors; coastal sand dunes; coastal plains; coastlines; coastal beaches; roadbeds; along sandy roadsides; within cobbly-sandy arroyos; bottoms of arroyos; draws; gullies; within rocky ravines; springs; along and in bouldery, rocky, gravelly-sandy and sandy washes; rocky drainages; borders of washes; (sandy) edges of washes; margins of arroyos, and gravelly-sandy riparian areas growing in dry rocky desert pavement; bouldery, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; clay ground, and silty ground, occurring from sea level to 5,200 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is browsed by rabbits. *Hibiscus denudatus* is native to southwest-central and southern North America. *5, 6, 13 (Pages 103-104, color photograph: Plate M.1., Page 400), 15, **16**, 28 (color photograph 598), 43 (012813), 44 (012713), 46 (Page 553), 48 (genus), 63 (030510 - color presentation), 77 (color photograph #39), **85** (012713 - color presentation), **89** (reported as being a dwarf shrub located on Tumamoc Hill), 86 (color photograph), 115 (color presentation), 124 (110610 - no record of species; genus record), 140 (recorded as *Hibiscus denudatus* Bentham var. *denudatus*, Page 296)*

Hibiscus denudatus var. *involucellatus* (see *Hibiscus denudatus*)

***Malva parviflora* C. Linnaeus: Cheeseweed Mallow**

COMMON NAMES: Cheeseweed (a name also applied to the genus *Malva*); Cheeseweed Mallow (a name also applied to other species); Egyptian Mallow; Hidden-flower Cheeseweed; Hidden-flower Mallow; Khubeizah (Arabic); Kleinblütige Malve (German); Least Mallow; Little Cheeseweed; Little Mallow; Malva (a name also applied to other species, Spanish; a anme applied to the genus *Malva*, Portuguese); Malva de Campo (Spanish); Malva de Castilla (Spanish); Mauve d'Egypte (French); Mauve à Petites Fleurs (French); Myllymalva; Quesillo (Spanish); Quesito (Spanish); Quesitos (Spanish); Ring-leaf Mallow; Small Flowered Mallow; Small Whorl Mallow; Small Whorled Cheeseweed; Small-flower Mallow; Small-flower Marshmallow; Small-flowered Cheeseweed; Small-flowered Cheese-weed; Small-flowered Mallow; Small-flowered Malva; Small-flowered Marshmallow; Small-fruit Mallow; Small-fruited Mallow; Small-whorl Mallow; Small-whorled Cheeseweed; Smallflower Mallow; Smallflowered Mallow; Malva Loca; Small-whorl Mallow; Tash Ma:hag (Spanish); Whorl-flower Mallow; Whorled Mallow. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (trailing prostrate and/or ascending stems 4 to 50 inches in height/length, one plant was reported to be 4 inches in height and 20 inches in width); the leaves are dark green; the flowers (petals about ¼ inch in length) may be pale blue, blue, cream, pale lavender, lavender, pink-lavender, pinkish, purple, white or white with a lavender-pink fringe; flowering generally takes place between early February and late June (additional records: two for mid-January, one for mid-July, four for late July, one for early August, three for mid-August, one for late August, three for early September, one for mid-September, five for late September, one for early October, one for late November and one for late December; it has been reported that flowering may take place through most of the year). HABITAT: Within the

range of this species it has been reported from mountains; rocky mountainsides; gravelly and sandy mesas; cliffs; rocky canyons; rocky-sandy canyon bottoms; gorges; bluffs; clayey meadows; rocky hills; hillsides; bouldery, rocky, gravelly-clayey, sandy, sandy-loamy and clayey slopes; bajadas; lava beds; sand hummocks; cobbly plains; sandy, clayey and clayey-loamy flats; sandy valley floors; coastal dunes; coastal prairies; roadbeds; along shaley, sandy and clayey-loamy roadsides; along arroyos; gravelly bottoms of arroyos; springs; along streams; along creeks; along creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy and sandy washes; cobbly-sandy and sandy drainages; saltwater marshes; depressions; banks of streams, creeks and rivers; edges of washes and lakes; margins of ponds; sides of lakes; rocky strands; terraces; loamy bottomlands; sandy and sandy-silty floodplains; mesquite bosques; fencelines; margins stock tanks (represos); along canals; along and in ditches; clayey ditch banks; sandy riparian areas; waste places; recently burned areas of chaparral, and disturbed areas growing in muddy and wet, moist and dry bouldery, rocky, rocky-sandy, shaley, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay and clay ground, and sandy silty and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a forage (hogs fed on the seeds), as a drug or medication and as a commodity used in personal hygiene. Cheeseweed Mallow is very similar to the exotic Common Mallow (*Malva neglecta* C.F. Wallroth) which is native to Europe; western, central and southern Asia, and northern Africa and which has spreading or nearly prostrate stems, flower petals that are 1/3 to 2/3 inches in length and curled lobes on the fruit. *Malva parviflora* is native to southwestern Europe; western and central Asia, and northern Africa. *5, 6, **16**, 28 (color photograph 600), 43 (030510), 44 (072811), 46 (Page 549), **56**, **57**, 58, 63 (012813 - color presentation), 68, 77, 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Consumption of large amounts of this common introduced annual forb within a few days has caused death in livestock."), **85** (012913 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a perennial herb, 101 (note), 106 (030510 - color presentation), 115 (color presentation), 124 (072811), 127, 140 (Page 296), **WTK** (January 28, 2013)*

Malvastrum exile (see *Eremalche exilis*)

***Malvella sagittifolia* (A. Gray) P.A. Fryxell: Arrowleaf Mallow**

SYNONYMY: *Sida lepidota* A. Gray var. *sagittaefolia* A. Gray. COMMON NAMES: Arrow-leaf Mallow; Arrowleaf Mallow; Scurfy Sida. DESCRIPTION: Terrestrial perennial forb/herb (spreading or trailing prostrate, decumbent and/or ascending stems 6 to 18 inches in height/length); the stigmas a round, dot-like and bright red; the flowers are cream, orange, pale pink, pink, purple, rose, pale white, white or white with a rose tint; flowering generally takes place between early March and mid-May and between mid-August and mid-October (additional records: two for mid-June and three for late November, it has been reported that flowering may take place throughout the year). HABITAT: Within the range of this species it has been reported from clayey mesas; bajadas; plains; silty flats; clayey valley floors; loamy valley bottoms; sandy-loamy and sandy-silty roadsides; clayey and clayey-loamy washes; sandy, clayey and silty playas; depressions; silty mudflats; floodplains; bosques; ditches, and disturbed areas growing in dry sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; silty clay and clay ground, and sandy silty and silty ground, occurring from 400 to 6,000 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Malvella sagittifolia* is native to southwest-central and southern North America. *5, 6, 43 (030510 - *Sida lepidota* var. *sagittaefolia* A. Gray), 44 (012913 - no record of species; genus record, 46 (recorded as *Sida lepidota* Gray var. *sagittaefolia* Gray, Page 550), 63 (012913 - color presentation), **85** (012913 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Floodplain, recorded as *Sida lepidota* Gray var. *sagittaefolia* Gray), 124 (111610)*

***Rhynchosida physocalyx* (A. Gray) P.A. Fryxell: Buffpetal**

SYNONYMY: *Sida physocalyx* A. Gray. COMMON NAMES: Buff Petal; Buffpetal; Spearleaf Sida; Tuberous Rhynchosida; Tuberous Sida. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (trailing and/or sprawling ascending stems 4 inches to 3 feet in height/length); the flowers (¾ inch in width) may be cream, cream-yellow, light orange, orange, orange-yellow, peach, pale yellow, yellow or yellow-orange; flowering generally takes place between late March and late October (additional record: one for mid-November, it has been reported that flowering may take place throughout the year). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; meadows; foothills; hills; rocky hillsides; gravelly and sandy-loamy slopes; gravelly alluvial fans; gravelly bajadas; clayey flats; valley floors; along gravelly-sandy-clayey-loamy roadsides; bottoms of arroyos; ravines; streambeds; along creeks; along and in sandy washes; drainages; along watercourses; ciénegas; banks of washes; edges of washes; benches; terraces; bottomlands; sandy-clayey floodplains; mesquite bosques; clayey catch basins; levees; stock tanks; edges of ditches; riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground; gravelly-sandy-clayey loam and sandy loam ground, and sandy clay and clay ground often reported from under shrubs or trees, occurring from 100 to 5,400 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Rhynchosida physocalyx* is native to southwest-central and southern North America and South America. *5, 6, 15, **16**, 43 (030510), 44 (072811 - no record of species or genus), 46 (recorded as *Sida physocalyx* Gray, Page 550), **56**, **57**, 58, 63 (012913), 68 (recorded as *Sida physocalyx* Gray), **77** (recorded as *Sida physocalyx* Gray), **85** (013013 - color presentation), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Sida hastata* A. St. Hil.), 115 (color presentation), 124 (072811), 140 (Page 296)*

***Sida abutifolia* P. Miller: Spreading Fanpetals**

SYNONYMY: *Sida diffusa* K.S. Kunth; *Sida filicaulis* J. Torrey & A. Gray; *Sida procumbens* O. Swartz. COMMON NAMES: Hauay-xiu <xauayxiu> (Mayan: Maya)[140]; Hierba de la Vieja ("Old Woman's Herb", Spanish: Durango)[140]; Malva (a name also applied to other species, Spanish); Malva (Spanish: Sonora)[140]; Procumbent Sida; Prostrate Mallow (English)[140]; Spreading Fan-petals [Sida] (English: Arizona, New Mexico)[140]; Spreading Fanpetals; Spreading Sida; Yerba del Buen Día ("Good Day Herb", Spanish: San Luis Potosí, Nuevo Leon)[140]. DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate, procumbent and/or erect stems 8 inches to 4 feet in length); the stems are pinkish; the leaves are dark green; the flowers (to 7/8 inch in width) may be pale apricot, apricot, cream-yellow, golden, pale orange, orange, orange-yellow, peach, white, pale yellow-orange, yellow, yellow-orange, yellow-salmon or yellowish-orange; flowering generally takes place between early April and mid-November (additional records: one for late February, one for mid-March, one for early December and one for mid-December; it has been reported that flowering may take place throughout the year). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; gravelly and sandy mesas; rocky canyons; stony canyon walls; canyon bottoms; crevices in rocks; ledges; rocky-gravelly ridges; gravelly ridgetops; clayey-loamy meadows; foothills; rocky hills; rocky hillsides; bases of hills; bedrock, bouldery-gravelly, rocky, gravelly and clayey slopes; alluvial fans; stony and gravelly bajadas; rocky outcrops; amongst boulders; cobbly, gravelly-sandy-loamy, sandy and sandy-loamy plains; rocky-loamy, gravelly, gravelly-sandy, sandy and clayey flats; valley floors; along rocky-gravelly-sandy-clayey-loamy, rocky-gravelly-clayey-loamy, gravelly, gravelly-sandy-loamy and sandy roadsides; rocky, gravelly and sandy arroyos; gravelly bottoms of arroyos; gulches; seeps; springs; along streams; along and in streambeds; along creeks; along and in bouldery-rocky-sandy, gravelly-sandy and sandy washes; along drainages; along rocky-gravelly-sandy drainage ways; banks of arroyos, rivers; flanks of streams; benches; terraces; bottomlands; floodplains; lowlands; mesquite bosques; along fencelines; sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky-sandy, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, stony, cobbly, cobbly-gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly-sandy clayey loam, rocky-gravelly-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam and clay loam ground, and clay ground, occurring from 100 to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Bees in the genus *Augochlora* have been observed visiting the flowers. *Sida abutifolia* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and northern South America. *5, 6, 15 (recorded as *Sida procumbens* Sw.), **16** (recorded as *Sida procumbens* Sw.), 28 (recorded as *Sida filicaulis*, *Sida procumbens*, color photograph 359), 43 (072409 - no record of *Sida abutifolia*), 44 (120210 - no listings recorded under Common Names; genus record), 46 (recorded as *Sida procumbens* Sw., Page 550), 58 (recorded as *Sida procumbens* Sw.), 63 (013013 - color presentation), **77**, **85** (013113 - color presentation), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Sida diffusa* H.B.K.), 115 (color presentation), 124 (110610 - no record of species), 140 (Pages 169-171 & 296)*

Sida diffusa (see *Sida abutifolia*)

Sida filicaulis (see *Sida abutifolia*)

Sida hastata (see footnote 89 under *Rhynchosida physocalyx*)

Sida lepidota var. *sagittaefolia* (see *Malvella sagittifolia*)

Sida physocalyx (see *Rhynchosida physocalyx*)

Sida procumbens (see *Sida abutifolia*)

***Sphaeralcea ambigua* A. Gray: Desert Globemallow**

COMMON NAMES: Apricot Desert Mallow; Apricot Desert-mallow; Apricot Globe Mallow; Apricot Globe-mallow; Apricot Globemallow (subsp. *ambigua*); Apricot Mallow (subsp. *ambigua*); Apricot-mallow; Coyóco (Seri); Desert Globe Mallow; Desert Globe-mallow; Desert Globemallow; Desert Hollyhock; Desert Mallow; Desert-hollyhock; Desert-mallow; Deserthollyhock; Globe Mallow (a name also applied to other taxa); Globemallow (a name also applied to other taxa); Mal de Ojo (a name also applied to other taxa, Spanish); Malva (Spanish); Mohave Globemallow; Mojave Globemallow; Mountain Apricot Mallow (subsp. *ambigua*); Plantas Muy Malas (very bad plants, a name also applied to other taxa); Rose Globemallow (subsp. *rosacea*); Sore-eye Poppy (a name also applied to other taxa). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (spreading erect stems 16 to 78 inches in height; one plant was observed and described as being 2 feet in height and 2 feet in width, one plant was observed and described as being 3 feet in height and 2 feet in width); the stems may be ash-green , gray-green, silvery, tan, whitish or yellow; the leaves may be ash-green, gray, grayish, gray-green or silvery; the flowers (½ to 1½ inches in width) may be apricot-coral, apricot-orange, apricot-reddish, brick-red, coral-orange, grenadine, grenadine-orange, grenadine-red, lavender, magenta, orange, deep orange, orangish, orange-peach, orange-red, light pink-lavender, pink, pink-lavender, pink-orange, plum-blue, purple, purplish-pink, red, red-orange, reddish-salmon, rose, rose-pink, salmon, salmon-orange, salmon-pink, salmon-red, scarlet or white; the anthers may be reddish-orange or yellow; flowering generally takes place between early January and late November (additional records: two for mid-December, one for late December; flowering taking place throughout the year has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky, sandy and silty mesas; sandy plateaus; cliffs; stony-gravelly bases of cliffs; stony-cobbly-sandy,

gravelly and sandy canyons; along sandy canyon bottoms; talus slopes; bluffs; knolls; rocky ridges; bouldery ridgetops; cindery cinder cones; foothills; bouldery, rocky and gravelly hills; bouldery-sandy and rocky hillsides; bouldery-rocky, rocky, rocky-gravelly, cobbly-gravelly-sandy, gravelly, gravelly-loamy, gravelly-silty and sandy slopes; alluvial fans; bajadas; rock and sandy outcrops; amongst rocks; lava hills; sand dunes; sandy plains; rocky, cobbly-clayey, gravelly, sandy, silty and silty-loamy flats; basins; sandy and loamy valley floors; roadbeds; along rocky, rocky-gravelly, rocky-gravelly-silty, gravelly, gravelly-loamy, sandy and silty-loamy roadsides; within arroyos; rocky ravines; seeps; along springs; along streams; along creeks; along rocky-sandy and gravelly-sandy creekbeds; along rivers; riverbeds; along and in bouldery, rocky, gravelly, gravelly-sandy and sandy washes; along sandy drainages; playas; depressions; (sandy and silty-loamy) banks of creekbeds, washes and lakes; borders of washes; edges of washes; (sandy) margins of washes; (gravelly-sandy) shores of lakes; gravel bars; sandy beaches; rocky and sandy benches; shelves; sandy bottomlands; floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, shaley-gravelly, stony-cobbly-sandy, stony-gravelly, cobbly-gravelly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, silty loam and loam ground; cobbly clay ground, and rocky-gravelly silty, gravelly silty and silty ground, occurring from sea level to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted that it was used as a drug or medication. The Desert Globemallow is browsed by Bighorn Sheep (*Ovis canadensis*). *Sphaeralcea ambigua* is native to southwest-central and southern North America. *5, 6, 18, 28 (color photographs 536 & 601), 43 (030710), 44 (020113), 46 (Page 543), 48 (genus), 63 (020113 - color presentation), 68 (genus), 77 (color photograph #85), **85** (020213 - color presentation), 86 (color photograph), 115 (color presentation), 127*

Sphaeralcea ambigua A. Gray subsp. *ambigua*: Apricot Globemallow

SYNONYMY: *Sphaeralcea ambigua* A. Gray var. *ambigua*. COMMON NAMES: Apricot Globemallow (a name also applied to other taxa); Apricot Mallow (a name also applied to other taxa); Desert Globemallow (a name also applied to other taxa); Desert Hollyhock (a name also applied to other taxa); Desert Mallow; Desert-hollyhock (a name also applied to other taxa); Desert-mallow (a name also applied to other taxa); Globe Mallow (a name also applied to other taxa); Globemallow (a name also applied to other taxa); Mal de Ojo (a name also applied to other taxa, Spanish); Mountain Apricot Mallow; Plantas Muy Malas (very bad plants, a name also applied to other taxa); Sore-eye Poppy (a name also applied to other taxa). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 18 to 63 inches in height; one plant was observed and described as being 3 feet in height with a crown 44 inches in width); the foliage is ash-green or gray-green; the flowers may be apricot, orange, dark orange, pink-red, reddish-orange, salmon-orange, white-pinkish or yellow-orange; the anthers may be reddish-orange or yellow; flowering generally takes place between early February and mid-June (additional records: one for early January, one for mid-January, two for mid-August, one for early September, one for late September, one for early October, three for late October, one for mid-November, one for late November, two for mid-December and one for late December; flowering taking place throughout the year has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; stony-gravelly bases of cliffs; rocky canyons; along sandy canyon bottoms; talus slopes; knolls; ridges; rocky hillsides; rocky, rocky-clayey, cobbly, cobbly-loamy, gravelly and gravelly-sandy-loamy slopes; amongst rocks; dunes; plains; gravelly, sandy, sandy-clayey and silty flats; valley floors; along gravelly roadsides; along rocky arroyos; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; rocky runnels; (sandy) banks of washes; along edges of washes; margins of washes; (gravelly-sandy) shores of lakes; gravelly benches, and terraces growing in dry rocky, rocky-sandy, stony-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly loam, gravelly-sandy loam and loam ground; rocky clay and sandy clay ground, and silty ground, occurring from 100 to 6,700 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Sphaeralcea ambigua*, was reported to have been utilized by native peoples of North America; it was noted that it was used as a drug or medication. The Apricot Mallow is browsed by Bighorn Sheep (*Ovis canadensis*). *Sphaeralcea ambigua* subsp. *ambigua* is native to southwest-central and southern North America. *5, 6, 18, 28 (species, color photograph of the species), 43 (030710), 44 (020113 - no listings recorded under Common Names), 46 (species, Page 543), 48 (genus), 63 (020113), 68 (genus), 77 (color photograph #85), **85** (020213 - color presentation of dried material), 86 (species, color photographs of the species 536 & 601), 115 (color presentation of the species), 127 (species)*

Sphaeralcea ambigua var. *ambigua* (see *Sphaeralcea ambigua* subsp. *ambigua*)

Sphaeralcea angustifolia (A.J. Cavannilles) G. Don: Copper Globemallow

SYNONYMY: *Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don subsp. *cuspidata* (A. Gray) T.H. Kearney; *Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don subsp. *lobata* (E.O. Wooton) T.H. Kearney; *Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don var. *cuspidata* A. Gray; *Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don var. *lobata* (E.O. Wooton) T.H. Kearney; *Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don var. *oblongifolia* (A. Gray) L.H. Shinners; *Sphaeralcea cuspidata* (A. Gray) N.L. Britton, *Sphaeralcea emoryi* J. Torrey ex A. Gray subsp. *nevadensis* T.H. Kearney; *Sphaeralcea emoryi* J. Torrey ex A. Gray var. *nevadensis* (T.H. Kearney) T.H. Kearney. COMMON NAMES: Copper Globe Mallow; Copper Globe-mallow; Copper Globemallow; Copper-globemallow; Cordón (Hispanic); Desert Copper Globemallow; Desert Copper-globemallow; Emory Globe Mallow; Hierba del Golpe (Hispanic); Hierba del Negro (Spanish); K'oho:wa (Zuni); Narrow Leaf Globe Mallow; Narrow Leafed Globe Mallow; Narrow Leaved Desert Mallow; Narrow-leaf Globe Mallow; Narrow-leaf Globe-mallow; Mal de

Ojo (a name also applied to other taxa, Spanish); Narrow-leaf Globemallow; Narrow-leafed Globe Mallow; Narrow-leafed Globe-mallow; Narrow-leaved Desert Mallow; Narrow-leaved Desert-mallow; Narrow-leaved Globe Mallow; Narrow-leaved Globe-mallow; Narrow-leaved Globemallow; Narrowleaf Desert Mallow; Narrowleaf Desert-mallow; Narrowleaf Desertmallow; Narrowleaf False-mallow; Narrowleaf Globe Mallow; Narrowleaf Globe-mallow; Narrowleaf Globemallow; Rusty Globe-mallow; Rusty Globemallow; Sharp-fruit Globe-mallow; Sharp-fruited Globe Mallow; Sharp-fruited Globe-mallow; Tlixihitl (Nahuatl); Vara de San José (Spanish). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (wand-like ascending and or erect stems 10 inches to 6½ feet in height); the flowers may be apricot-pink, grenadine, grenadine-pink, lavender, orange, dark orange, orange-grenadine, orange-pink, pink, purple, red, red-orange, reddish-orange, reddish-purple, salmon, salmon-pink or white; flowering generally takes place between early March and late October (additional records: one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky cliffs; canyons; canyon bottoms; bases of bluffs; rocky ledges; hills; rocky hillsides; rocky, gravelly-sandy, sandy and sandy-loamy slopes; rocky alluvial fans; bajadas; sandy lava flows; dunes; prairies; plains; gravelly, sandy and sandy-silty flats; basin bottoms; rocky valley floors; along rocky-clayey railroad right-of-ways; along roadbeds; along gravelly roadsides; arroyos; draws; springs; riverbeds; along clayey washes; drainages; silty lakebeds; silty playas; ciénegas; swamplands; sandy and sandy-silty depressions; borders of lakebeds; terraces; bottomlands; floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in wet and dry rocky, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, sandy loam and clayey loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from 300 to 7,400 feet in elevation in the forest; woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a cut flower. *Sphaeralcea angustifolia* is native to southwest-central and southern North America. *5, 6, **16** (*Sphaeralcea angustifolia* (Cav.) G. Don var. *cuspidata* Gray), 18 (genus), 30, 43 (072409), 44 (020213), 46 (recorded as *Sphaeralcea angustifolia* (Cav.) G. Don, Page 545; *Sphaeralcea angustifolia* (Cav.) G. Don var. *cuspidata* Gray, Page 545; *Sphaeralcea angustifolia* (Cav.) G. Don var. *lobata* (Wooton) Kearney, Page 545, and *Sphaeralcea emoryi* Torr. var. *nevadensis* Kearney, Page 543), 48 (genus), 58, 63 (020213 - color presentation), 68 (genus), **77**, **85** (020313 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Sphaeralcea cuspidata* (Gray) Britton), 127*

Sphaeralcea angustifolia subsp. *cuspidata* (see *Sphaeralcea angustifolia*)

Sphaeralcea angustifolia subsp. *lobata* (see *Sphaeralcea angustifolia*)

Sphaeralcea angustifolia var. *angustifolia* (see footnote number 85 under *Sphaeralcea angustifolia*)

Sphaeralcea angustifolia var. *cuspidata* (see *Sphaeralcea angustifolia*)

Sphaeralcea angustifolia var. *lobata* (see *Sphaeralcea angustifolia*)

Sphaeralcea angustifolia var. *oblongifolia* (see *Sphaeralcea angustifolia*)

***Sphaeralcea coulteri* (S. Watson) A. Gray: Coulter's Globemallow**

COMMON NAMES: Annual Globe Mallow; Annual Globe-mallow; Annual Globemallow; Coulter Desert Mallow; Coulter Desert-mallow; Coulter Globe Mallow; Coulter Globe-mallow; Coulter Globemallow; Coulter's Desert Mallow; Coulter's Desert-mallow; Coulter's Globe Mallow; Coulter's Globe-mallow; Coulter's Globemallow; Hadamdak (Tohono O'odham); Mal de Ojo (a name also applied to other taxa, Spanish); Sevoa'ara (Yaqui); Xcóa (Seri). DESCRIPTION: Terrestrial annual forb/herb or subshrub (stems 6 inches to 6 feet in height); the leaves are grayish; the flowers may be apricot, light blue, coral-apricot, light orange, orange, deep orange, pinkish, red-orange, reddish-apricot, salmon, salmon-orange, white or yellow-orange; flowering generally takes place between late December and late April (additional records: one for mid-May, one for late May, one for early June, two for late August, one for mid-September, one for early November, two for late November and one for early December). HABITAT: Within the range of this species it has been reported from bouldery mountains; flanks of mountains; gravelly mesas; sandy canyons; rocky sides of buttes; clayey ridges; ridgetops; sandy inside rims of craters; rocky hills; rocky hillsides; rocky and rocky-sandy slopes; bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; sand hummocks; sandy plains; gravelly and sandy flats; valley floors; basins; bolsons; coastal plains; beach heads; sandy tidal flats; rocky, gravelly, sandy and sandy-loamy roadsides; sandy arroyos; along rivers; gravelly-sandy riverbeds; along and in rocky, rocky-sandy, gravelly-sandy and sandy washes; clayey playas; periphery of playas; depressions; silty swales; (sandy and silty) banks of rivers and washes; borders of washes; (sandy-clayey) edges of washes and playas; gravelly beaches; bottomlands; sandy floodplains; lowlands; mesquite bosques; along canals; ditches; riparian areas; waste places, and disturbed areas growing in damp and dry desert pavement; bouldery, rocky, rocky-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam and loam ground; sandy clay and clay ground, and silty ground, occurring from sea level to 3,300 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Sphaeralcea coulteri* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 43 (030710), 44 (072811), 46 (Page 542), 48 (genus), 63 (020313 - color presentation), 68 (genus), 77, **85** (020313 - color

presentation including habitat; records also located under *Sphaeralcea coulteri* var. *coulteri*), 86 (color photograph), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain), 124 (072811 - no record of species; genus record)*

Sphaeralcea coulteri var. *coulteri* (see footnote 85 under *Sphaeralcea coulteri*)

Sphaeralcea cuspidata (see *Sphaeralcea angustifolia*)

***Sphaeralcea emoryi* J. Torrey ex A. Gray: Emory's Globemallow**

SYNONYMY: *Sphaeralcea emoryi* J. Torrey ex A. Gray subsp. *arida* T.H. Kearney; *Sphaeralcea emoryi* J. Torrey ex A. Gray subsp. *emoryi*; *Sphaeralcea emoryi* J. Torrey ex A. Gray subsp. *variabilis* T.H. Kearney; *Sphaeralcea emoryi* J. Torrey ex A. Gray var. *arida* (J.N. Rose) T.H. Kearney; *Sphaeralcea emoryi* J. Torrey ex A. Gray var. *californica* (S.B. Parish) L.H. Shinners; *Sphaeralcea emoryi* J. Torrey ex A. Gray var. *emoryi*; *Sphaeralcea emoryi* J. Torrey ex A. Gray var. *variabilis* (T.D. Cockerell) T.H. Kearney. COMMON NAMES: Emory Desert-mallow; Emory Globe Mallow; Emory Globe-mallow; Emory Globemallow; Emory Mallow; Emory's Desert Mallow; Emory's Desert-mallow; Emory's Desertmallow; Emory's Globe Mallow; Emory's Globe-mallow; Emory's Globemallow; Globe Mallow (a name also applied to other taxa, including the genus *Sphaeralcea*); Hadam Tadkam (Pima); Lance Mallow; Mal de Ojo (a name also applied to other taxa, Spanish); Riptia (Yaqui). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (ascending stems 2¼ to 98 inches in height; one plant was observed and described as being 2 feet in height and 3 feet in width); the stems may be gray-green, green, greenish or deep red; the leaves may be gray-green, greenish or dark green; the flowers may be apricot, brick-orange, burnt-orange, grenadine, grenadine-red, lavender; orange, bright orange, orange-pink, orange-red, deep orange-pink, peach, peach-red, pink, pink-orange, pinkish-white, purple, red, red-orange, reddish, reddish-orange, rose, rose-pink, rose-purple, salmon, salmon-orange, deep salmon, scarlet or white; flowering may take place throughout the year between early January and late December. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and sandy canyons; rocky canyon bottoms; meadows; ridges; ridgetops; meadows; foothills; rocky hills; rocky-gravelly hill tops; rocky hillsides; rocky, gravelly-sandy, gravelly-clayey-loamy and sandy slopes; rocky alluvial fans; sandy bajadas; amongst rocks; sandy lava flows; sand dunes; sandy plains; sandy, clayey and silty flats; clayey basins; gravelly valley floors; valley bottoms; coastal hills; along railroad right-of-ways; along rocky, gravelly-loamy, sandy and clayey roadsides; arroyos; ravines; rocky bottoms of ravines; springs; along streams; sandy-clayey-loamy riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and silty washes; gravelly-sandy-silty poolbeds; sandy-silty and silty lakebeds; silty playas; silty depressions; playas; (sandy) banks of arroyos, ravines, streams and rivers; borders of washes; edges of ponds; mudflats; gravelly and sandy terraces; sandy bottomlands; floodplains; gravelly-sandy-silty impoundments; canal banks; ditches; ditch banks; riparian areas, and disturbed areas growing in wet, damp and dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy-clayey loam and sandy loam ground; clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from below sea level to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a dug or medication. *Sphaeralcea emoryi* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Sphaeralcea emoryi* Torr. var. *californica* (Parish) Shinners), 18 (genus), 43 (030810), 44 (020313), 46 (Pages 542-543), 48 (genus), 58, 63 (020413), 68, **77** (recorded as *Sphaeralcea emoryi* Torr. var. *californica* (Parish) Shinners), **85** (030810 - color presentation), 101 (note), 115 (color presentation), 127*

Sphaeralcea emoryi subsp. *arida* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi subsp. *californica* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi subsp. *emoryi* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi subsp. *nevadensis* (see *Sphaeralcea angustifolia*)

Sphaeralcea emoryi subsp. *variabilis* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi var. *arida* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi var. *californica* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi var. *emoryi* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi var. *nevadensis* (see *Sphaeralcea angustifolia*)

Sphaeralcea emoryi var. *variabilis* (see *Sphaeralcea emoryi*)

***Sphaeralcea laxa* E.O. Wooton & P.C. Standley: Caliche Globemallow**

COMMON NAMES: Caliche Globe Mallow; Caliche Globemallow; Globemallow (a name also applied to the genus *Sphaeralcea*) ; Mal de Ojo (a name also applied to other taxa, Spanish). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 12 to 28 inches in height); the leaves may be gray, gray-green, green or dark green; the flowers may be bluish-pink, grenadine, orange, orange-pink, peach-orange, pink-orange, red, red-orange or deep salmon; the anthers are dark purple; flowering generally takes place between early February and late November (additional record: one for mid-December). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky-gravelly mesas; cliffs; rocky canyons; sandy canyon bottoms; talus slopes; ledges; rocky-sandy ridges; rocky-gravelly ridgelines; rocky-sandy rims of craters; foothills; hills; rocky-gravelly hilltops; rocky, gravelly-sandy-loamy and sandy hillsides; bases of hills; rocky, gravelly and silty-clayey slopes; alluvial fans; rocky and gravelly bajadas; rocky outcrops; amongst boulders, rocks and gravels; sandy and sandy-loamy plains; gravelly and sandy flats; basins; valley floors; along railroad right-of-ways; roadcuts; along roadsides; sandy arroyos; clayey bottoms of arroyos; draws; springs; riverbeds; along and in gravelly and sandy washes; along drainages; around lakes; along (sandy-silty) banks of rivers; along (gravelly) edges of streambeds and washes; margins of rivers and washes; gravel bars; bottomlands; floodplains; sandy lowlands; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, pebbly and sandy ground; gravelly-sandy loam and sandy loam ground, and silty clay ground, occurring from 1,200 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Sphaeralcea laxa* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (030810), 44 (072811 - no record of species; genus record), 46 (Page 543), 48 (genus), **56**, **57**, 63 (020413 - color presentation), 68, 77 (color photograph #40), **85** (020413 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill, recorded as *Sphaeralcea pedata* Torr.), 115 (color presentation), 124 (072811 - no record of species; genus record)*

Sphaeralcea pedata (see footnote 89 under *Sphaeralcea laxa*)

Meliaceae: The Mahogany Family

***Melia azedarach* C. Linnaeus: Chinaberrytree**

COMMON NAMES: Amargoseira-do-Himalaio (Portuguese); Arbre à Chapelets (French); African Syringa; Amargoseira-do-Himalaio (Portuguese); Arbre à Chapelets (French); Azedarach; Bead-tree (a name also applied to other taxa); Bessieboom Syringa (Afrikaans); Cape-lilac (Cape Lilac is a name that is also applied to other taxa); Cape Syringa; China Bead Tree; China Bead-tree; China Berry (a name also applied to other taxa); China-berry (a name also applied to other taxa); China-berry Tree; China-berry-tree; Chinaberry (a name also applied to other taxa); Chinaberry Tree; Chinaberry Umbrella Tree; Chinaberry-tree; Chinaberrytree; China Tree; China-tree; Chuan Liang Zi (transcribed Chinese); Cinamomo (Portuguese: Brazil); Indian Bead Tree; Indian Lilac (a name also applied to other taxa); Indischer Zedrachbaum (German); Japanese Bead Tree; Lelah, Lian (transcribed Chinese); Lilas des Indes (French); Maksering (Afrikaans); Melia (Spanish); Meolguseulnamu (transcribed Korean); Paraiso (a name also applied to other taxa, Spanish); Persian-lilac (a name also applied to other taxa); Persian Lilac (a name also applied to other taxa); Persischer Flieder (German); Piocha (Spanish); Pride of India (a name also applied to other taxa); Pride of Persia; Pride-of-India (a name also applied to other taxa); Red Seringea; S-u'ukuk (Pima); Sabonete-de-soldado (Portuguese: Brazil); Sendan (Japanese Rōmaji); Sichuan Pagoda Tree; Sichuan Pagoda-tree; South African Syringa; Syrian Bead Tree; Syrian Bead-tree; Syringa Berry Tree; Syringa Berry-tree; Syringa Berrytree; Texas Umbrella Tree; Texas Umbrella-tree; Texas Umbrellatree; Tulip Cedar; Tulip-cedar; Umbrella-cedar; Umbrella Tree (a name also applied to other taxa); Umbrella-tree (a name also applied to other taxa); White Cedar (a name also applied to other taxa); White-cedar (a name also applied to other taxa); Zedrak (Swedish). DESCRIPTION: Terrestrial perennial deciduous (or semi-evergreen) shrub or tree (10 to 75 feet in height with a rounded crown to 96 feet in diameter); the leaves are dark green; the flowers may be pale lavender, lavender, pinkish-lavender, purple-pink, purplish, purplish-white, white-lavender or white tinged with violet; flowering generally takes place between late March and mid-May (additional records: one for mid-January and one for mid-July); the mature fruit is whitish or yellowish turning brown and wrinkled with age. HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; rocky canyons; canyon floors; along ridgetops; bouldery, bouldery-rocky and rocky slopes; alluvial fans; amongst boulders; sandy flats; valley floors; rocky-gravelly-loamy roadsides; arroyos; springs; streambeds; along creeks; creekbeds; along rivers; rocky, rocky-sandy and sandy riverbeds; along and in rocky-sandy and sandy washes; along margins of washes; bottomlands; gravelly, silty-loamy, silty-clayey and silty-clayey-loamy floodplains; rocky and loamy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-rocky, rocky, rocky-sandy, gravelly and sandy ground; rocky-gravelly loam, sandy loam, silty-clayey loam and loam ground, and silty clay and clay ground, occurring from sea level to 5,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food (chewed leaves for pleasing flavor), spice, as jewelry, as a drug or medication and as a commodity used in personal hygiene. The fruits are poisonous. *Melia azedarach* is native to eastern and southern Asia and islands in the Indian Ocean and Philippine Sea; Australia, and islands in the South Pacific Ocean. *5, 6, **16**, 18, 26 (color photograph), 28 (color photograph 104), 43 (030910), 44 (020413), 46 (Supplement Page 1059), 52 (color photograph), 63 (020413 - color presentation), **77**, 80 (This species is listed as a Poisonous Cropland and Garden Plant. "All parts of this tree may be lethal, causing complete paralysis and suffocation, but berries cause most poisoning of livestock (especially hogs) and children."), **85** (020413 - color presentation), 97, 127

Molluginaceae: The Carpetweed Family
(the genus Mollugo was formerly placed in the Aizoaceae)

***Mollugo cerviana* (C. Linnaeus) N.C. Seringe: Threadstem Carpetweed**

COMMON NAME: Indian Chickweed (a name also applied to other species and the genus *Mollugo*); Slender Carpet-weed (a name also applied to other species); Slender Carpetweed (a name also applied to other species); Thread Stem Carpet Weed; Thread-stem Carpet Weed; Thread-stem Carpet-weed; Thread-stem Carpetweed; Threadstem Carpet Weed; Threadstem Carpet-weed; Threadstem Carpetweed; Wire-stem Chickweed; Xian Ye Su Mi Cao (transcribed Chinese). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 10 inches in height); the flowers may be cream, green, green-white, pink, pinkish-white, white or pale yellow; flowering generally takes place between late July and late October (additional records: one for mid-May and one for early June). HABITAT: Within the range of this species it has been reported from mountains; cindery-sandy mountainsides; mesas; rocky canyons; rocky and gravelly-sandy canyon bottoms; cinder cones; foothills; bouldery hills; rocky hillsides; bouldery, rocky-sandy, cindery, gravelly, sandy, sandy-loamy and sandy-silty slopes; rocky alluvial fans; rocky and sandy bajadas; bouldery outcrops; cindery lava flows; sand hills; sand dunes; plains; cindery, gravelly, gravelly-loamy and sandy flats; basins; valley floors; along roadsides; sandy bottoms of arroyos; along gullies; streambeds; creekbeds; along and in gravelly and sandy washes; drainages; banks of creeks and washes; gravelly and sandy terraces; sandy floodplains; sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam and sandy loam ground, gravelly clay ground, and sandy silty ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Mollugo cerviana* is native to eastern and southern Europe; western, central and southern Asia; Africa, and Australia. *5, 6, 15, 43 (030910), 44 (072911 - color photograph), 46 (Page 280), 63 (020413), 77, 85 (020413 - color presentation of dried material), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes), 124 (072911 - no record of species; genus record), 140 (Page 296)*

***Mollugo verticillata* C. Linnaeus: Green Carpetweed**

COMMON NAMES: Alfombra (Spanish: Caribbean); Carpet-weed (a name also applied to other taxa including the Molluginaceae); Carpetweed (a name also applied to other taxa including the Molluginaceae); Devil's Grip (a name also applied to other taxa, Maine); Devil's-grip (a name also applied to other taxa, Maine); Green Carpet Weed; Green Carpet-weed; Green Carpetweed; Espuelita; Indian Chick Weed (not recommended for use, a name also applied to other taxa including the genus *Mollugo*); Indian Chickweed (not recommended for use, a name also applied to other taxa including the genus *Mollugo*); Indian-chickweed (not recommended for use, a name also applied to other taxa including the genus *Mollugo*); Kransört (Swedish); Mollugine (French); Mollugo Verticillé; Verticillate Carpet-weed; Verticillate Mollugo; Whorled Carpetweed; Whorled Chickweed; Zhong Leng Su Mi Cao (transcribed Chinese). DESCRIPTION: Terrestrial annual forb/herb (prostrate, ascending and/or erect stems 1 to 18 inches in height/length); the leaves are pale green; the inconspicuous flowers (1/8 inch in diameter) are white; flowering generally takes place between mid-June and early November (additional records: two for mid-January, two for mid-March, one for early May and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; bouldery and rocky canyons; gravelly and gravelly-sandy canyon bottoms; shallow pockets of soil in rocks; rocky and gravelly buttes; ridges; rocky ridgetops; clearings in forests; foothills; hills; rocky hillsides; rocky, gravelly, gravelly-loamy, sandy, sandy-loamy and clayey slopes; bajadas; rocky outcrops; amongst boulders; sandy-loamy plains; gravelly, sandy and clayey flats; valley floors; sandy coastal dunes; coastal thornscrub, prairies and desertscrub; coastal salt marshes; along railroad right-of-ways; roadbeds; along gravelly-sandy and sandy roadsides; along arroyos; bottoms of arroyos; draws; along streams; along gravelly-sandy streambeds; along creeks; sandy creekbeds; along rivers; riverbeds; along and in rocky, stony, gravelly, gravelly-sandy, sandy and clayey washes; vernal pools; beds of dried pools; marshy ponds; clayey lakebeds; (gravelly, gravelly-sandy and silty) banks of creeks and rivers; (sandy) edges of ponds and marshes; margins of arroyos and lakes; shores of lakes; mudflats; sandy benches; rocky shelves; terraces; bottomlands; floodplains; gravelly and gravelly-sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam and sandy loam ground; gravelly clay and clay ground, and silty ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Mollugo verticillata* is native to central and southern North America; Central America including coastal islands in the Caribbean Sea, and western, eastern and southern South America; however, its exact native range is obscure and it is considered by some authors to be a native of the New World Tropics or pan-tropic which has naturalized in subtropical and temperate regions. *5, 6, 15, 43 (072409), 44 (020513 - color photograph), 46 (Page 280), 58, 63 (020513 - color presentation), 77, 85 (020513 - color presentation), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes), 124 (111310), 140 (Page 296)*

Moraceae: The Mulberry Family

***Morus alba* C. Linnaeus: White Mulberry**

COMMON NAMES: Amoreira-branca (Portuguese); Gewone Moerbei (Afrikaans); Kuwa (Japanese: Rōmaji); Mulberry (a name also applied to other taxa including the genus *Morus* and the Moraceae); Mora (Spanish); Moral Blanco (Spanish); Morera Blanca (Spanish); Mulberry; Mûrier Blanc (French); Russian Mulberry; Sang (transcribed Chinese); Šelkovica Belaja (transliterated Russian); Silk Worm Mulberry; Silk-worm Mulberry; Silkworm Mulberry; Vitt Mullbär (Swedish); White Mulberry; White Mulberry Tree; Weißer Maulbeerbaum (German); Witmoerbei (Afrikaans). DESCRIPTION: Terrestrial perennial deciduous shrub or tree (8 to 50 feet in height; one tree was observed and described as being 35 feet in height with a crown 60 feet in width); the bark may be brown tinged with red or yellow, pale gray or gray-brown; the trunks are gray-brown; the branchlets may be dark green or orange-brown with a reddish cast; the leaves may be green or yellow; the tiny pistalate and staminate flowers (in catkins) may be green, greenish or pale yellow; flowering generally takes place between mid-March and late June; the mature fruits may be black, blackish-purple, blackish-red, pinkish, pinkish-red, pinkish-white, light purple, purple-black, purplish, red, white or white with a purple tinge. HABITAT: Within the range of this species it has been reported from mountains; canyons; rocky-sandy canyon bottoms; gorges; bluffs; meadows; sandy flats; basins; valley bottoms; along roadsides; draws; within ravines; springs; along streams; along creeks; along rivers; riverbeds; washes; along lakes; boggy areas; marshes; along banks of rivers; (sandy) edges of rivers and lakes; margins of river; shores of rivers, ponds and lakes; sides of lakes; terraces; floodplains; mesquite bosques; fencerows; canals; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry rocky-sandy and sandy ground; sandy loam, clayey loam, silty loam and loam ground, and clay ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was also noted as having been used for food and as a drug or medication. *Morus alba* is native to eastern Asia (northern and central China). *5, 6, 18, 26 (color photograph), 28 (color photograph 71), 43 (030910), 44 (020613 - color photograph), 46 (genus - no record of species, Page 221), 52 (color photograph), **56**, **57**, 63 (020613 - color presentation of seed), **85** (020613 - color presentation), 127*

Nyctaginaceae: The Four-o'clock Family

Allionia incarnata C. Linnaeus: Trailing Windmills

COMMON NAMES: Allionia (a name also applied to the genus *Allionia*); Crested Windmills; Guapile (Spanish: Sonora)[140]; Hamíp Cmaam ("Female Spiderling", Hokan: Seri)[140]; Hierba de la Golpe ("Bruise Herb", Spanish: Sonora)[140]; Hierba de la Hormiga [Mosca] ("Ant [Fly] Herb", Spanish: Durango, Nuevo León, Zacatecas)[140]; 'Ilt'ąą' <ʔilt'ąʔí> ("Leaves Like Rock Tea", Athapascan: Navajo)[140]; Juan Ematilli (Spanish: Onavas Pima)[140]; 'Okup'e (Kiowa Tanoan: Tewa)[140]; Pink Three-flower (English: Arizona)[140]; Pink Three-flower Allionia; Pink Windmills (a name also applied to other species); Totopwuvàapi <totópwuvápi> (Uto-Aztecan: Hopi)[140]; Trailing Allionia; Trailing Four O'clock (a name also applied to the genus *Allionia*); Trailing Four O'clock (English)[140]; Trailing Four-o'clock (a name also applied to the genus *Allionia*); Trailing Umbrella-wort; Trailing Windmills; Tsét'ąą' Ts'ósí <cedide.h c'o's> ("Leaves Like Rock Tea", Athapascan: Navajo)[140]; Umbrella Wort (a name also applied to other species and the genus *Allionia*); Umbrella-wort (a name also applied to other species and the genus *Allionia*); Umbrella-wort (English)[140]; [Trailing] Wind-mills (English: Arizona, New Mexico)[140]; Windmills (a name also applied to the genus *Allionia*). DESCRIPTION: Terrestrial annual or perennial forb/herb (sprawling, trailing prostrate stems 2 to 20 inches in height and 4 inches to 10 feet in length; one plant was observed and described as being 4 inches in height and 12 by 20 inches in width); the stems may be reddish; the sticky foliage has been described as being gray-green or green above and silvery beneath; the flowers may be blue, fuchsia; lavender, lavender-pink, lavender-rose, magenta, deep magenta, magenta-pink, magenta-rose, pink, deep pink, pink-lavender, pink-magenta, pink-purple, pink-violet, purple, purple-blue, purplish-pink, red-violet, reddish-purple, rose, rose-pink, rose-purple, violet, violet-magenta, violet-pink or white (rarely); the anthers are yellow; flowering generally takes place between mid-January and mid-December (additional record: flowering year-round has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, rocky-sandy and gravelly mesas; rims of canyons; cliffs; rocky and shaley canyons; along gravelly canyon bottoms; lava flow talus; buttes; knolls; rocky and shaley ridges; bases of ridges; rocky and gravelly ridgetops; sandy foothills; rocky, rocky-sandy, gravelly, sandy and clayey hills; rocky-gravelly hilltops; rocky and gravelly hillsides; along bedrock, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, rocky-loamy, shaley, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, sandy-silty and silty slopes; rocky alluvial fans; rocky, cobbly-sandy and gravelly-sandy bajadas; clayey outcrops; amongst boulders and rocks; lava hills; sandy lava flows; sand hills; sand dunes; sand hummocks; debris fans; banks; shelves; llanos; sandy and clayey-loamy plains; rocky, rocky-sandy, rocky-loamy, gravelly, gravelly-sandy and sandy flats; silty basin floors; gravelly-sandy valley floors; sandy roadbeds; along rocky, rocky-gravelly-sandy, rocky-gravelly-loamy, stony, gravelly, gravelly-sandy-loamy, sandy and sandy-loamy roadsides; within rocky, rocky-gravelly-sandy, gravelly and sandy arroyos; rocky and gravelly bottoms of arroyos; within draws; within rocky ravines; streambeds; along and in rocky and gravelly-sandy creekbeds; along rivers; along and in riverbeds; along and in bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly-gravelly-sandy, cobbly-pebbly, cobbly-sandy, gravelly, gravelly-sandy and sandy washes; drainages; silty lakebeds; marshy areas; ciénegas; sandy-silty depressions; along (clayey) banks of arroyos, rivers and washes; borders of washes; edges of rivers and washes; along (rocky) margins of arroyos, washes and lakes; shores of lakes; sandy benches; shelves; gravelly terraces; sandy bottomlands; sandy floodplains; lowlands; sandy mesquite bosques; edges of levees; along canals; canal banks; around stock tanks (represos); gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry sandy desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, cobbly-gravelly-

sandy, cobbly-pebbly, cobbly-sandy, cindery; gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam and clay loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Merriam's Kangaroo Rat (*Dipodomys merriami*), Arizona Pocket Mouse (*Perognathus amplus*), Bailey's Pocket Mouse (*Chaetodipus baileyi*) and the Rock Pocket Mouse (*Chaetodipus intermedius*) collect the seed of this plant. *Allionia incarnata* is native to southwest-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 15, **16**, 28 (color photograph 652), 43 (031010), 44 (073011 - color photograph), 46 (Page 274), **56**, **57**, 58, 63 (020613 - color presentation), 68, 77 (color photographs #41 and #86), **85** (020713 - color presentation), 86 (color photograph), **89** (reported as being a perennial herb located on both Tumamoc Hill and the Mesa-like Mountain Slopes), 115 (color presentation), 124 (073011), 127, 140 (recorded as *Allionia incarnata* Linnaeus [*Allionia incarnata* Linnaeus var. *nudata* (Standley) Munz, *Allionia incarnata* Linnaeus var. *villosa* (Standley) B.L. Turner], Pages 175-176 & 296)*

Allionia incarnata C. Linnaeus var. *villosa* (P.C. Standley) B.L. Turner: Trailing Windmills

COMMON NAMES: Allionia (a name also applied to the species and the genus *Allionia*); Trailing Allionia (a name also applied to the species); Trailing Four O'clock (a name also applied to the species and the genus *Allionia*); Trailing Four-o'clock (a name also applied to the species and the genus *Allionia*); Trailing Windmills (a name also applied to the species); Windmills (a name also applied to the species and the genus *Allionia*). DESCRIPTION: Terrestrial annual or perennial forb/herb (trailing prostrate stems 4 to 14 inches in height and 4 inches to 10 feet in length); the flowers may be magenta, pink, pinkish-purple, rd-violet, rose-pink or white; flowering generally takes place between mid-March and mid-October (additional record: flowering year-round has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; hills; hillsides; rocky, rocky-gravelly, gravelly and gravelly-loamy slopes; basins; valley floors; along rocky-gravelly-loamy and gravelly roadsides; gravelly arroyos; ravines; sandy riverbeds; along bouldery-sandy washes; drainages; sandy floodplains; mesquite bosques; gravelly-clayey banks of levees, and disturbed areas growing in dry bouldery-sandy, rocky, rocky-gravelly, cindery; gravelly and sandy ground; rocky-gravelly loam and gravelly loam ground, and gravelly clay and sandy clay ground, occurring from 100 to 5,200 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: The species, *Allionia incarnata*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Allionia incarnata* var. *villosa* is native to southwest-central and southern North America. *5, 6, 28 (species, color photograph of the species 652), 43 (031010), 44 (073011), 46 (species, Page 274), 63 (020613), 68 (species), **85** (020713 - color presentation), 86 (species, color photograph of the species), 115 (color presentation of the species), 124 (073011 - no record of this variety; species and genus records), 127 (species)*

Boerhavia coccinea P. Miller: Scarlet Spiderling

COMMON NAMES: Common Boerhavia; Hierba de la Hormiga (a name also applied to other species, Spanish); Hierba del Cancer (a name also applied to other species, Spanish); Hogweed (a name also applied to other species); Hong Xi Xin (transcribed Chinese); Indian Boerhavia (English)[140]; Jaunilipin (Spanish: Sonora)[140]; Juana Huipili (Uto-Aztecan: Mayo, Sonora)[140]; Juaninipili (Spanish); Mata Pavo (Spanish); Mochi (a name also applied to other species, Spanish); Mochi(s) (Spanish: Sonora)[140]; Mochiná (Uto-Aztecan: Guarijío)[140]; Na'ashjé'ii Dą́ą́' <na'asje'i dá'> (Athapascan: Navajo)[140]; Red Boerhavia; Red Boerhaavia; Red Spiderling (a name also applied to other species); Red [Scarlet] Spiderling (English)[140]; Scarlet Boerhavia; Scarlet Spiderling (a name also applied to other species); Tostón (Spanish); Wine-flower (Wineflower is a name applied to the genus *Boerhavia*); Wine-flower (English)[140]; Yerba de Puerco (Spanish). DESCRIPTION: Terrestrial perennial forb/herb (sprawling, spreading and/or trailing prostrate, decumbent, ascending and/or erect stems up to 1 to 8 feet in height/length); the stems are pale green; the leaves are dark green tinged with purple; the tiny flowers may be blood-red, blue, magenta, maroon, maroon-red, ochre-yellow, pink, pink-magenta, pink-purple, purple, purple-maroon, purple-red, red, dark red, red-maroon, red-purple, red-violet, dark reddish-purple, rose-pink, violet-red, white (rarely), wine-red, deep wine-red, or yellow (rarely); the stigma is pale green or lavender; flowering generally takes place between mid-March and mid-November (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky cliffs; bases of cliffs; rocky canyons; rocky, rocky-sandy and gravelly-sandy canyon bottoms; gorges; talus; crevices in rocks; rocky-sandy bluffs; foothills; rocky hills; rocky and rocky-clayey hillsides; bases of hillsides; bedrock, bouldery, bouldery-gravelly-sandy, rocky, rocky-cobbly-gravelly, gravelly, gravelly-sandy, gravelly-loamy, sandy-loamy and clayey-loamy slopes; gravelly alluvial fans; gravelly bajadas; bouldery outcrops; amongst boulders and rocks; sandy-loamy plains; gravelly, sandy, sandy-silty and clayey flats; valley floors; valley bottoms; roadbeds; along rocky, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly loam and sandy roadsides; within stony and sandy arroyos; along bottoms of arroyos; gulches; seeps; around seeping streams; along streams; along streambeds; along creeks; along rocky-gravelly-sandy, cobbly-sandy and sandy creekbeds; along rivers; bouldery-cobbly-sandy and rocky-cobbly riverbeds; along and in gravelly, gravelly-sandy and sandy washes; sandy drainages; watercourses; ciénegas; (rocky) banks of streams; (sandy) edges of rivers and washes; (sandy) sides of rivers; gravel bars; beaches; sandy benches; sandy terraces; bottomlands; sandy and sandy-loam floodplains; mesquite bosques; around stock tanks; ditch banks; bouldery-cobbly-sandy, gravelly and gravelly-sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery-cobbly-sandy, bouldery-gravelly-sandy, rocky, rocky-cobbly, rocky-cobbly-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, gravelly clay and clay ground, and sandy-silty

ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Bumblebees of the genus *Bombus* sip nectar from the flowers, and the larva of the White-lined Sphinx (*Hyles lineata*) feed on the leaves. *Boerhavia coccinea* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea; northern and western South America; Australia; southern Asia, and Africa and the West Indian Ocean. *5, 6, 15, **16**, 28 (color photograph 736), 43 (072409), 44 (073011), 46 (Note alternate spelling: *Boerhaavia*, Page 276), **56**, **57**, 58, 63 (020713 - color presentation), 68, 77 (color photograph #42), **85** (020713 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Boerhavia viscosa* Lag. var. *oligadena* Heimerl), 115 (color presentation), 124 (073011 - no record of species; genus record), 140 (Pages 176-178 & 296)*

Boerhavia coulteri (J.D. Hooker) S. Watson: Coulter's Spiderling

COMMON NAMES: Coulter Boerhaavia; Coulter Boerhavia; Coulter Spiderling; Coulter's Boerhaavia; Coulter's Boerhavia; Coulter's Spiderling; Hamíp (Seri); Juaninipili (Spanish); Mochi (a name also applied to other species, Spanish); Mochis (a name also applied to other species, Spanish); Palmer Boerhaavia (var. *palmeri*); Palmer Boerhavia (var. *palmeri*); Palmer Spiderling (var. *palmeri*); Palmer's Boerhaavia (var. *palmeri*); Palmer's Boerhavia (var. *palmeri*); Palmer's Spiderling (var. *palmeri*); Red Spiderling (a name also applied to other species); Spiderling (a name also applied to other species and the genus *Boerhavia*). DESCRIPTION: Terrestrial annual forb/herb (branching decumbent, ascending and/or erect stems 8 inches to 5 feet in height/length); the stems may be pink or red; the tiny flowers may be cream, pale lavender, lavender-pink, pink, pink-magenta, pinkish-red, pinkish-white, white or white with a pinkish tinge; flowering generally takes place between late July and mid-November (additional records: one for early June and one for late June). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; rocky ridge tops; meadows; foothills; rocky hills; rocky hillsides; bouldery, rocky and gravelly slopes; alluvial fans; rocky alluvial fans; rocky bajadas; rocky outcrops; amongst boulders; plains; gravelly and sandy flats; basins; valley floors; along gravelly-sandy-loam roadsides; along rivers; along and in gravelly, gravelly-sandy and sandy washes; along drainages; sandy-silty depressions; along (sandy) banks of rivers and washes; along edges of washes; mudflats; rock shelves; sandy-loamy terraces; sandy and silty floodplains; sandy mesquite bosques; along edges of stock tanks; silty ditches; cobbly-sandy and sandy riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy loam, sandy loam and loam ground; clay ground, and sandy silty ground, occurring from sea level to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia coulteri* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 617), 43 (031110 - *Boerhavia coulteri* (Hook. f.) S. Watson), 44 (020713), 46 (Note alternate spelling: *Boerhaavia*, Page 276), 58, 63 (031110), 68, **77**, **85** (031110 - color presentation), 140 (Page 177)*

Boerhavia erecta C. Linnaeus: Erect Spiderling

COMMON NAMES: Erect Spiderling; Falso-pega-pinto (Portuguese: Brazil); Five Winged Spiderling; Hamíp Caacöl ("Large Spiderling', Seri)[140]; Jigger Weed (Florida Keys); Jiggerweed (Florida Keys); Makkom Jeej ("Mother of the Caterpillar" a name also applied to other species, Akimel O'odham & Hiá Ceḍ O'odham)[140]; Makkum Jeej ("Mother of the Caterpillar" a name also applied to other species, Akimel O'odham & Hiá Ceḍ O'odham)[140]; Makkumĭ Ha-jeweḍ ("Caterpillar Their Mother [lit. Earth]" a name also applied to other species, Hiá Ceḍ O'odham)[140]; Mochi (a name also applied to other species, Spanish); Spiderling (a name also applied to other species and the genus *Boerhavia*); Totopwuvàapi <totópwuvápi> (Uto-Aztecan: Hopi)[140]; Zhi Li Huang Xi Xin (transcribed Chinese). DESCRIPTION: Terrestrial annual or perennial forb/herb (branching, spreading decumbent to erect stems 8 inches to 5 feet in height/length); the stems may be purple; the small flowers may be cream, lavender, magenta, pink, pinkish-cream, pinkish-white, purple, white or whitish tinged with pink or purple; flowering generally takes place between late June and early November (additional records: one for late January, one for mid-March, one for early May, two for mid-May and two for early June). HABITAT: Within the range of this species it has been reported from mountains; cobbly mesas; cliffs; along bouldery, rocky and gravelly canyons; along bedrock, rocky, cobbly and sandy canyon bottoms; gravelly clearings in woodlands; rocky hills; rocky hilltops; rocky hillsides; bedrock, bouldery, bouldery-rocky, rocky, cobbly, gravelly and gravelly-loamy slopes; alluvial fans; rocky-gravelly bajadas; bedrock and rocky outcrops; amongst boulders and gravels; lava flows; sand hills; sand dunes; sandy-loamy plains; sandy flats; silty valley floors; valley bottoms; coastal plains; railroad right-of-ways; along gravelly roadsides; along rocky arroyos; rocky bottoms of arroyos; draws; in streams; along and in rocky, gravelly and sandy streambeds; riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and loamy washes; within drainages; playas; sandy depressions; along (rocky) banks of streams, rivers and washes; along (sandy) edges of creeks; shorelines; sand bars; benches; terraces; rocky bottomlands; floodplains; along ditches; riparian areas; sandy waste places, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground, and gravelly-sandy silty and silty ground, occurring from sea level to 6,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a natural insecticide (sticky leaves and stems hung in the house to catch flies). *Boerhavia erecta* is native to south-central and southern North America and coastal islands in the North Atlantic Ocean; Central America and coastal islands in the Caribbean Sea; western South America; southeastern Asia and islands in the North and South Pacific Ocean, and Africa. *5, 6, 15, 43 (031110), 44 (020713 - no record of species; genus record), 46 (Note alternate spelling: *Boerhaavia*, Page 276), **56**, **57**, 58, 63 (020813 - color presentation), 77 (color photograph #87), **85** (020913 - also recorded as *Boerhavia erecta* subsp. *erecta* L., color presentation), **89**

(reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recorded as *Boerhavia thornberi* Jones), 124 (013011), 127, 140 (Pages 177 & 296)*

Boerhavia erecta subsp. *erecta* (see footnote 85 under *Boerhavia erecta*)

Boerhavia erecta var. *intermediia* (see *Boerhavia intermedia*)

***Boerhavia intermedia* M.E. Jones: Fivewing Spiderling**

SYNONYMY: *Boerhavia erecta* C. Linnaeus var. *intermedia* (M.E. Jones) T.H. Kearney & R.H. Peebles. COMMON NAMES: Fine Winged Ring Stem; Fine-winged Ring Stem; Five-wing Spiderling; Five-wing Ringstem; Five-winged Ringstem; Fivewing Spiderling; Hamíp Caacöl (Seri); Intermediate Spiderling; Jone's Boerhavia ('Jone's' is an error); Jones' Boerhaavia; Jones' Boerhavia; Jones's Boerhaavia; Jones's Boerhavia; Makkom Jeej ("Mother of the Caterpillar" a name also applied to other species, Akimel O'odham & Hiá Ceḍ O'odham)[140]; Makkum Jeej ("Mother of the Caterpillar" a name also applied to other species, Akimel O'odham & Hiá Ceḍ O'odham)[140]; Mochi (a name also applied to other species, Spanish); Mochis (a name also applied to other species, Spanish); Spiderling (a name also applied to other species and the genus *Boerhavia*); Spreading Spiderling. DESCRIPTION: Terrestrial annual forb/herb (branched, spreading decumbent, ascending and/or erect stems 6 inches to 3 feet in height/length); the leaves are gray-green with purple edges; the tiny flowers may be cream, light lavender, light pink, pale pink-lavender, pink, pink-lavender, pink-white, pinkish, purple, purple-pink, reddish, rose-violet, white or white tinged with lavender and/or pink; flowering generally takes place between early July and mid-November (additional records: one for late April, one for early June and one for mid-June). HABITAT: Within the range of this species it has been reported from rocky mountains; bases of mountains; mesas; rocky canyons; gravelly canyon bottoms; sandy pockets in lava; ridges; foothills; rocky hills; rocky and gravelly hillsides; rocky, rocky-gravelly, gravelly, gravelly-loamy, sandy and silty slopes; alluvial fans; gravelly bajadas; rock outcrops; plains; silty flats; valley floors; along gravelly, gravelly-sandy-loamy and sandy-silty roadsides; within sandy arroyos; bottoms of arroyos; ravines; along streams; along streambeds; along creeks; creekbeds; along and in gravelly, gravelly-sandy-silty and sandy washes; along drainages; sandy-silty depressions; edges of pools; loamy bottomlands; sandy floodplains; ditches; sandy riparian areas, and disturbed areas growing in dry bouldery-sandy, rocky, rocky-gravelly, shaley, gravelly and sandy ground; gravelly loam, gravelly-sandy loam and loam ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia intermedia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (031110), 44 (020913 - recorded as a synonym of *Boerhavia triquetera* var. *intermedia*), 46 (Note alternate spelling: *Boerhaavia*, Page 276), 58, 63 (020913), **85** (020913 - color presentation), **89** (reported as being a summer annual herb located on Tumamoc Hill)*

***Boerhavia megaptera* P.C. Standley: Tucson Mountain Spiderling**

COMMON NAMES: Annual Spiderling; Spiderling (a name also applied to other species and the genus *Boerhavia*); Tucson Mountain Spiderling; Winged Spiderling. DESCRIPTION: Terrestrial annual forb/herb (branching decumbent, ascending and/or erect stems 1 to 2 feet in height/length); the flowers are lavender, pale pink or pink; based on few flowering records, flowering generally takes place between early August and late September (additional record: one for early November). HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; canyons; canyon bottoms; rocky talus slopes; sandy cleared sites; rocky-gravelly and gravelly hills; rocky slopes; amongst shrubs or trees; roadsides, and along washes growing in dry rocky, rocky-gravelly, gravelly and sandy ground, occurring from 2,200 to 4,700 feet in elevation in the grassland and desertscrub ecological formations. NOTES: May be parasitized by *Cuscuta indecora*. *Boerhavia megaptera* is native to southwest-central and southern North America. *5, 6, **8**, **16**, 43 (031110), 44 (020913 - no record of species; genus record), 46 (Note alternate spelling: *Boerhaavia*, Page 277), 63 (020913), **77**, **85** (020913 - color presentation of dried material), 140 (Page 296), **89** (reported as being a summer annual herb located on Tumamoc Hill)*

***Boerhavia pterocarpa* S. Watson: Apache Pass Spiderling**

COMMON NAME: Apache Pass Spiderling. DESCRIPTION: Terrestrial annual forb/herb (sparingly branched prostrate, procumbent, decumbent and/or ascending stems 4 to 16 inches in height/length); branches ascending; the flowers may be pink, pale pink-white, pale pinkish or white; based on few records located, flowering generally takes place between early August and early September (additional record: one for mid-October). HABITAT: Within the range of this species it has been reported from slopes; bajadas; silty-clayey barrens; along sandy-clayey-silty roadsides; floodplains, and disturbed areas growing in dry sandy ground; sandy loam ground; silty clay and clay ground, and sandy-clayey silty ground, occurring from 2,100 to 4,500 feet in elevation in the desertscrub ecological formation. NOTE: *Boerhavia pterocarpa* is native to southwest-central and southern North America. *5, 6, 43 (031110), 44 (020913 - no record of species; genus record), 46 (Note alternate spelling: *Boerhaavia*, Page 277), **57**, 63 (020913), **85** (020913 - color presentation of dried material), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes)*

***Boerhavia scandens* C. Linnaeus: Climbing Wartclub**

SYNONYMY: *Commicarpus scandens* (C. Linnaeus) P.C. Standley. COMMON NAMES: Bush Spiderling; Climbing Spiderling; Climbing Wartclub; Millona (Spanish: Mexico, Sonora, Navojoa, Rio Mayo Region); Miona (Spanish); Miona (Mayo)[140]; Pega-polla; Sonorita (Spanish)[140]; Wishbone Vine. DESCRIPTION: Terrestrial perennial forb/herb or vine (weak

climbing, scrambling, sprawling erect stems 1 to 8 feet in height; usually found growing within and supported by other plants); the small flowers may be cream, cream-white, pale green, green, greenish, greenish-white, greenish-yellow, white, whitish-green or yellow-pink; flowering generally takes place between early April and mid-November (additional record: one for early January, two for mid-March, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; bases of cliffs; bouldery and rocky canyons; canyon walls; rocky canyon bottoms; rocky talus; buttes; rocky ledges; foothills; rocky hills; rocky hilltops; rocky hillsides; bouldery-gravelly, rocky, rocky-cobbly-gravelly, and gravelly slopes; gravelly alluvial fans; bajadas; rocky outcrops; amongst boulders; sand dunes; plains; sandy flats; basins; valley floors; beach dunes; coastal plains; coastal beaches; amongst sea-worn boulders; along gravelly-sandy and sandy roadsides; within rocky, stony, gravelly and sandy arroyos; rocky and sandy bottoms of arroyos; draws; along streambeds; along creeks; riverbeds; along and in gravelly and sandy washes; within rocky drainages; within drainage ways; ciénegas; borders of washes; edges of washes; along margins of washes; sides of washes; sandy beaches; benches; bottomlands; sandy floodplains; mesquite bosques; fencerows; rocky riparian areas, and disturbed areas growing in damp and dry bouldery, bouldery-gravelly, rocky, rocky-cobbly-gravelly, stony, gravelly, gravelly-sandy and sandy ground and gravelly loam ground, occurring from sea level to 6,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Often reported as growing up through and supported by shrubs. *Boerhavia scandens* is native to southwest-central and southern North America; Central America; South America, and coastal islands in the Caribbean Sea. *5, 6, 15, **16**, 43 (031110), 44 (011111), 46 (recorded as *Commicarpus scandens* (L.) Standl., Page 277), **56**, **57**, 58 (recorded as *Commicarpus scandens* L.), 63 (020913 - color presentation), 77 (recorded as *Commicarpus scandens* (L.) Standl., color photograph #43 labeled *Commicarpus scandens*), **85** (021013 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill), 115 (color presentation), 124 (110710 - no record, genus), 140 (recorded as *Commicarpus scandens* (Linnaeus) Standley, Pages 176 & 297)*

***Boerhavia spicata* J.D. Choisy: Creeping Spiderling**

SYNONYMY: *Boerhavia torreyana* (S. Watson) P.C. Standley; *Boerhavia watsonii* P.C. Standley. COMMON NAMES: Creeping Spiderling; Juanamipili (Spanish); Juananipili (Spanish); Makkumĭ Ha-jewe̱d (“Caterpillar Their Mother [lit. Earth]” a name also applied to other species, Hiá Ce̱d O’odham)[140]; Mochi (a name also applied to other species, Spanish); Mochis (a name also applied to other species, Spanish); Spiderling (a name also applied to other species and the genus *Boerhavia*). DESCRIPTION: Terrestrial annual forb/herb (sparingly branched ascending and/or erect stems 1 to 5 feet in height/length); the leaves are green with purple margins; the tiny flowers may be cream, lavender, pale pink, pink, pinkish-white, white or white tinged with pink; the stigmas are white; flowering generally takes place between early July and early November (additional records: one for early June and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountain peaks; mesas; sandy rims of canyons; gravelly canyons; canyon walls; canyon bottoms; talus slopes; ridges; clayey ridgetops; meadows; foothills; rocky-gravelly hills; rocky, cindery, gravelly and sandy slopes; gravelly and sandy-loamy bajadas; bedrock and rocky outcrops; sand dunes; blow-sand deposits; gravelly, sandy-loamy and sandy plains; rocky-loamy, gravelly and sandy flats; basins; sandy valley floors; valley bottoms; along railroad right-of-ways; along gravelly-sandy, gravelly-loamy and sandy roadsides; sandy arroyos; gulches; within sandy ravines; along streambeds; along rivers; riverbeds; along and in gravelly and sandy washes; silty-clayey drainages; within drainage ways; depressions; banks of streams, rivers and washes; rocky-sandy shores of lakes; beaches; sandy benches; rocky shelves; sandy terraces; sandy bottomlands; sandy and silty floodplains; bosques; mesquite and acacia woodlands; cobbly-sandy riparian areas; waste places, and disturbed areas growing in moist and dry rocky, rocky-gravelly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam and silty loam ground; silty clay and clay ground, and silty ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia spicata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (031210), 44 (021013 - no record of species; genus record), 46 (Note alternate spelling: *Boerhaavia*; recorded as *Boerhaavia spicata* Choisy, Page 276 and *Boerhaavia torreyana* (Wats.) Stand., Page 276), **56** (recorded as *Boerhavia watsoni* Standl.), **57** (recorded as *Boerhavia watsoni* Standl.), 58, 63 (021013 - color presentation), **77**, **85** (021013 - color presentation), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recorded as *Boerhavia watsoni* Stanley), 140 (Pages 177 & 297)*

Boerhavia thornberi (see footnote 89 under *Boerhavia erecta*)

Boerhavia torreyana (see *Boerhavia spicata*)

Boerhavia triquetera var. *intermedia* (see footnote 44 under *Boerhavia intermedia*)

Boerhavia viscosa var. *oligadena* (see footnote under *Boerhavia coccinea*)

Boerhavia watsonii (see *Boerhavia spicata*)

***Boerhavia wrightii* A. Gray: Largebract Spiderling**

COMMON NAMES: Creeping Stickstem; Desert Spiderling; Fourwing Spiderling; Large Bract Spiderling; Large-bract Spiderling; Large-bracted Boerhaavia; Large-bracted Boerhavia; Largebract Mochi; Largebract Spiderling; Makkumĭ Ha-jewe̱d (“Caterpillar Their Mother [lit. Earth]” a name also applied to other species, Hiá Ce̱d O’odham)[140]; Spiderling (a name

also applied to other species and the genus *Boerhavia*); Wright Boerhaavia; Wright Boerhavia; Wright Spiderling; Wright's Boerhaavia; Wright's Boerhavia; Wright's Spiderling. DESCRIPTION: Terrestrial annual forb/herb (delicate branching ascending and/or erect stems 8 to 32 inches in height); the leaves are green edges with purple; the tiny flowers may be cream-white, golden yellow (rarely), pale lavender, lavender, pale pink, pink, pinkish, pale purple, purple, rose, white, white tinged pink or whitish; flowering generally takes place between late July and early December (additional record: one for late April). HABITAT: Within the range of this species it has been reported from bouldery and rocky mountains; rocky-gravelly mountaintops; mesas; rocky cliffs; rocky canyons; gravelly canyon bottoms; bluffs; sandy foothills; rocky and rocky-gravelly hills; rocky hillsides; bouldery, rocky, gravelly-sandy, gravelly-sandy-loamy, sandy-silty and silty slopes; alluvial fans; rocky, gravelly and gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; sandy plains; rocky-sandy and sandy flats; rocky, gravelly-sandy and sandy valley floors; along rocky-gravelly, rocky-sandy and gravelly roadsides; rocky and sandy arroyos; draws; along creeks; along and in rocky, stony, gravelly, gravelly-pebbly, gravelly-sandy, sandy and silty washes; drainages; silty swales; along (sandy) banks of rivers and washes; edges of washes; margins of arroyos; gravel bars; terraces; loamy bottomlands; sandy and clayey lowlands; sandy floodplains; rocky-gravelly riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-pebbly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and loam ground; clay ground, and sandy silty and silty ground, occurring from 200 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia wrightii* is native to southwest-central and southern North America. *5, 6, **16**, 43 (031210), 44 (021013), 46 (Note alternate spelling: *Boerhaavia*, Page 276), 63 (021013), 77, **85** (021013 - color presentation), 140 (Page 177)*

Commicarpus scandens (see *Boerhavia scandens*)

Oleaceae: The Olive Family

Adelia neomexicana (see footnote 89 under *Forestiera shrevei*)

Forestiera phillyreoides (see *Forestiera shrevei*)

***Forestiera shrevei* P.C. Standley: Desert Olive**

SYNONYMY: *Forestiera phillyreoides* (G. Bentham) J. Torrey. COMMON NAMES: Adelia (Spanish)[140]; Desert Olive (English)[140]; Desert-olive; Desert-olive Forestiera; Forestiera (a name applied to the genus *Forestiera*); Garapatillo ("Little Tick", Spanish: San Luis Potosí)[140]; I*Y*entłidzi ("Hard Seed", Athapascan: Chiricahua and Mescalero Apache)[140]; Mountain Privet (English)[140]; Palo Blanco ("White Wood", Spanish)[140]; Palo de Tecumblate (Spanish: Durango)[140]; Palo de Tecumblate (Spanish); Palo de Tucublate; Peligrosa (Spanish); Shreve Desert Olive; Sonoran Desert Olive; Tangle-bush [brush] (English)[140]; Tanglebrush; Tanglebush; Wild Olive (a name also applied to other species); Wild-olive (Wild Olive is a name that is also applied to other species). DESCRIPTION: Terrestrial perennial deciduous to nearly evergreen shrub or tree (40 inches to 25 feet in height; one plant was observed and described as being 12 feet in height with a crown 8¼ feet in width); the trunk bark is blackish or gray; the younger branches and stems are gray or gray-brown; the leaves are green; female (greenish or white without petals) and male flower parts are born on separate plants (plants with perfect flowers may occasionally be found); the anthers are purple or purplish; flowering generally takes place between late December and early March (additional records: one for mid-April and one for early November; plants coming into flower in early August was also reported); the mature egg-shaped fruits are bluish, brown or purplish-black. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cliffs; clefts in cliffs; bases of cliffs; against rock walls; bouldery and rocky canyons; rocky canyon walls; along bouldery and rocky canyon bottoms; bedrock ridges; ridgetops; rocky hillsides; bedrock, rocky and rocky-cobbly-gravelly slopes; bajadas; bedrock and rock outcrops; amongst boulders; arroyos; seeps; along washes; borders of washes; edges of washes, and riparian areas growing in dry bouldery and rocky ground, occurring from 1,300 to 5,100 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The fruits are eaten by bear and Coyotes. *Forestiera shrevei* is native to southwest-central and southern North America. *5, 6, 13, **16**, 28 (color photograph 53), 30, 43 (031210 - *Forestiera phillyreoides* Torr.), 44 (021013 - no listings recorded under Common Names; genus record), 46 (recorded as *Forestiera phillyreoides* (Benth.) Torr., Page 643), 52 (recorded as *Forestiera phillyreoides*), 53 (recorded as *Forestiera phillyreoides* (Benth.) Torr.), 58, 63 (021013), 77, **85** (021013 - color presentation), **89** (reported as being a shrub located on the Mesa-like Mountain Slopes, recorded as *Adelia neomexicana* (Gray) Kuntze), 140 (recorded as *Forestiera phillyreoides* (Bentham) Torrey, Pages 179-180 & 297)*

Fraxinus pennsylvanica var. *velutina* (see *Fraxinus velutina*)

***Fraxinus velutina* J. Torrey: Velvet Ash**

SYNONYMY: *Fraxinus pennsylvanica* H. Marshall var. *velutina* (J. Torrey) G.S. Miller; *Fraxinus velutina* J. Torrey var. *coriacea* (S. Watson) A. Rehder; *Fraxinus velutina* J. Torrey var. *glabra* A. Rehder; *Fraxinus velutina* J. Torrey var. *toumeyi* (N.L. Britton) A. Rehder. COMMON NAMES: Arizona Ash; Arizona [Desert, Toumey, Velvet] Ash (English)[140]; Arizona Velvet Ash; Arizona-Esche (German); Bitoi <pitoi> (Uto-Aztecan: Akimel O'odham, Hiá Ceḍ O'odham, Tohono O'odham); Botavaras (Spanish: Sonora)[140]; Dahba' <dabbaʔ> (Athapascan: Navajo)[140]; Desert Ash (a name also applied to other species);

Fresno ("Ash" a name also applied to the genus *Fraxinus*, Spanish); Fresno [Terciopelo] ("[Velvet] Ash", Spanish: Arizona, New Mexico, Texas, Mexico)[140]; Im'val (Yuman: Walapai)[140]; Leather Leaf Ash; Leather-leaf Ash; Leather-leaved Ash; Leatherleaf Ash; MωRc (Yuman: Maricopa)[140]; Pávlas (Uto-Aztecan: Luiseño)[140]; Piichai (Uto-Aztecan: Mountain Pima)[140]; Pimaráakârâ (Uto-Aztecan: Comanche)[140]; Pitai <potoi> (Uto-Aztecan: Nevome); Pítai <petai> (Uto-Aztecan: Northern Tepehuan)[140]; Smooth Ash; Terciopelo Fresno ("Velvet Ash", Spanish: Arizona, New Mexico, Texas, Mexico); Toumey Ash; Uré (Uto-Aztecan: Tarahumara)[140]; Velvet Arizona Ash; Velvet Ash; Western Ash. DESCRIPTION: Terrestrial perennial deciduous tree (40 inches to 65 feet in height with a rounded crown of up to 30 to 40 feet in width; one plant was observed and described as being 40 inches in height with a crown about 40 inches in width, one plant was observed and described as being 8 feet in height with a crown 8 feet in width, one plant was observed and described as being 26 feet in height with a crown 26 feet in width); the fissured bark is pale gray, gray or dark gray; the leaves may be are green or yellow-green turning yellow in the fall; female (green or greenish) and male (yellow) flower parts are born on separate trees and appear before the leaves; flowering generally takes place between late February and early June (additional records: one for early July, two for mid-July, one for early August, one for mid-August, two for early October and two for early November); the oblong-ovate fruits (¾ to 1¼ inch in length) are winged samaras. HABITAT: Within the range of this species it has been reported from reported from mountains; rocky mountainsides; hanging gardens; bases of cliffs; rocky, sandy and loamy canyons; rocky, rocky-sandy, gravelly and sandy canyon bottoms; chasms; gorges; clayey and silty-clayey talus slopes; rockslides; rocky ledges; ridges; gravelly-loamy meadows; clayey-loamy foothills; rocky hills; along hillsides; rocky, rocky-gravelly, rocky-loamy, rocky-clayey-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy-loamy and loamy slopes; amongst rocks; flats; sandy uplands; basins; valley floors; gravelly-loamy roadsides; within rocky arroyos; along arroyo bottoms; draws; rocky gulches; within bouldery ravines; bottoms of ravines; seeps; around and in springs; sandy soils along streams; along and in rocky, rocky-sandy-loamy, gravelly-sandy and sandy-loamy streambeds; along creeks; along and in rocky and gravelly-sandy creekbeds; along rivers; along bouldery-cobbly-sandy and sandy riverbeds; along and in cobbly, gravelly and sandy washes; along and in drainages; along and in drainage ways; along watercourses; around pools; dry cobbly pondbeds; ciénegas; swales; along (bouldery, rocky, gravelly-loamy and sandy) banks of streams, creeks, rivers and drainages; borders of washes; (rocky-sandy) edges of streams, creeks, creekbeds, rivers, washes and drainage ways; shores of rivers; sandy benches; terraces; rocky-sandy-loamy and sandy bottomlands; sandy floodplains; edges of reservoirs; bouldery-cobbly-sandy, gravelly-sandy and sandy riparian areas, and disturbed areas growing in muddy-sandy and moist, damp and dry (seasonally wet) bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, sandy loam, clayey loam and loam ground, and silty clay and clay ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used in the making of tools and bows. The Yggdrasill is an evergreen ash tree which is believed to be the "world tree" of the Norse. Use as a specimen plant in a large area and as a re-vegetation plant for the areas immediately adjacent to the main channel of streams, creeks and rivers, requires regular watering. Birds and other wildlife feed on the seeds. Native Velvet Ash trees are indicators of permanent near surface water or areas of historical near surface water. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Velvet Ash has been EXTIRPATED from this township. *Fraxinus velutina* is native to southwest-central and southern North America. *5, 6, 13, 15, 18, 26 (color photograph), 28 (recorded as *Fraxinus pennsylvanica* ssp. *velutina*, color photograph 106), 30, 43 (072609), 44 (090211), 46 (recorded as *Fraxinus velutina* Torr. var. *coriacea* (Wats.) A. Rehder, Page 642; *Fraxinus velutina* Torr. var. *glabra* Rehder, Page 642, and *Fraxinus velutina* Torr. var. *toumeyi* (Britton) Rehder, Page 642), 48, 52 (color photograph), 53, 58, 63 (021113 - color presentation), 85 (021113 - color presentation), **89** (reported as being a tree located on the Santa Cruz Flood-plain), 115 (color presentation), 124 (090211 - no record of species; genus record), 127, 140 (Pages 180-181 & 297)*

Fraxinus velutina var. *coriacea* (see *Fraxinus velutina*)

Fraxinus velutina var. *glabra* (see *Fraxinus velutina*)

Fraxinus velutina var. *toumeyi* (see *Fraxinus velutina*)

***Menodora scabra* A. Gray: Rough Menodora**

SYNONYMY: *Menodora scoparia* G. Engelmann ex A. Gray. COMMON NAMES: Broom Menodora; Bull Balls; Rough Desert Olive; Rough Desert-olive; Rough Menodora; Rough Twinberry; Scabrous Menodora; Twinberry (a name also applied to other species); Twinfruit; Yellow Menodora. DESCRIPTION: Terrestrial perennial deciduous forb/herb or subshrub (6 inches to 4 feet in height; one plant was observed and described as being 12 inches in height with a crown 16 inches in width, one plant was described as being 12 to 16 inches in height with a crown 8 to 12 inches in width); the older bark is dark gray; the stems are green or green-yellow; the leaves are grayish-green, green or green-yellow; the flowers are white or yellow; flowering generally takes place between early March and late November (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky and stony mountainsides; bouldery crags; bouldery mesas; cliffs; rocky canyons; along rocky and gravelly canyon bottoms; gorges; rocky talus slopes; bluffs; rocky buttes, rocky-sandy and sandy ridges; rocky and shaley-cobbly ridgetops; meadows; foothills; rocky, sandy and clayey hills; talus hills; rocky and gravelly hilltops; rocky and gravelly-clayey hillsides; sandy edges of escarpments; bedrock, bouldery, rocky, rocky-gravelly, rocky-sandy, rocky-clayey, rocky-clayey-loamy, cindery, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, clayey and clayey-loamy slopes; gravelly and sandy bajadas; rocky outcrops; amongst rocks; sandy plains; rocky, cindery, gravelly, sandy, clayey and clayey-loamy flats; cindery valley floors; along rocky-gravelly-sandy-clayey-loamy, rocky-sandy-loamy, gravelly, gravelly-sandy and gravelly-sandy loamy roadsides; sandy arroyos; bottoms of arroyos; gullies; springs; creekbeds; along rocky, gravelly, sandy and humusy-loamy washes; within drainages; (clayey) edges of washes and drainage ways; borders of washes; along margins of washes; benches; rocky-sandy terraces; floodplains; bouldery-cobbly-sandy riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-cobbly, shaley-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy-clayey loam, clayey loam and humusy loam ground, and rocky clay, gravelly clay, silty clay and clay ground, occurring from 1,100 to 8,000 feet in elevation in the forest, woodland scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Rough Menodora is an important browse plant for wildlife. *Menodora scabra* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color photograph 364), 43 (031310), 44 (011111), 46 (recorded as *Menodora scabra* Gray, Page 644 and *Menodora scoparia* Engelm., Page 644), 48, 63 (021113 - color presentation), 77, **85** (021113 - color presentation), 86 (color photograph), **89** (reported as being a half-shrub located on Tumamoc Hill), 115 (color presentation), 124 (110710 - no record of species or genus), 127*

Menodora scoparia (see *Menodora scabra*)

Onagraceae: The Evening-primrose Family

***Camissonia californica* (T. Nuttall ex J. Torrey & A. Gray) P.H. Raven: California Suncup**

SYNONYMY: *Eulobus californicus* T. Nuttall ex J. Torrey & A. Gray; *Oenothera leptocarpa* E.L. Greene. COMMON NAMES: California Evening Primrose (a name also applied to other taxa); California Eveningprimrose (a name also applied to other taxa); California False Mustard; California False-mustard; California Mustard Evening Primrose; California Mustard Evening-primrose; California Primrose; California Suncup (a name also applied to other taxa); False-mustard Camissonia; False-mustard Primrose; Mustard Camissonia; Mustard Evening Primrose; Mustard Evening-primrose; Mustard Primrose; Mustard-like Camissonia; Mustard-like Evening Primrose; Mustard-like Evening-primrose; Mustard-like Primrose; Sun-drops (Sundrops is a name that is also applied to other taxa). DESCRIPTION: Terrestrial annual or perennial forb/herb (erect stems 2 to 69 inches in height); the foliage is gray-green; the flowers may be golden-yellow, orange-rust, orange-yellow, pink-yellow, reddish-orange, rust-orange, yellow or yellow-orange ageing to orange, pink or reddish; flowering generally takes place between late January and mid-July. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; stony mountain passes; rocky mesas; plateaus; rocky cliffs; rocky chutes; rocky-silty and gravelly canyons; along canyon walls; rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy canyon bottoms; talus slopes; bouldery, rocky, rocky-sandy, shaley, stony, gravelly-sandy, sandy, clayey-loamy and loamy ridges; silty ridgetops; foothills; bouldery, rocky and sandy hills; rocky hillsides; along bouldery, bouldery-rocky-gravelly-sandy, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-sandy, rocky-loamy-clayey, cobbly-sandy-loamy, gravelly, gravelly-sandy, sandy, loamy-clayey, clayey and silty slopes; bases of slopes; bouldery-stony-gravelly-sandy and rocky alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sandy lava flows; sand dunes; gravelly and gravelly-sandy plains; gravelly-sandy and sandy flats; valley floors; coastal shorelines; along rocky-sandy-clayey, gravelly and sandy roadsides; arroyos; along bottoms of arroyos; sandy draws; around seeping streams; along streams; gravelly-sandy streambeds; in gravel and sand along creeks; along and in gravelly-sandy creekbeds; in sand along rivers; riverbeds; along and in bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; waterholes; (gravelly and sandy) banks of arroyos, creeks, rivers and washes; edges of rivers and washes; margins of washes; sand bars; rocky-sandy benches; gravelly berms; sandy terraces; bottomlands; sandy floodplains; gravelly-sandy stock tanks; within ditches; gravelly-sandy riparian areas; recently burned areas in woodlands, scrub and wetlands, and disturbed areas growing in muddy and wet, moist and dry bouldery, bouldery-rocky-

gravelly, bouldery-rocky-gravelly-sandy, bouldery-stony-gravelly-sandy, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, sandy loam, clayey loam and loam ground; rocky-sandy clay, rocky-loamy clay, loamy clay and clay ground, and rocky-silty and silty ground, occurring from sea level to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Camissonia californica* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (031310), 44 (021213 - records located under *Eulobus californicus*), 46 (*Oenothera leptocarpa* Greene, Page 599), 48 (genus, *Oenothera* spp.), **56**, **57**, 58, 63 (021213 - color presentation), 77 (color photograph #46), **85** (021213 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Eulobus californicus* Nutt.), 115 (color presentation), 140 (Page 297)*

Camissonia chamaenerioides (A. Gray) P.H. Raven: Longcapsule Suncup

SYNONYMY: *Oenothera chamaenerioides* A. Gray. COMMON NAMES: Desert Evening Primrose; Long-capsule Suncup; Long-capsuled Primrose; Longcapsule Suncup; Long-fruit Suncup; Willow-herb Primrose; Willowherb Suncup. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 to 16 inches in height); the stems are pink, purple-red or red; the leaves may be green (with red spots or tipped with red), purple, red or reddish; the tiny flowers may be cream, pink, pink-white, pinkish-white, purple, white, white-cream, white-pink, whitish-yellow or yellow; flowering generally takes place between early February and early June (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; rock walls; bases of cliffs; rocky canyons; rocky canyon bottoms; gorges; rocky and shaley talus slopes; crevices in boulders and rocks; knolls; rocky ledges; gravelly ridges; rocky ridgetops; gravelly-clayey-loamy foothills; gravelly hills; rocky hillsides; rocky, rocky-stony, gravelly and sandy slopes; bouldery-rocky-cobbly alluvial fans; bajadas; rocky and rocky-shaley outcrops; bases of boulders; along lava slides; breaks; gravelly, sandy and silty flats; basins; along bouldery, gravelly and sandy roadsides; rocky arroyos; rocky draws; gulches; springs; along streams; in gravel and sand along creeks; along rivers; riverbeds; along and in bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; silty depressions; (cobbly, gravelly and sandy) banks of streams and washes; (cobbly) edges of washes; margins of washes; gravelly benches; shelves; bottomlands; sandy floodplains; gravelly-sandy and silty-loamy riparian areas, and disturbed areas growing in dry stony desert pavement; bouldery, bouldery-rocky-cobbly, rocky, rocky-shaley, rocky-stony, rocky-sandy, shaley, cobbly, cindery-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy ground; gravelly-clayey loam and silty loam ground, and gravelly-sandy silty and silty ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Camissonia chamaenerioides* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (031310), 44 (073111 - no records listed under Common Names; genus record), 46 (recorded as *Oenothera chamaenerioides* Gray, Page 600), 48 (genus, *Oenothera* spp.), **56**, **57**, 63 (021213), 77, **85** (021213 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Oenothera chamaeneriodes* Gray), 124 (073111 - no record of species or genus), 140 (Page 297)*

Camissonia claviformis [also *clavaeformis*] (J. Torrey & J.C. Frémont) P.H. Raven: Browneyes

COMMON NAMES: Brown-eyed Primrose; Browneyes; Clavatefruit Suncup; Clavate-fruited Primrose; Evening Primrose. DESCRIPTION: Terrestrial annual forb/herb (sub-erect and/or erect stems 4 inches to 3 feet in height); the stems may be pink or tinged pink-purple or red; the leaves, in the basal rosette, may be green with black or purple spots or sea-green; the anthers are white; the flowers may be brownish-white, cream-white, pink, pink-yellow, pinkish-white, purplish, pale yellow, pale yellow-cream, yellow, bright yellow, white, white-cream, white-pink or yellow aging to pink; flowering generally takes place between late December and late June (additional records: one for early September, one for late November, one for early December, and), the fruits are cup-shaped. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and sandy canyons; sandy canyon bottoms; gravelly talus slopes; crevices in rocks; rocky, gravelly and sandy hills; bouldery, rocky and rocky-gravelly hillsides; rocky, rocky-cobbly-gravelly, cobbly-sandy, gravelly, gravelly-sandy, gravelly-clayey and sandy slopes; bases of slopes; rocky, rocky-sandy, cobbly-gravelly-sandy and sandy alluvial fans; gravelly, gravelly-sandy, gravelly-loamy and sandy bajadas; lava fields; lava flows; sand hills; sand dunes; sand and silty hummocks; sand ramps; blow-sand deposits; sand fields; berms; sandy plains; gravelly, gravelly-sandy, sandy, silty and chalky flats; uplands; sandy and sandy-loamy valley floors; sandy valley bottoms; hilly beach gravels; railroad right-of-ways; along rocky, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy roadsides; bottoms of arroyos; sandy draws; ravines; rocky-sandy runnels; sandy streambeds; sandy riverbeds; along and in bouldery, rocky, rocky-sandy, stony, stony-sandy, gravelly, gravelly-sandy and sandy washes; drainages; dry lakebeds; gravelly depressions; along (rocky-sandy, gravelly-sandy and sandy) banks of rivers, washes and drainage ways; (sandy) edges of streams, rivers, riverbeds, washes and lakes; margins of washes; gravelly-sand bars; gravelly-sandy and silty terraces; floodplains; canal banks; along edges of canals; ditches; sandy riparian areas, and disturbed areas growing in dry stony-sandy and gravelly desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-gravelly, bouldery-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, stony, stony-gravelly, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam and loam ground; gravelly clay and clay ground; gravelly-sandy silty, powdery silty and silty ground, and powdery chalky and chalky ground occurring from sea level to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Camissonia claviformis* is native to southwest-central and southern North America. *5, 6, **16**, 43 (031310), 44 (021213 - no listings recorded under Common Names, color photograph), 46 (note alternate spelling: recorded as *Oenothera clavaeformis* Torr. & Frém., Pages 601-602: including *Oenothera clavaeformis* Torr. & Frém. var. *aurantiaca* (Wats.) Munz, *Oenothera clavaeformis* Torr. & Frém. var. *peeblesii* Munz and *Oenothera clavaeformis* Torr. & Frém. var. *peirsonii*

Munz), 48 (genus, recorded as *Oenothera* spp.), 63 (021313 - color presentation), **77**, **85** (021413 - color presentation), 124 (110710 - no record of species or genus)*

***Camissonia claviformis* [also *clavaeformis*] (J. Torrey & J.C. Frémont) P.H. Raven subsp. *claviformis*: Browneyes**

SYNONYMY: *Oenothera claviformis* (also *clavaeformis*) J. Torrey & J.C. Frémont. COMMON NAMES: Brown-eyed Primrose; Browneyes; Clavate-fruited Primrose; Club Primrose. DESCRIPTION: Terrestrial annual forb/herb (erect stems); the stems are tinged pink-purple; the leaves are sea-green; the anthers are white; the flowers are white or yellow; flowering generally takes place between mid-March and mid-May (additional records: mid-January, early February, late February and mid-June). HABITAT: Within the range of this species it has been reported from mountains; canyons; foothills; rocky hills; rocky slopes; sandy alluvial fans; sandy bajadas; dunes; rocky-sandy, gravelly and sandy flats; valley floors; along sandy roadsides; sandy streambeds; along and in sandy washes; drainages; silty lakebeds; (gravelly-sandy and sandy) banks of washes; along edges of washes and playas, and gravelly-sand bars growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam ground, and silty ground, occurring from 100 to 6,400 feet in elevation in the woodland and desertscrub ecological formations. NOTE: *Camissonia claviformis* subsp. *claviformis* is native to southwest-central and southern North America. *5, 6, 43 (031310), 44 (021213 - no listings recorded under Common Names; genus record, color photograph), 46 (species, note alternate spelling: recorded as *Oenothera clavaeformis*, Pages 601-602), 48 (genus, *Oenothera* spp.), 63 (021313), 85 (021413 - color presentation of dried material), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Oenothera scapoidea* Nutt. var. *clavaeformis* (Torr.) Wats.)*

***Camissonia claviformis* [also *clavaeformis*] (J. Torrey & J.C. Frémont) P.H. Raven subsp. *peeblesii* (P.A. Munz) P.H. Raven: Peebles' Browneyes**

SYNONYMY: *Oenothera claviformis* (also *clavaeformis*) J. Torrey & J.C. Frémont var. *peeblesii* P.A. Munz. COMMON NAMES: Browneyes; Peeble Browneyes; Peebles' Browneyes. DESCRIPTION: Terrestrial annual forb/herb (stems 8 to 24 inches in height); the flowers may be creamy, creamy-white, creamy-yellow, pink, white, white tinged with pink, white or yellowish aging pink; flowering generally takes place between late December and mid-May (additional record: one for early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy canyons; rocky hillsides; rocky, cobbly, gravelly and sandy slopes; bajadas; amongst boulders; sand hills; sand dunes; gravelly and sandy plains; sandy flats; valley floors; along railroad right-of-ways, roadcuts; along gravelly and sandy roadsides; sandy draws; sandy-clayey-loamy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; gravelly depressions; along banks of drainage ways; bottomlands; floodplains; ditches; gravelly-sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky-gravelly, rocky, cobbly, gravelly, gravelly-sandy and sandy ground and bouldery-sandy-clayey loam, sandy-clayey loam, clayey loam and loam ground, occurring from 400 to 4,500 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTE: *Camissonia claviformis* subsp. *peeblesii* is native to southwest-central and southern North America. *5, 6, 43 (031410 - *Oenothera claviformis* Torr. & Frém. var. *peeblesii* Munz), 44 (080111 - no record of subspecies; no listing under Common Names for the species; genus record), 46 (note alternate spelling: recorded as *Oenothera clavaeformis* Torr. & Frém. var. *peeblesii* Munz, Pages 601-602), 48 (genus, recorded as *Oenothera* spp.), 63 (021313), **85** (021413), 124 (080111 - no record of genus, species or subspecies), 140 (Page 297)*

Eulobus californicus (see *Camissonia californica*)

Gaura mollis (see *Gaura parviflora*)

***Gaura parviflora* D. Douglas ex J.G. Lehmann: Velvetweed**

SYNONYMY: *Gaura mollis* T.P. James, nom. rej.; *Gaura parviflora* D. Douglas ex J.G. Lehmann var. *lachnocarpa* C.A. Weatherby; *Gaura parviflora* D. Douglas ex J.G. Lehmann var. *typica* P.A. Munz. COMMON NAMES: Butterfly Weed (a name also applied to the genus *Gaura*); Downy Gaura; Elk Antlers (Weld County, Colorado); Linda Tarde (Spanish); Lizard Tail; Lizard-tail; Lizard's Tail; Lizardtail; Lizardtail Gaura; Small-flower Gaura; Small-flowered Gaura; Smallflower Gaura; Smallflowered Gaura; Tall Gaura; Velvet Leaf Gaura; Velvet-leaf Gaura; Velvet Leaved Gaura; Velvet Weed; Velvetweed; Velvety Gaura; Willow Gaura; Willow-weed. DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 10 feet in height); the leaves are dark green; the anthers may be bright pink; the tiny flowers (on a spikelike raceme 8 to 12 inches in length) may be cream, creamy-white, lavender, maroon, pink, pink-orange, pinkish, purple, dark red, reddish, white or whitish-pink; flowering generally takes place between mid-March and early November (additional records: one for early January and one for late January). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; sandy canyons; rocky canyon walls; canyon bottoms; clayey bluffs; meadows; foothills; sand hills; rocky hillsides; slopes; sandy benches; prairies; plains; clayey flats; basins; valley floors; valley bottoms; along railroad right-of-ways; along rocky, gravelly, gravelly-sandy and gravelly-loamy roadsides; sandy arroyos; sandy bottoms of arroyos; gulches; seeps; springs; hot springs; along streams; along creeks; creekbeds; along rivers; riverbeds; along and in sandy washes; within rocky drainages; along lakes; silty playas; ciénegas; marshes; swampy areas; swales; along banks of streams, creeks and rivers; along margins of rivers and washes; (sandy) shores of rivers and lakes; benches; gravelly, sandy and loamy terraces; sandy bottomlands; clayey floodplains; lowlands; mesquite bosques; along fencerows; borders of stock tanks; along canals; along canal banks; along ditches; sandy and clayey-loamy ditch banks and edges; clayey riparian areas; waste places, and disturbed areas growing in muddy and wet, moist,

damp and dry rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, clayey loam and loam ground; clay ground, and sandy-silty and silty ground, occurring from sea level to 7,800 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a dug or medication and for protection (during the Fire Dance at the Mountain Chant). *Gaura mollis* is native to south-central and southern North America. *5, 6, 15, 28 (color photograph 582), 43 (031410), 44 (021513 - no records listed under Common Names for the species or genus), 46 (Page 603), **56**, **57**, 58, 63 (021513 - color presentation), 68, 77, **85** (021613 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (color photograph), 106 (031410), 115 (color presentation), 124 (080111), 127*

Gaura parviflora var. *lachnocarpa* (see *Gaura parviflora*)

Gaura parviflora var. *typica* (see *Gaura parviflora*)

***Oenothera caespitosa* T. Nuttall: Tufted Evening Primrose**

SYNONYMY: *Oenothera cespitosa* T. Nuttall orth. var. COMMON NAMES: Butte Evening Primrose; Butte Evening-primrose; Butte Primrose; Caespitose Evening Primrose; Caespitose Evening-primrose; Cespitose Evening Primrose; Cespitose Evening-primrose; Cespitose Eveningprimrose; Cushion Evening Primrose; Evening Primrose (a name that is also applied to other taxa including the genus *Oenothera* and the Onagraceae); Flor de San Juan (subsp. *marginata*, Spanish); Fragrant Evening-primrose (a name also applied to other taxa); Great White Evening Primrose; Gumbo Evening Primrose; Gumbo Evening-primrose; Handkerchief Plant; Ka'nagwana (Uto-Aztecan: Shoshoni)[140]; Large White Desert Primrose (subsp. *marginata*); Large White Desert-primrose (subsp. *marginata*); Morning Lily; Morning-lily; Rock Rose (a name also applied to other taxa), Rock Rose Evening Primrose; Rock-rose Evening-primrose; Rockrose (a name also applied to other taxa); Sand Lily; Sandlily; Scapose Primrose; Stemless Evening-primrose (a name also applied to other taxa); Stemless Western Primrose; Tufted Evening Primrose; Tufted Evening-primrose; Tufted Eveningprimrose; Tufted Primrose; Tufted White Evening Primrose; White Desert Evening Primrose; White Evening Primrose (a name also applied to other taxa); White Evening-primrose (a name also applied to other taxa); White Stemless Evening Primrose; White Stemless Evening-primrose; White Tufted Evening Primrose; White-tufted Evening Primrose. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (acaulescent 4 to 12 inches in height and spreading to 2 feet in width; one plant reported to have stems 6 to 8 inches in length, woody at base); the leaves may be grayish-green, green, green-red or red-green; the anthers are yellow; the flowers (3 to 4 inches in diameter) may be lavender, pinkish, purplish-blue, white [aging magenta, pink, pink-red, pink-rose, purple or purple-rose], white-pink, whitish-pink or yellow; flowering generally takes place between early March and mid-October (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; cindery mountaintops; cindery mountainsides; rocky, rocky-sandy, gravelly-loamy, sandy and sandy-clayey mesas; plateaus; canyon rims; rocky and chalky cliffs; hanging gardens; loamy bases of cliffs; rocky and clayey canyons; sandy canyon walls; along canyon sides; rocky, rocky-sandy, gravelly and sandy canyon bottoms; sandy gorges; shaley, cobbly, cobbly-sandy, gravelly and sandy talus slopes; crevices in rocks; sand and sandy-silty bluffs; rocky, rocky-clayey, gravelly, gravelly-clayey, clayey and silty-loamy buttes; rocky and gravelly-sandy tops of buttes; clayey knolls; rocky and sandy-loamy ledges; rocky-sandy and sandy ridges; rocky-sandy, gravelly, gravelly-clayey and clayey ridgetops; clearings in forests; rocky and sandy-loamy meadows; rocky-sandy and sandy rims of craters; cinder cones; tops of cinder cones; bases of cinder cones; foothills; rocky, sandy and clayey hills; rocky-sandy, sandy, sandy-loamy and clayey hillsides; escarpments; clayey slides; bouldery, rocky, rocky-sandy, rocky-clayey, shaley-gravelly, shaley, shaley-clayey, stony, stony-clayey, cobbly-sandy-clayey, cindery, gravelly, pebbly-sandy, sandy, sandy-loamy, sandy-clayey, clayey, clayey-loamy, silty, silty-clayey and humusy slopes; rocky outcrops; alcoves; cindery lava flows; lava fields; sand dunes; clayey banks; gravelly benches; rocky and clayey shelves; gravelly, clayey and silty-loamy prairies; plains; sandy, sandy-loamy, sandy-clayey, clayey-loamy and silty-clayey flats; rocky, rocky-clayey, gravelly, sandy, clayey-loamy, silty and silty-loamy uplands; sandy basins; gravelly valley floors; railroad beds; roadcuts; along rocky, rocky-sandy, shaley, gravelly, gravelly-loamy, sandy, sandy-clayey, clayey and clayey-loamy roadsides; two-tracks; sandy arroyos; sandy draws; clayey-silty bottoms of draws; along sandy, sandy-clayey, clayey and silty-loamy gullies; ravines; sandy bottoms of ravines; along streams; along sandy and sandy-silty-clayey streambeds; along creeks; riverbeds; along and in rocky-clayey, cobbly, gravelly, gravelly-sandy and sandy washes; along and in gravelly, sandy, clayey and silty-loamy drainages; (shaley, gravelly, sandy, silty and silty-clayey) banks of arroyos, streams, creeks, creekbeds, rivers, washes, drainages and drainage cuts; edges of rivers; margins of streams and creeks; sides of rivers; along shores of lakes; sandy beaches; bouldery benches; sandy bottomlands; cobbly-sandy and clayey floodplains; catchments; shores of reservoirs; sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry bouldery, bouldery-rocky, bouldery-sandy rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony, cobbly-sandy, cindery, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; bouldery-silty-clayey loam, gravelly loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, shaley clay, stony clay, cobbly-sandy clay, gravelly clay, sandy clay, sandy-silty clay, silty clay and clay ground; sandy silty, clayey silty and silty ground; humusy ground, and chalky ground, occurring from 1,200 to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and the flowers were used as a ceremonial item (subsp. *marginata*). *Oenothera caespitosa* is native to central and southern North America. *5, 6, 15, **16**, 18, 28 (color photograph 167), 43 (031410), 44 (021613), 46 (Page 598), 48 (genus, *Oenothera* spp.), 63 (021713 - color

presentation), **77**, **85** (022013 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 127, 140 (Page 182)*

***Oenothera caespitosa* T. Nuttall subsp. *marginata* (T. Nuttall ex W.J. Hooker & G.W. Arnott) P.A. Munz: Tufted Evening Primrose**

SYNONYMY: *Oenothera caespitosa* T. Nuttall var. *marginata* (T. Nuttall ex W.J. Hooker & G.W. Arnott) P.A. Munz; *Oenothera cespitosa* T. Nuttall subsp. *marginata* (T. Nuttall ex W.J. Hooker & G.W. Arnott) P.A. Munz orth. var.; *Oenothera cespitosa* T. Nuttall var. *marginata* (T. Nuttall ex W.J. Hooker & G.W. Arnott) P.A. Munz orth. var. COMMON NAMES: Flor de San Juan (Spanish); Large White Desert Primrose; Large White Desert-primrose; Tufted Evening Primrose (a name also applied to the species); Tufted Evening-primrose (a name also applied to the species). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (acaulescent 4 to 8 inches in height and spreading to 40 inches in width; one plant was observed and described as being 8 inches in height and 16 inches in width; one plant reported to have stems 6 to 8 inches in length, woody at base); the leaves may be gray-green, green or red-green; the flowers may be cream, white [aging pink, pink-rose, purple or purple-rose] or yellow; flowering generally takes place between early March and mid-October (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; cindery mountaintops; mountainsides; mesas; plateaus; canyon rims; rocky cliffs; rocky and loamy cliff faces; loamy bases of cliffs; canyons; sandy canyon walls; along canyon sides; along bouldery-sandy and sandy canyon bottoms; shaley and gravelly talus slopes; crevices in rocks; rocky bluffs; rocky and stony-clayey ridges; sandy ridgetops; ridgelines; meadows; cinder cones; bases of cinder cones; foothills; rocky, shaley and sandy hills; rocky, gravelly-sandy-clayey-loamy and sandy-loamy hillsides; escarpments; bouldery, rocky, rocky-clayey, shaley, shaley-gravelly, shaley-sandy, shaley-clayey, stony, stony-clayey, cobbly-sandy-clayey, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey and clayey slopes; rocky outcrops; bases of outcrops; amongst boulders and rocks; alcoves; cindery lava flows; clayey banks; gravelly benches; rocky shelves; sandy-loamy flats; basins; valley floors; roadcuts; along rocky, rocky-sandy, shaley, gravelly, gravelly-loamy and sandy roadsides; two-tracks; along gravelly arroyos; along sandy and silty-loamy gullies; sandy bottoms of ravines; along streams; streambeds; along creeks; creekbeds; riverbeds; along and in bouldery-rocky, bouldery-sandy and sandy washes; along and in sandy and silty-loamy drainages; around lakes; (sandy and clayey) banks of arroyos, streams, creeks, rivers and washes; edges of tanks; margins of rivers; shores of ponds; rocky beaches; gravelly benches; terraces; sandy bottomlands; sandy ditches; riparian areas, and disturbed areas growing in wet and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, shaley, shaley-gravelly, shaley-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, sandy loam, silty loam and loam ground, and rocky clay, shaley clay, stony clay, cobbly-sandy clay, gravelly clay, gravelly-sandy clay, sandy clay and clay ground, occurring from 2,500 to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and the flowers were used as a ceremonial item. White-lined Sphinx Moths (*Hyles lineata*) have been observed visiting the flowers. *Oenothera caespitosa* subsp. *marginata* is native to southwest-central and southern North America. *18 (species), 28 (species, color photograph of the species 167), 43 (031410 - *Oenothera cespitosa* Nutt. var. *marginata* Munz; no record of *Oenothera caespitosa* var. *marginata* or *Oenothera caespitosa* subsp. *marginata*), 44 (021613), 46 (Page 598), 48 (genus, recorded as *Oenothera* spp.), 63 (021713 - color presentation), **85** (022013 - color presentation), 115 (color presentation of the species), 127*

Oenothera caespitosa var. *marginata* (see *Oenothera caespitosa* subsp. *marginata*)

Oenothera cespitosa (see *Oenothera caespitosa*)

Oenothera cespitosa subsp. *marginata* (see *Oenothera caespitosa* subsp. *marginata*)

Oenothera cespitosa var. *marginata* (see *Oenothera caespitosa* subsp. *marginata*)

Oenothera chamaenerioides (see *Camissonia chamaenerioides*)

Oenothera claviformis (see *Camissonia claviformis* subsp. *claviformis*)

Oenothera claviformis var. *peeblesii* (see *Camissonia claviformis* subsp. *peeblesii*)

Oenothera leptocarpa (see *Camissonia californica*)

***Oenothera primiveris* A. Gray: Desert Evening Primrose**

COMMON NAMES: Bottle Evening Primrose; Bottle Evening-primrose; [Yellow] Desert [Evening] Primrose (English)[140]; Desert Evening Primrose (a name also applied to other taxa); Desert Evening-primrose (a name also applied to other taxa); Desert Eveningprimrose; Early Evening Primrose; Early Evening-primrose; Flor de San Juan ("St. John's Flower", Spanish: New Mexico, Mexico)[140]; Hierba de Asno ("Ass's Herb", Spanish: Spain)[140]; Large Yellow Desert Evening-primrose; Large Yellow Desert Primrose; Large Yellow Primrose; Onagra (Spanish)[140]; Poliisi <polí:si> (Uto-Aztecan: Hopi; for white-flowered species)[140]; Spring Evening Primrose; Spring Evening-primrose; Sun-drops (subsp. *primiveris*); Sundrop; Tł'é Gogáhá

<tł'éé'yigáahii, y'é'ígahi> ("One That Becomes White", Athapascan: Western Apache)[140]; Tł'é'iigáhí <tł'éé'yigáahii, y'é'ígahi> ("One That Becomes White At Night", Athapascan: Navajo)[140]; Tłonaitsui ("Plant With Yellow Flowers", Athapascan: Chiricahua and Mescalero Apache)[140]; Vippi Si'idam ("Sucking At The Breast", Uto-Aztecan: Akimel O'odham)[140]; Wipi Si'idam ("Breast Sucker", Uto-Aztecan: Tohono O'odham)[140]; Yellow Desert Evening Primrose; Yellow Desert Evening-primrose; Yellow Desert Primrose (a name also applied to other taxa); Yellow Sun Cups; Yellow-flower Desert Evening-primrose. DESCRIPTION: Terrestrial annual forb/herb (tufted acaulescent and cespitose 2 to 8 inches in height; note: several skeletons were observed and described as being 15 inches in height and branched at the base); the basal rosettes of leaves are green with purple blotches or greenish-gray; the flowers may be cream, lemon-yellow (subsp. *bufonis*), white or yellow fading to pink, pinkish or white; flowering generally takes place between early January and late May (additional records: one for mid-August and one for late August); the fruits are tear-drop shaped. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; cliffs; bases of cliffs; rocky and sandy canyons; canyon bottoms; crevices in rocks; meadows; gravelly foothills; rocky, gravelly, sandy and silty hills; rocky hillsides; rocky, rocky-cobbly-gravelly, rocky-loamy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy, sandy-loamy and silty slopes; rocky and sandy alluvial fans; gravelly and sandy bajadas; rocky outcrops; amongst rocks; sand dunes; cobbly, sandy and sandy-silty plains; rocky, gravelly, sandy and sandy-loamy flats; stony-silty basins; sandy and sandy-clayey-loamy valley floors; valley bottoms; sandy coastal flats; along railroad right-of-ways; along bouldery-silty-clayey-loamy, rocky-sandy, gravelly-sandy-loamy and sandy roadsides; sandy arroyos; along gravelly bottoms of arroyos; along draws; along creeks; along and in creekbeds; along rivers; riverbeds; along and in gravelly, gravelly-sandy and sandy washes; clayey and silty playas; clayey depressions; swales; along (sandy) banks of arroyos, streams, creeks and washes; (sandy) margins of lake beds; sandy benches; gravelly, gravelly-sandy and sandy terraces; bottomlands; mesquite woodlands; gravelly-sandy and sandy riparian areas, and disturbed areas growing in moist and dry rocky, rocky-cobbly-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; bouldery-silty-clayey loam, rocky loam, gravelly loam, sandy loam and sandy-clayey loam ground; clay ground, and stony silty, gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers open in the evening and close the following morning. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Consider seeding this plant between Creosote Bushes in your landscaping. *Oenothera primiveris* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph 338), 43 (031510), 44 (022013 - color photograph), 46 (recorded as *Oenothera primiveris* Gray, Page 598 and *Oenothera primiveris* Gray var. *caulescens* Munz, Page 598), 48 (genus, *Oenothera* spp.), 58, 63 (022013 - color presentation), 77, **85** (022113 - color presentation), 115 (color presentation), 124 (080111 - no record of species; genus record), 127, 140 (Page 182-183 & 297)*

***Oenothera primiveris* A. Gray subsp. *primiveris*: Desert Evening-primrose**

SYNONYMY: *Oenothera primiveris* A. Gray var. *caulescens* P.A. Munz. COMMON NAMES: Desert Evening-primrose (a name also applied to the species and to other species); Evening Primrose (a name also applied to the species, the genus *Oenothera* and to the Onagraceae); Large Yellow Desert Primrose (a name also applied to the species); Sun-drops; Sundrop (a name also applied to the species); Typical Bottle Evening Primrose; Typical Bottle Evening-primrose; Typical Early Evening Primrose; Typical Early Evening-primrose; Typical Large Yellow Desert Evening-primrose; Typical Large Yellow Desert Primrose; Typical Large Yellow Primrose; Typical Spring Evening Primrose; Typical Spring Evening-primrose; Typical Yellow Desert Evening Primrose; Typical Yellow Desert Evening-primrose; Typical Yellow Sun Cups; Typical Yellow-flower Desert Evening-primrose; Yellow Desert Primrose (a name also applied to the species and other species). DESCRIPTION: Terrestrial annual forb/herb (acaulescent and cespitose to 4 inches in height); the flowers are cream-yellowish, white or yellow; flowering generally takes place between early February and early May (additional records: two for mid-January and one for early June). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; bases of cliffs; rocky canyons; bluffs; gravelly foothills; sandy hills; rocky, sandy and sandy-loamy hillsides; rocky and gravelly slopes; gravelly bajadas; sandy lava flows; sand dunes; sandy banks; plains; rocky, gravelly and sandy flats; valley bottoms; along railroad right-of-ways; along sandy roadsides; along draws; along streams; along creeks; along rivers; sandy riverbeds; along sandy washes; (sandy) edges of creeks and riverbeds; gravelly terraces; sandy-clayey bottomlands; riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground and gravelly loam, sandy loam and loam ground, occurring from 200 to 5,400 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Oenothera primiveris*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Oenothera primiveris* subsp. *primiveris* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (species, color photograph of the species 338), 43 (031510 - *Oenothera primiveris* var. *caulescens* Munz), 44 (022013), 46 (recorded as *Oenothera primiveris* Gray var. *caulescens* Munz, Page 598), 48 (genus, *Oenothera* spp.), 63 (022013 - color presentation), **85** (022113 - color presentation), 115 (color presentation of the species), 124 (080111 - no record of species; genus record), 127 (species)*

Oenothera primiveris var. *caulescens* (see *Oenothera primiveris* subsp. *primiveris*)

***Oenothera rosea* C.L. L'Héritier de Brutelle ex W. Aiton: Rose Evening Primrose**

COMMON NAMES: Amapola de Campo (Hispanic); Arnica (Hispanic); Cáncer Lisa (Hispanic); Clamería (Hispanic); Cruz-de-malta (Portuguese: Brazil); Evening Primrose (a name also applied to other species, the genus *Oenothera* and to the

Onagraceae); Hierba Cólica (Hispanic); Hierba de Flor Rojiza; Hierba del Golpe (Hispanic); Hierba del Orín (Hispanic); Hierba Para la Diarrea (Hispanic); Lindo Atardecer (Hispanic); Mexican Pink Evening-primrose; Manuelita (Hispanic); Oo li' Lo Tii (Hispanic); Pink Evening-primrose (a name also applied to other species); Pink Nagblom (Afrikaans); Platillo (Hispanic); Rose Evening Primrose; Rose Evening-primrose; Rose Eveningprimrose; Rose of Mexico; Rose Primrose; Rose Sundrops; Rosy Evening-primrose; Sinvergüenza (Hispanic); Tapacola (Hispanic); Tarapeni (Hispanic); Trskuan Bey (Zapoteca); Xukuhi Atakurhikuri (Purépecha); Yerba Cólico (Hispanic); Yerba del Golpe (Hispanic); Zapotillo (Hispanic); Zapotito (Hispanic). DESCRIPTION: Terrestrial perennial forb/herb (3 to 39 inches in height); the leaves are green or yellow-green; the flowers may be magenta, pink, dark pink, pink-rose, pinkish, pinkish-red, purple, purple-pink, red, reddish-pink, rose, rose-pink, dark rose-pink, rose-purple or rose-red; the stigmas are cream-white or purple-pink; the anthers are creamy-white; flowering generally takes place between early April and late October (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky canyons; rocky canyon bottoms; meadows; bluffs; foothills; rocky slopes; valley floors; rocky roadsides; arroyos; ravines; seeps; springs; along and in streams; along creeks; creekbeds; in silt along rivers; riverbeds; rocky-sandy washes; drainages; ciénegas; marshy areas; depressions; (sandy) banks of arroyos, streams, creeks and rivers; edges of rivers, lakes and marshes (ciénegas); (sandy) margins of washes; (muddy) shores of lakes; terraces; floodplains; along ditches; ditch banks; riparian areas, and disturbed areas growing in shallow water; muddy, and wet, moist and damp rocky, rocky-sandy and sandy ground; shaley clay ground, and silty ground, occurring from 500 to 8,700 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant may be extirpated from this township. *Oenothera rosea* is native to southwest-central and southern North America; Central America, and northwestern South America. *5, 6, 18 (genus), 30, 43 (031510 - *Oenothera rosea* Aiton), 44 (080111 - color photograph), 46 (Page 599), 48 (genus, *Oenothera* spp.), 58, 63 (022113), 85 (022113 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz River and Irrigation Ditches), 106 (012209), 124 (080111 - no record of species; genus record)*

Oenothera scapoidea var. *clavaeformis* (see footnote 89 under *Camissonia claviformis*)

Orobanchaceae: The Broom-rape Family

***Orobanche cooperi* (A. Gray) A.A. Heller: Desert Broomrape**

SYNONYMY: *Orobanche cooperi* (A. Gray) A.A. Heller subsp. *cooperi*; *Orobanche ludoviciana* T. Nuttall var. *cooperi* (A. Gray) G. Beck. COMMON NAMES: Broom Rape (a name also applied to the genus *Orobanche* and to the Orobanchaceae); Broom-rape (a name also applied to the genus *Orobanche* and to the Orobanchaceae); Broomrape (a name also applied to the genus *Orobanche* and to the Orobanchaceae); Burro Weed Strangler; Burro-weed Strangler; Burroweed Strangler; Cancer-root (a name also applied to other species); Cooper Broom Rape; Cooper Broom-rape; Cooper Broomrape; Cooper Desert Broomrape; Cooper's Broom Rape; Cooper's Broom-rape; Cooper's Broomrape; Cooper's Desert Broomrape; Desert Broom-rape (a name also applied to other species); Desert Broomrape (a name also applied to other species); Flor de Tierra (Spanish); Louisiana Broomrape; Spike Broomrape. DESCRIPTION: Terrestrial annual forb/herb (root parasite with erect above ground that are stems 4 to 16 inches in height); the stems are purple-brown with a yellowish sap; the leaves (reduced to scales) are purplish-brown; the flowers may be creamy-white, purple, deep purple, dusky purple, purplish, purplish-violet, white or pale yellow-brown tinged with purple; flowering generally takes place between late January and late June (additional records: one for early August, one for mid-August, one for late August, one for early September, two for mid-October and three for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy-clayey mesas; plateaus; rocky bases of cliffs; rocky and sandy canyons; rocky canyon bottoms; rocky knolls; ridges; foothills; sandy hills; rocky hillsides; bouldery, rocky, gravelly, gravelly-loamy and sandy slopes; gravelly and gravelly-silty bajadas; amongst rocks and gravels; sand hills; sand dunes; sandy hummocks; gravelly and sandy flats; sandy and silty valley floors; along roadsides; within arroyos; bottoms of arroyos; sandy riverbeds; along and in rocky, rocky-sandy and sandy washes; drainages; banks of creeks and rivers; edges of washes and lakes; margins of dry lakes; mudflats; beaches; benches; mesquite bosques; rocky-sandy shores of reservoirs; sandy banks of canals; sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly and sandy ground; gravelly loam and loam ground; sandy clay ground; gravelly silty and silty ground, and humusy ground, occurring from sea level to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Desert Broomrape has been reported as being parasitic on the roots of *Acacia greggii*, *Ambrosia ambrosioides*, *Ambrosia deltoidea*, *Ambrosia dumosa*, *Ambrosia illicifolia*, *Artemisia dracunculus*, *Echinocactus* sp., *Encelia farinosa*, *Hymenoclea monogyra*, *Hymenoclea salsola*, *Opuntia* sp., Sage Brush, Tobacco, *Townsendia wilcoxii*, *Viguiera* sp. *Orobanche cooperi* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 786), 43 (031510), 44 (022313), 46 (recorded as *Orobanche ludoviciana* Nutt., Page 797; *Orobanche ludoviciana* Nutt. var. *cooperi* (Gray) G. Beck, Page 797, and *Orobanche ludoviciana* Nutt. var. *latiloba* Munz, Page 797), 63 (022313 - color presentation), 77, **85** (022313 - color presentation), 115 (color presentation), 127, 140 (Pages 54 & 297)*

Papaveraceae: The Poppy Family

***Argemone gracilenta* E.L. Greene: Sonoran Pricklypoppy**

COMMON NAMES: Cardo (a name also applied to other species, Spanish); Chicalote (a name also applied to other species, Spanish); Crested Pricklepoppy; Crested Prickly Poppy (a name also applied to other species); Prickle-poppy (a name also applied to other species and the genus *Argemone*); Prickly Poppy (a name also applied to other species); Sonoran Prickly Poppy; Sonoran Pricklypoppy. DESCRIPTION: Terrestrial perennial forb/herb (erect stems 1 to 6 feet in height); the stems are glaucous green with a clear sap; the leaves are prickly; the flowers are white sometimes recorded with a yellow center; flowering generally takes place between late February and mid-June (additional records: one for late January, three for early August, two for late August, one for early September, one for mid-September, one for late September, one for early October, one for mid-November and three for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy canyon bottoms; shaley talus slopes; bouldery-rocky-sandy hills; grassy hillsides; gravelly-sandy slopes; lava fields; sandy dunes; plains; flats; valley floors; along rocky-clayey, gravelly and sandy roadsides; along arroyos; bottoms of arroyos; creekbeds; sandy riverbeds; along and in gravelly-sandy and sandy washes; sandy drainage ways; silty playas; sandy bottomlands; silty floodplains; mesquite bosques; within ditches; sandy riparian areas, and disturbed areas growing in dry bouldery-rocky-sandy, rocky, shaley, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam and clayey loam ground; rocky clay and clay ground, and silty ground, occurring from sea level to 4,500 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Argemone gracilenta* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (022313), 44 (022313 - no record of species; genus record), 46 (Supplement Page 1050), 48 (genus), 63 (022313), 68 (genus), 77, 80 (Species of the genus *Argemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants, "These distasteful, spiny, perennial forbs contain alkaloids that could prove toxic if eaten in sufficient amounts."), **85** (022313 - color presentation), 140 (Page 297)*

Argemone intermedia (see *Argemone polyanthemos*)

Argemone mexicana var. *ochroleuca* (see *Argemone ochroleuca*)

***Argemone ochroleuca* R. Sweet: Pale Mexican Pricklypoppy**

SYNONYMY: *Argemone mexicana* C. Linnaeus var. *ochroleuca* (R. Sweet) J. Lindley. COMMON NAMES: Cardo (a name also applied to other species, Spanish); Chicalote (a name also applied to other species and the genus *Argemone*, Spanish); Hierba Loca ("Crazy Herb", Mountain Pima)[140]; K'iix-k'anlol (Maya: Yucatán)[140]; Mexican-poppy; Pa'ratĭtsĭnbogop (Uto-Aztecan: Shoshoni, questionably applied for *Argemone mexicana*)[140]; Pale Mexican-poppy; Pale Mexican Pricklypoppy; Prickle Poppy (Prickle-poppy is a name that is also applied to other species and the genus *Argemone*); Prickly-poppy (a name also applied to other species and to the genus *Argemone*); Tachin (Spanish); Táchino <Táchiguo> (Mayo: Sonora)[140]; Tajíchuri <tachiná> (Guarijío)[140]; Tlamescaltzin (Náhuatl: Veracruz)[140]; Toi'yanabogop (Uto-Aztecan: Shoshoni, for *Argemone mexicana*)[140]; White-flower Mexican Poppy; Witblom-bloudissel (Afrikaans); Yellow Pricklepoppy; Yellow Prickly Poppy. DESCRIPTION: Terrestrial annual or perennial forb/herb (erect branching stems 8 to 40 inches in height); the plant has an orange sap and the stems and leaves have prickles; the flowers may be canary yellow, cream, pale lemon-yellow, lemon-yellow, white (rarely reported), light yellow, pale yellow-cream or darker yellow (rarely); the anthers are yellow; based on few flowering records located, flowering generally takes place between mid-March and late July (additional records: one for mid-January, one for mid-February and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky canyons; gentle rocky slopes; bajadas; embankments; plains; sandy flats; coastal plains; sandy flats; railroad right-of-ways; roadsides; roadways; rocky and sandy arroyos; gravelly bottoms of arroyos; streambeds; riverbeds; washes; drainages; (loamy) banks of river; benches; margins of rivers; benches; bottomlands; mesquite bosques; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry rocky, gravelly, gravelly-sandy and sandy ground and loam ground, occurring from sea level to 8,200 feet in elevation in the forest, woodland, scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant has an orange or yellow sap. *Argemone ochroleuca* is native to southern North America. *5, 6, 18 (genus), 43 (072210 - *Argemone mexicana* var. *ochroleuca* (Sweet) Lind.), 44 (080211 - no record of species; genus record), 46 (no record of species), 48 (genus), 63 (080211), 68 (genus), 77, 80 (Species of the genus *Argemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants, "These distasteful, spiny, perennial forbs contain alkaloids that could prove toxic if eaten in sufficient amounts."), **85** (022413 - color presentation), 124 (080111 - no record of species; genus record), 140 (Page 185)*

Argemone platyceras (see *Argemone polyanthemos*)

***Argemone pleiacantha* E.L. Greene: Southwestern Pricklypoppy**

COMMON NAMES: Bluestem Pricklepoppy; Cardo (a name also applied to other species, Spanish); Cardo (Spanish: Sonora)[140]; Chicalote (a name also applied to other species and the genus *Argemone*, Spanish), Chicalote <chilazotl, chichilotl, xicólotl> (Spanish: Sonora)[140], Chicolote; Cowboy's [Fried] Eggs (English: Arizona)[140]; Cowboys' Fried Eggs; Hipigdum (Uto-Aztecan: Onavas Pima)[140]; Prickly Poppy (a name also applied to other species and the genus *Argemone*); [Southwestern] Prickly [Thistle] Poppy (English)[140]; Sacramento Prickly-poppy (subsp. *pinnatisecta*); Southwestern Pricklypoppy; Thistle Poppy (a name also applied to the genus *Argemone*); To:ta Heosig (Uto-Aztecan: Tohono O'odham)[140]; Xazácoz (Hokan: Seri)[140]. DESCRIPTION: Terrestrial perennial forb/herb (erect branching stems 5 inches to 4 feet in height); the leaves and stems may be

blue-green, gray, grayish-green purplish and prickly; the flowers (4 to 6 inches in width) are white with a bright orange center; flowering generally takes place between mid-April and mid-October. HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; rocky canyons; rocky canyon bottoms; meadows; foothills; hills; rocky hillsides; rocky, gravelly, gravelly-clayey-loamy and sandy slopes; gravelly prairies; gravelly plains; gravelly and gravelly-loamy flats; basins; valley floors; railroad right-of-ways; along cindery, gravelly and gravelly-sandy-clayey-loamy roadsides; along sandy arroyos; seeps; along and in gravelly-sandy creekbeds; along gravelly and sandy washes; drainages; drainage ways; along (sandy) banks of rivers; borders of washes; edges of washes; terraces; sandy bottomlands; sandy floodplains; mesquite bosques; ditches; gravelly and sandy riparian areas; waste places, and disturbed areas growing in dry rocky, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, gravelly loam, gravelly-clay loam and loam ground, and silty ground, occurring from 1,700 to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. The flowers are visited by Sphinx Moths, including the Five-lined Sphinx Moth (*Hyles lineata*), and Mourning Doves (*Zenaida macroura*) feed on the seed. *Argemone pleiacantha* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (color photograph 152), 43 (072509), 44 (031211 - no record of species; genus record), 46 (recorded as *Argemone pleiacantha* Greene subsp. *ambigua* G.B. Ownbey and *Argemone pleiacantha* Greene subsp. *pleiacantha*, Supplement Page 1050), 48 (genus), 63 (022413 - color presentation), 68 (genus), 80 (Species of the genus *Argemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants, "These distasteful, spiny, perennial forbs contain alkaloids that could prove toxic if eaten in sufficient amounts."), **85** (022413 - color presentation including habitat), 115 (color presentation), 124 (031211 - no record of species; genus record), 140 (recorded as *Argemone pleiacantha*, Pages 184-185 and *Argemone pleiacantha* Greene subsp. *pleiacantha*, Page 297)*

Argemone pleiacantha E.L. Greene subsp. *pleiacantha*: Southwestern Pricklypoppy

COMMON NAMES: Bluestem Pricklepoppy (a name also applied to the species); Cardo (a name also applied to the species and other species, Spanish); Cardo (Spanish: Sonora)[140]; Chicalote (a name also applied to the species, other species and to the genus *Argemone*, Spanish), Chicalote <chilazotl, chichilotl, xicólotl> (Spanish: Sonora)[140], Chicolote; Cowboy's [Fried] Eggs (English: Arizona)[140]; Cowboys' Fried Eggs (a name also applied to the species); Hipigdum (Uto-Aztecan: Onavas Pima)[140]; Prickly Poppy (a name also applied to the species); [Southwestern] Prickly [Thistle] Poppy (English)[140]; Southwestern Pricklypoppy (a name also applied to the species); Thistle Poppy (a name also applied to the species and the genus *Argemone*); To:ta Heosig (Uto-Aztecan: Tohono O'odham)[140]; Xazácoz (Hokan: Seri)[140]. DESCRIPTION: Terrestrial perennial forb/herb (erect branching stems 20 inches to 4 feet in height); the stems may be purplish; the leaves may be blue-green, gray or grayish-green; the flowers (4 to 6 inches in width) are white with a bright orange center; the stamens are yellow; the stigmas are purple; flowering generally takes place between mid-April and mid-October. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; bouldery and sandy canyon bottoms; ridgelines; meadows; foothills; hills; hillsides; sandy and loamy slopes; amongst boulders; embankments; terraces; gravelly prairies; gravelly plains; rocky, gravelly and gravelly-loamy flats; basins; valley floors; railroad right-of-ways; roadcuts; along rocky-gravelly, gravelly, gravelly-sandy-clayey-loamy, sandy, clayey and clayey-loamy roadsides; arroyos; streams; along rivers; in gravelly and sandy washes; drainages; drainage ways; (silty) banks of streams and creeks; terraces; bottomlands; floodplains; along ditches; gravelly riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, gravelly loam, gravelly-clayey loam, clayey loam and loam ground, and silty ground, occurring from 1,700 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food dye crop. The flowers are visited by Sphinx Moths, including the Five-lined Sphinx Moth (*Hyles lineata*), and Mourning Doves (*Zenaida macroura*) feed on the seed. *Argemone pleiacantha* subsp. *pleiacantha* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 28 (species, color photograph of the species 152), 43 (072509), 44 (080211 - no record of species; genus record), 46 (Supplement Page 1050), 48 (genus), 58, 63 (022413), 68 (genus), 80 (Species of the genus *Argemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants, "These distasteful, spiny, perennial forbs contain alkaloids that could prove toxic if eaten in sufficient amounts."), **85** (022413 - color presentation including habitat), 115 (color presentation of the species), 124 (080211 - no record of species; genus record), 127, 140 (recorded as *Argemone pleiacantha*, Pages 184-185 and *Argemone pleiacantha* Greene subsp. *pleiacantha*, Page 297)*

Argemone polyanthemos (F.K. Fedde) G.B. Ownby: Crested Pricklypoppy

SYNONYMY: *Argemone intermedia* auct. non R. Sweet; *Argemone platyceras* auct. non J.H. Link & C.F. Otto. COMMON NAMES: Annual Pricklepoppy; Bluestem Pricklepoppy (a name also applied to other species); Bluestem Prickly Poppy; Cardo (a name also applied to other species, Spanish); Chicalote (a name also applied to other species and the genus *Argemone*, Spanish); Crested Pricklypoppy; Many-flowered Prickly Poppy (Colorado, Boulder County); Pricklepoppy (Prickle-poppy is a name that is also applied to other species and the genus *Argemone*); Pricklypoppy; Plains Prickly-poppy; Prickly Poppy (a name also applied to other species and the genus *Argemone*); Pricklypoppy (a name also applied to other species and the genus *Argemone*); So'lolopul (Uto-Aztecan: Tübatulabal)[140]; Thistle Poppy (a name also applied to the genus *Argemone*), Tságida[a] (Uto-Aztecan: Northern Paiute)[140]; Vit Taggvallmo (Swedish); White Prickly Poppy; White Pricklypoppy. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (erect branching stems 16 inches to 5 feet in height); the stems are sparingly prickly; the leaves may be blue-green or grayish-green; the flowers (to 3 inches in width) may be lavender

(very rarely) or white; the anthers are bright yellow-orange; based on very few records located flowering generally takes place between mid-March and early September; however, it has also been reported as blooming spring through summer and also as blooming throughout most of the year. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky cliffs; canyons; sand bluffs; rocky buttes; sandy knolls; ridges; meadows; stony foothills; gravelly and sandy hills; hilltops; rocky-gravelly, stony-gravelly, gravelly, sandy, sandy-loamy and clayey-loamy slopes; toe slopes; rocky outcrops; amongst rocks; lava beds; sand hills; sand dunes; clayey banks; benches; sandy breaks; terraces; sandy, sandy-loamy-silty, loamy-silty and silty-loamy prairies; gravelly, gravelly-sandy, sandy and sandy-clayey plains; gravelly-sandy and sandy flats; uplands; sandy bowls; valley bottoms; along railroad right-of-ways; sandy roadcuts; along rocky-sandy-loamy, stony, gravelly, sandy, sandy-loamy and silty-loamy roadsides; sandy draws; gulches; in sandy soils along creeks; gravelly-sandy and sandy-loamy creekbeds; along rivers; along and in gravelly and sandy washes; within gravelly-sandy, sandy and clayey drainages; sandy blowout areas; sandy depressions; (sandy and silty) banks of streams and rivers; sandy-sand bars; bottomlands; sandy and clayey floodplains; bosques; fencerows; banks of stock tanks; margins of reservoirs; dry beds of reservoirs; riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, stony, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, sandy loam and clayey loam ground; sandy clay and clay ground, sandy silty, sandy-loamy silty, loamy silty and silty ground, occurring from 900 to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used as a as a drug or medication, as a yellow dye for arrows and as a ceremonial item. *Argemone polyanthemos* is native to southwest-central and southern North America. *5, 6, 18, 43 (031610), 44 (022413 - no record of species; genus record), 46 (recorded as *Argemone intermedia* Sweet, Page 324 and *Argemone platyceras* Link & Otto, Page 324), 48, 63 (022413 - color presentation including habitat), 68, 80 (Species of the genus *Argemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants, "These distasteful, spiny, perennial forbs contain alkaloids that could prove toxic if eaten in sufficient amounts."), **85** (022513 - color presentation including habitat), **89** (reported as being a biennial herb located on the Mesa-like Mountain Slopes, recorded as *Argemone intermedia* Sweet), 86 (color photograph), 101 (color photograph), 127, 140 (Page 185)*

Eschscholzia californica L.K. von Chamisso: California Poppy

COMMON NAMES: Amapola Amarilla (Spanish); Amopola del Campo ("Poppy of the Countryside" a name also applied to the species, Hispanic); Amopola del Campo ("Wild Poppy", Spanish: Sonora)[140]; Atóošanat (Uto-Aztecan: Luiseño; Taróoshant in the Juaneño dialect)[140]; California Eschscholz Poppy; California Eschscholzia; California Eschscholzia Poppy; California Eschscholzia-poppy; California Gold Poppy; California Gold-poppy; California Goldpoppy; California Golden Poppy; California Golden-poppy; California Goldenpoppy; California Poppy (a name also applied to the genus *Eschscholzia*); California Poppy (English)[140]; California State Poppy (subsp. *californica*); Californian Eschscholzia; Californian Gold-poppy; Californian Golden Poppy; Californian Golden-poppy; California-poppy (subsp. *californica*, a name also applied to the genus *Eschscholzia*); Chamisso Golden Poppy; Chamisso-golden Poppy; Chamisso's Eschscholzia; Common California Poppy; Common California-poppy; Common Californian Poppy; Common Californian-poppy; Common Californiapoppy; Desert California Poppy (subsp. *mexicana*); Desert Gold Poppy; Eschscholzie de Californie (French); Gold Poppy (a name also applied to the genus *Eschscholzia*); Hiyog^{w}iv+ (Uto-Aztecan: Kawaiisu)[140]; Ho:hĭ 'E'es <ho:hī e'es, hahdkos> (Uto-Aztecan: Tohono O'odham)[140]; Ho:hoi 'E'es ("Mourning Dove's Plant", Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Hoohi E'es ("Mourning Dove's Plant", Uto-Aztecan: Akimel O'odham; Arizona)[140]; Hua Ling Cao (transcribed Chinese); Huicońil (Yuki: Yuki)[140]; Kernville Golden-poppy (subsp. *californica* - Valid; *Eschscholzia procera* - Invalid); Kernville Goldenpoppy (subsp. *californica* - Valid; *Eschscholzia procera* - Invalid); Kernville Poppy (subsp. *californica* - Valid; *Eschscholzia procera* - Invalid); Mexican California Poppy (subsp. *mexicana*); Mexican California-poppy (subsp. *mexicana*); Mexican Gold (subsp. *mexicana*); Mexican Gold Poppy (subsp. *mexicana*); Mexican Gold-poppy (subsp. *mexicana*); Mexican Goldpoppy (subsp. *mexicana*); Mexican [Gold-] Poppy (English)[140]; Mexican Golden Poppy (subsp. *mexicana*); Mexican Golden-poppy (subsp. *mexicana*); Mexican Poppy; Mexican-gold (subsp. *mexicana*); Mexican Goldenpoppy (subsp. *mexicana*); Orange California Poppy; Orange California-poppy; Orange-flowered California Poppy; Orange Flowered California Poppy; Poppy (a name also applied to the Papaveraceae); Sömntuta (Swedish); Tesinat (Uto-Aztecan: Cahuilla)[140]; Yogobul (Uto-Aztecan: Tübatulabal)[140]. DESCRIPTION: Terrestrial annual [usually in subsp. *mexicana*] or perennial [usually in subsp. *californica*] forb/herb (spreading, tufted caulescent, ascending and/or erect stems 1 to 28 inches in height); the foliage is glaucous gray-green; the flowers (fasciated and double flowers were reported) may be cream, creamy-white, golden-orange, golden-yellow, lemon-yellow, orange, orange-yellow, pink & white, pumpkin-gold, red-orange, white, white-pink, yellow, yellow with an orange center or yellow-orange; flowering generally takes place between early January and mid-July (additional records: one for early August, one for mid-August, one for early September, one for mid-September, two for late September and two for late October; the peak blooming period for *E.c.* subsp. *mexicana* generally occurs between early March and late March reaching its peak in mid-March in the Tucson area). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; sandy, sandy-clayey and sandy-clayey-loamy mesas; cliffs; rocky, rocky-gravelly, rocky-sandy and stony canyons; sandy and sandy loamy canyon bottoms; chasms; talus slopes; cliffs; bases of cliffs; buttes; rocky ledges; rocky and sandy ridges; ridgetops; meadows; foothills; rocky and gravelly-loamy hills; rocky-sandy hilltops; bouldery and rocky hillsides; along bouldery, bouldery-sandy, rocky, rocky-shaley-gravelly, rocky-loamy-clayey, rocky-clayey, cobbly-sandy-loamy, gravelly, gravelly-sandy, sandy, loamy, clayey, clayey-loamy and silty-clayey slopes; rocky-sandy alluvial fans; gravelly bajadas; rocky outcrops; amongst rocks and gravels; sand dunes; rocky banks; gravelly and sandy plains; rocky-clayey, gravelly, sandy and sandy-silty flats; valley floors; valley bottoms; coastal marshes; sandy coastal

strands; along railroad right-of-ways; along and in sandy-loamy roadbeds; gravelly roadcuts; along rocky, rocky-gravelly, rocky-sandy, gravelly, sandy and clayey roadsides; sandy arroyos; along bottoms of draws; along streams; rocky streambeds; rocky-sandy and sandy creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along gravelly drainages; saltwater marshes; (muddy, gravelly-sandy, sandy, clayey and silty) banks of arroyos, streams, rivers and washes; borders of washes; (silty) edges of lakes; gravelly terraces; rocky and clayey bottomlands; mesquite bosques and woodlands; within ditches; gravelly, gravelly-sandy and sandy riparian areas; recently burned areas in chaparral and coastal sage scrub, and disturbed areas growing in muddy and wet, moist, damp and dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-shaley-gravelly, rocky-gravelly, rocky-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky-loamy clay, sandy clay, silty clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 9,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and as a food; however, it has been reported as being poisonous to humans. This plant is food for quail, Mule Deer (*Odocoileus hemionus crooki*) and White-tailed Deer (*Odocoileus virginianus couesi*). *Eschscholzia californica* is native to southwest-central and southern North America. *5, 6, 43 (110710), 44 (022713 - color photograph), 46 (recorded as *Eschscholzia mexicana* Greene, Page 323), 63 (022713 - color presentation including habitat), **85** (030213 - color presentation), 124 (110710), 127, 140 (Pages 187-188 & 297 - recorded as *Eschscholzia californica* Chamisso subsp. *mexicana* (Greene) C. Clark), 142*

Eschscholzia californica L.K. von Chamisso subsp. *mexicana* (E.L. Greene) J.C. Clark: California Poppy

SYNONYMY: *Eschscholzia mexicana* E.L. Greene. COMMON NAMES: Amapola Amarilla (a name also applied to the species, Spanish); Amapolita del Campo (Spanish); Amopola del Campo ("Poppy of the Countryside" a name also applied to the species, Hispanic); Amopola del Campo ("Wild Poppy", Spanish: Sonora)[140]; Atóošanat (Uto-Aztecan: Luiseño; Taróoshant in the Juaneño dialect)[140]; California Poppy (a name also applied to the species and to the genus *Eschscholzia*); California Poppy (English)[140]; Desert California Poppy; Desert Gold Poppy; Gold Poppy (a name also applied to the species and to the genus *Eschscholzia*); Hiyog^{w}iv+ (Uto-Aztecan: Kawaiisu)[140]; Ho:hĭ 'E'es <ho:hī e'es, hahdkos> (Uto-Aztecan: Tohono O'odham)[140]; Ho:hoi 'E'es ("Mourning Dove's Plant", Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Hoohi E'es ("Mourning Dove's Plant", Uto-Aztecan: Akimel O'odham; Arizona)[140]; Huicońil (Yuki: Yuki)[140]; Mexican California Poppy; Mexican Gold; Mexican Gold Poppy; Mexican Gold-poppy; Mexican Goldpoppy; Mexican [Gold-] Poppy (English)[140]; Mexican Golden Poppy); Mexican Poppy; Mexican-gold; Mexican Golden-poppy; Mexican Goldenpoppy; Poppy (a name also applied to the species and to the Papaveraceae); Tesinat (Uto-Aztecan: Cahuilla)[140]; Yogobul (Uto-Aztecan: Tübatulabal)[140]. DESCRIPTION: Terrestrial annual [usually] or perennial [sometimes] forb/herb (erect stems 1 inch to 2 feet in height); the herbage is gray-green; the flowers (fasciated and double flowers were reported) may be cream, creamy-white, golden-orange, golden-yellow, lemon-yellow, orange, orange-yellow, orange-yellow with an orange center, orangish-yellow, pink & white, pumpkin-gold, white, white-pink, yellow or yellow-orange sometimes reported with an orange base; flowering generally takes place between early January and mid-July (additional record: one for mid-September; the peak blooming period generally occurs between early March and late March reaching its peak in mid-March in the Tucson area). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; sandy-clayey-loamy mesas; cliffs; rocky, rocky-gravelly and rocky-sandy canyons; sandy-loamy canyon bottoms; chasms; talus slopes; bases of cliffs; buttes; rocky and sandy ridges; ridgetops; foothills; rocky and gravelly-loamy hills; bouldery and rocky hillsides; along rocky, along rocky, rocky-clayey, gravelly, gravelly-sandy, sandy and loamy slopes; rocky-sandy alluvial fans; gravelly bajadas; rocky outcrops; amongst rocks and gravels; sand dunes; grassy banks; gravelly and sandy plains; rocky-clayey, gravelly, sandy and sandy-silty flats; valley floors; valley bottoms; along railroad right-of-ways; along rocky, rocky-gravelly, rocky-sandy, gravelly and sandy roadsides; sandy arroyos; along bottoms of draws; along streams; rocky-sandy creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along gravelly drainages; (gravelly-sandy, sandy, clayey and silty) banks of streams, rivers and washes; borders of washes; gravelly terraces; clayey bottomlands; mesquite bosques and woodlands; gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in wet and dry bouldery, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam and loam ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Eschscholzia californica*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and as a food; however, it has been reported as being poisonous to humans. This plant is food for quail, Mule Deer (*Odocoileus hemionus crooki*) and White-tailed Deer (*Odocoileus virginianus couesi*) and the Mourning Dove (*Zenaida macroura*) feeds on the seeds. *Eschscholzia californica* subsp. *mexicana* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18, 28 (recorded as *Eschscholzia mexicana*, color photograph 530), 43 (031610), 44 (022713 - no listings recorded under Common Names see species records), 46 (recorded as *Eschscholzia mexicana* Greene, Page 323), 48, 58, 63 (022713 - color presentation including habitat), 77 (recorded as *Eschscholzia mexicana*, color photograph #47), **85** (030213 - color presentation), 86 (recorded as *Eschscholzia mexicana*, color photograph), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Eschscholtzia mexicana* Greene), 115 (color presentation), 124 (110710 - no record, genus, species), 127 (species), 140 (140 (Pages 187-188 & 297 - recorded as *Eschscholzia californica* Chamisso subsp. *mexicana* (Greene) C. Clark), 142*

Eschscholzia mexicana (see *Eschscholzia californica* subsp. *mexicana*)

***Platystemon californicus* G. Bentham: Creamcups**

COMMON NAMES: California Cream Cup; California Cream Cups; California Cream-cup; California Cream-cups; California Creamcup; California Creamcups; Californian Cream-cups; Cream Cup (a name also applied to the genus *Platystemon*); Cream Cups (a name also applied to the genus *Platystemon*); Cream-cup (a name also applied to the genus *Platystemon*); Cream-cups (Cream-cup is a name also applied to the genus *Platystemon*); Creamcup (a name also applied to the genus *Platystemon*); Creamcups (Creamcup is a name also applied to the genus *Platystemon*); Kaliforniavallmo (Swedish). DESCRIPTION: Terrestrial annual forb/herb (erect many stemmed 2 to 14 inches in height); the leaves may be gray-green or are grayish-green; the wind-pollinated flowers may be pale cream, cream, cream with yellow tipped petals, cream-yellow, creamy-white, gold (rarely), white, white-cream , white-yellow, whitish, pale yellow, pale yellow-cream, yellow, bright yellow, yellow-cream or yellow & white, sometimes aging with a red tinge; flowering generally takes place between mid-February and early July (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains, rocky mountainsides; plateaus; along sandy canyons; sandy canyon bottoms; ridges; sandy meadows; foothills; rocky and sandy hills; bases of hills; rocky and rocky-sandy hillsides; bouldery, rocky, rocky-gravelly-clayey, gravelly, sandy, loamy, clayey and clayey-loamy slopes; bases of slopes; sandy alluvial fans; bajadas; rocky outcrops; sand dunes; fields; sandy and loamy flats; uplands; valley floors; sandy valley bottoms; grassy roadcuts; along rocky and sandy roadsides; arroyos; within ravines; along streams; streambeds; along creeks; riverbeds; along and in gravelly and sandy washes; dried vernal pools; clayey-loamy depressions; along (gravelly) banks of streams and rivers; along (sandy) edges of streams and washes; benches; terraces; sandy bottomlands; floodplains; mesquite bosques; gravelly riparian areas; recently burned areas in chaparral and coastal sage scrub, and disturbed areas growing in moist, damp and dry bouldery, rocky, rocky-sandy, gravelly and sandy ground; clayey loam and loam ground, and rocky-gravelly clay and clay ground, occurring from sea level to 8,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Platystemon californicus* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 388), 43 (031610), 44 (030313), 46 (Page 322), 63 (030313 - color presentation), 85 (030313 - color presentation), 86 (color photograph), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain), 115 (color presentation), 124 (110710 - no record), 127, 140 (Page 297)*

Pedaliaceae (Martyniaceae): The Sesame Family

***Martynia* C. Linnaeus: Martynia**

Common Name: Martynia. NOTE: EXOTIC Plant. The annual forb/herb *Martynia annua* C. Linnaeus, commonly known as Baby Devil's-claw, Devil's-claw, Iceplant, Small-fruit Devil's-claw, Tiger's Claw or Una de Gato is native to southern North America, and Central America and coastal islands in the Caribbean Sea. *43 (031710), 44 (030313 - no record of species or genus), 46 (Native species of the genus *Proboscidea* (*Proboscidea althaeifolia*, *Proboscidea arenaria* and *Proboscidea parviflora*) were once included within the genus *Martynia*, Pages 795-796), 63 (030313), 85 (030313 - several species listed, color presentation of dried material), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain where it was recorded as *Martynia* sp. This plant may possibly be *Proboscidea parviflora*)*

Martynia althaeifolia (see *Proboscidea althaeifolia*)

Martynia altheaefolia (see footnote 89 under *Proboscidea althaeifolia*)

Martynia arenaria (see *Proboscidea althaeifolia*)

***Proboscidea althaeifolia* (G. Bentham) J. Decaisne: Desert Unicorn-plant**

SYNONYMY: *Martynia althaeifolia* G. Bentham; *Martynia arenaria* G. Engelmann; *Proboscidea arenaria* (G. Engelmann) J. Decaisne. COMMON NAMES: aBan Ihugga (Tohono O'odham); Aguaro con Camote (Devil's Claw with a Sweet Potato, Sonora)[140]; Ban Ihugga (Akimel O'odham)[140]; Campanita (Spanish); Campanita (Little Bell)[140]; Cuernito (Little Horn, Sonora)[140]; Cuernitos (Spanish); Cuernos del Diablo (Spanish); Cuernos [Espuela] del Diablo (Devil's Horns, Sonora)[140]; Desert Devil's Claw; Desert Devil's-claw; Desert Devilsclaw; Desert Unicorn Plant[140]; Desert Unicorn-plant; Devil's Claw (a name also applied to other species and to the genus *Proboscidea*); Devil's-horn; Devil'shorn; Devils Claw (a name also applied to other species); Devilshorn; Elephant Tusks (a name also applied to the genus *Proboscidea*); Espuela del Diablo (Spanish); Gato (Cat, Sonora)[140]; Golden Devil's Claw; Golden Devil's-claw; Golden Devils Claw; Golden Devil'sclaw; Guernito; Hollyhock Devil's-claw; Red Devil's Claw; Roundbrack Devil's Claw; Sand Devil's Claw; Straighttube Devilsclaw; Straight-tube Devilsclaw; Torito (Little Bull, Sonora)[140]; Tumo'ala (Hopi)[140]; Uña de Gato (Cat's Claw, Sonora)[140]; Uña del Diablo (Spanish); Uña del Diablo (Devil's Claw)[140]; Unicorn Plant (a name also applied to other species and to the genus *Proboscidea*); Yellow-flowered Perennial Devil's Claw; Yellow-flowered Perennial Devil's-claw. DESCRIPTION: Terrestrial perennial forb/herb (spreading decumbent stems 7 to 12 inches in height and up to 3 to 6½ feet in width); the leaves are dark green; the flowers may be copper-yellow, golden, dirty orange, golden-yellow, orange-yellow, yellow, yellow-orange with brown-purple,

maroon, orange, orange-brown, purple or red markings or yellowish with reddish stripes; flowering generally takes place between late June and mid-November (additional records: one for mid-January, one for late February, one for mid-March, one for early May, one for late May, four for early June , two for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from sandy mesas; cliffs; canyons; canyonsides; canyon bottoms; buttes; stony and sandy foothills; hillsides; escarpments; gravelly and sandy slopes; alluvial fans; gravelly-sandy and sandy bajadas; rocky outcrops; sand hills; sand dunes; sandy hummocks; gravelly and sandy plains; gravelly and sandy flats; basins; sandy valley floors; coastal dunes; sandy coastal beaches; along sandy roadsides; arroyos; bottoms of ravines; sandy runnels; gravelly-sandy riverbeds; along and in gravelly and sandy washes; drainages; sandy depressions; (sandy) banks of washes; (sandy) margins of washes; sandy beaches; benches; sandy strands; terraces; gravelly-sandy and loamy bottomlands; sandy floodplains; sandy low spots; sandy ditches, and disturbed areas growing in dry desert pavement; rocky, stony, gravelly, gravelly-sandy and sandy ground and gravelly loam, gravelly-sandy loam, sandy loam and loam ground, occurring from sea level to 4,800 feet (one record for 8,005 feet) in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are fragrant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as a tool, and/or as a drug or medication. The flowers are pollinated by a (Miner) Bee, *Pérdita hurdii*. *Proboscidea althaeifolia* is native to southwest-central and southern North America and possibly to Peru in southwestern South America. *5, 6, 15 (placed in the Martyniaceae), **16** (placed in the Martyniaceae), 43 (031710 - *Proboscidea althaeifolia* Decne.; *Proboscidea arenaria* Decne.), 44 (080411 - color photograph), 46 (alternate spelling recorded as *Proboscidea altheaefolia*, Page 796), 58 (placed in the Martyniaceae), 63 (030413 - color presentation), 77, **85** (030413 - color presentation), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Martynia altheaefolia* Benth.), 86 (color photograph), 115 (color presentation), 124 (080411 - no record of species; genus record), 127, 140 (Pages 173, placed in the Martyniaceae, Page 296), **WTK** (August 12, 2005)*

Proboscidea altheaefolia (see footnote 46 under *Proboscidea althaeifolia*)

Proboscidea arenaria (see *Proboscidea althaeifolia*)

***Proboscidea parviflora* (E.O. Wooton) E.O. Wooton & P.C. Standley: Doubleclaw**

COMMON NAMES: Aguaro (Spanish: Chihuahua, Sonora)[140]; Akawat (Uto-Aztecan: Cahuilla)[140]; ‘Akéshgaan (“Claw”, Athapascan: Navajo)[140]; Ban Ihugga <ban ‘ihugga, ihu’k> (“Coyote’s Devil’s Claw”, Uto-Aztecan: Akimel O’odham, Tohono O’odham)[140]; Ban Shu:shk (“Coyote’s Sandals”, Uto-Aztecan: Tohono O’odham)[140]; Catachio (Spanish: Guerrero to Oaxaca)[140]; Chogołshahé <chugoséhe, idághadé, itághadé> (Athapascan: Western Apache)[140]; Čorí [čoríkari] (Uto-Aztecan: Tarahumara)[140]; Cuerneras (subsp. *parviflora* var. *hohokamiana*, Spanish); Cuernitos [Cuernatos] (“Little Horns”, Spanish: Sonora to central mesa of Mexico)[140]; Daa’*Y*adebitabizaye (“Devil’s Claw With Small Leaves”, Athapascan: Chiricahua and Mescalero Apache)[140]; Devil’s Claw (a name also applied to the genus *Proboscidea*); Devil’s Claw (English)[140]; Devilsclaw (a name also applied to the genus *Proboscidea*); Double-claw (English: Arizona, New Mexico)[140]; Doubleclaw; Elephant Tusks (a name also applied to the genus *Proboscidea*); Espuelito del Diablo (“Devil’s Little Spur”, Spanish: Baja California)[140]; Garambullo (a name also applied to other species, Spanish: Chihuahua)[140]; Gatito (“Little Cat”, Spanish: Sonora)[140]; Guernito; Gwóxtón (Yuman: Maricopa)[140]; Halák^{A} (Yuman: Havasupai)[140]; Hohokam Doubleclaw (subsp. *parviflora* var. *hohokamiana*); ʾI:cúc (Yuman: Cocopa)[140]; ‘Ihug (“Devil’s Claw”, Uto-Aztecan: Hiá Ceḍ O’odham)[140]; Mak Ḍuny (Yuman: Walapai)[140]; New Mexico Devil’s Claw; O’odham Devil’s Claw (subsp. *parviflora* var. *hohokamiana*); Perritos (“Little Dogs”, Spanish: Sonora)[140]; <sahoobinump> (Uto-Aztecan: Southern Paiute)[140]; Red Devil’s Claw; Small-flowered Devil’s-claw; Small-flowered Unicorn Plant; Tamko’okochi (Uto-Aztecan: Yaqui)[140]; Tankokochi <tancocochi> (Uto-Aztecan: Guarijío?)[140]; T̠voʾon̠b̠ [T̠v̠ʾon̠b̠] (Uto-Aztecan: Kawaiisu)[140]; Toroberico (subsp. *parviflora* var. *hohokamiana*, Spanish); Torito (Spanish); Toritos (Spanish); Torito[s] (“Little Bull[s]”, Spanish: Sonora to central mesa of Mexico)[140]; Toro (“Bull”, Spanish: Sonora)[140]; Tümuippüh (Uto-Aztecan: Panamint)[140]; Tumo’ala <tumó’alá > (Uto-Aztecan: Hopi)[140]; Uña de Gato [Gatuño] (“Cat’s Claw”, Spanish: Sonora)[140]; Uña del Diablo (subsp. *parviflora*, Spanish); Unicorn Plant (a name also applied to the genus *Proboscidea*). DESCRIPTION: Terrestrial annual forb/herb (spreading ascending and/or erect stems 6 inches to 5 feet in height and up to 4 to 8 feet in width; one plant was observed and described as being 2 feet in height and 4 feet in width); the leaves are dark green; the flowers may be pale cream with purple and yellow markings, magenta, magenta-pink-white, peach, light pink, pink, pink-lavender, pink & magents & yellow, pink & white, pink-yellow, pink/yellow-cream, light purple, pale purple with dark purple margins, purple, purple-orangish-yellow, purple-white, purple & white & yellow, purplish, purplish-pink, violet, violet-pink, violet & purple, white or white-lavender; flowering generally takes place between mid-July and mid-November (additional records: one for early January, one for mid-January, two for early February, one for late May, one for late May and one for early December, flowering beginning as early as April has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky and rocky-sandy-loamy canyons; canyon bottoms; ridges; gravelly ridgetops; meadows; foothills; rocky hillsides; rocky, gravelly, gravelly-loamy, sandy and sandy-loamy slopes; rocky outcrops; bajadas; sandy steppes; cobbly plains; gravelly and sandy flats; sandy valley floors; coastal beaches; along railroad right-of-ways; along gravelly, gravelly-loamy, sandy-loamy and sandy roadsides; within rocky, gravelly and sandy arroyos; gravelly-sandy and sandy bottoms of arroyos; draws; gulches; bottoms of gulches; sandy ravines; bottoms of ravines; springs; along streams; along rocky-gravelly streambeds; along creeks; sandy creekbeds; sandy riverbeds; along and in rocky, gravelly and sandy washes; along sandy drainages; palm oases; depressions; sandy-clayey swales; along (sandy) banks in canyons; along (rocky, gravelly and

gravelly-sandy-silty) edges of creeks, rivers and washes; sand and gravel bars; sandy beaches; sandy terraces; sandy bottomlands; along sandy floodplains; lowlands; mesquite bosques; fencelines; bouldery-cobbly-sandy and gravelly riparian areas; waste places, and disturbed areas growing in wet (seasonally) and dry bouldery-cobbly-sandy, rocky, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam and sandy loam ground; sandy clay and clay ground, and gravelly-sandy silty ground, occurring from sea level to 6,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber (used in basketry) crop; it was also noted as having been used as a drug or medication. The species, *Proboscidea parviflora*, is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph 676 A&B), 43 (031710 - *Proboscidea parviflora* Wooton & Standl.), 44 (080511 - no records listed under Common Names; genus record), 46 (Page 795), **56**, **57**, 58, 63 (030713 - color presentation), **77**, **85** (030613 - color presentation), 89 (possibly the unknown species recorded as *Martynia* sp. reported from the Santa Cruz Flood-plain as being a Long-lived Annual), 115 (color presentation), 124 (080511 - no record of species; genus record), 127, 140 (Pages 172-173, placed in the Martyniaceae, Page 296)*

Plantaginaceae: The Plantain Family

Plantago fastigiata (see *Plantago ovata*)

Plantago ignota (see footnote 89 under *Plantago patagonica*)

Plantago insularis (see *Plantago ovata*)

Plantago insularis var. *fastigiata* (see *Plantago ovata*)

***Plantago major* C. Linnaeus: Common Plantain**

COMMON NAMES: Anten (Hispanic); Antena (Hispanic); Bird-seed Plantain; Bolsa del Pastor (Spanish); Breitwegerich (German); Broad Leaf Plantain; Broad Leaved Plantain; Broad-leaf Plantain; Broad-leafed Plantain; Broad-leaved Plantain; Broadleaf Plantain; Buckhorn Plantain (a name also applied to other taxa); Cart Track Plant; Cart-track Plant; Common Broad-leaved Plantain; Common Broadleaf Plantain; Common Dooryard Plantain; Common Eurasian Plantain; Common Plantain (a name also applied to other taxa); Cancerina (Hispanic); Chile de Pato (Hispanic); Dianten (Hispanic); Diasten (Hispanic); Door-yard Plantain; Dooryard Plantain; Grand Plantain (French); Great Plantain; Greater Broad Leaved Plantain; Greater Broad-leaf Plantain; Greater Broad-leaved Plantain; Greater Broadleaf Plantain; Greater Plantain; Groblad (Swedish); Healing Blade; Healing-blade; Hierba del Manzo (Hispanic); Hoja de Lanten (Hispanic); Hojas de Lantes (Hispanic); Intermediate Plantain; Lamb's Foot; Lamb's-foot; Lantana-maior (Portuguese); Lanté (Hispanic); Lantén (Hispanic); Lanter (Hispanic); Large Plantain; Lengua de Vaca (Hispanic); Lenteja (Hispanic); Lentem (Hispanic); Lisan Al-hamal (Arabic); Llanté (Hispanic); Llantel (Hispanic); Llantén (Spanish); Llantén Común (Spanish); Llantén Major (Spanish); Mucilago (Hispanic); Nipple-seed Plantain; Pastora (Spanish); Pilger's Plantain (var. *pilgeri* - Invalid); Plantain (a name also applied to other taxa and to the Plantaginaceae); Plantain Majeur (French); Planten (Hispanic); Podorožnik bol'šoj (transcribed Russian); Ripple Seed Plantain; Ripple-seed Plantain; Rippleseed Plantain; Roró (Tarahumara); Round Leaf Plantain; Round Leaved Plantain; Round-leaf Plantain; Round-leafed Plantain; Round-leaved Roundleaf Plantain; Plantain; Sabila (Hispanic); Tanchagem-maior (Portuguese); Thickleaf Plantain; Travelers Foot; Valeriana (Hispanic); Wagbread; Way-side Plantain; Wayside Plantain; Whiteman's Foot; Wild Sagot; Yantén (Hispanic); Yures Xukuri (Purépecha). DESCRIPTION: Terrestrial perennial forb/herb (plant 3 to 18 inches in height); the leaves (in basal rosettes) are green; the flowers may be green, greenish, white or yellow-green-tan; flowering generally takes place between mid-April and mid-November (additional records: one for early January and one for early February). HABITAT: Within the range of this species it has been reported from mountains; plateaus; bases of cliffs; rocky canyons; rocky-sandy, rocky-silty-clayey and sandy canyon bottoms; talus slopes; bases of cliffs; meadows; foothills; hilltops; hillsides; bouldery, gravelly, sandy, loamy and clayey slopes; clayey alluvial fans; rocky outcrops; rocky alcoves; clayey flats; uplands; basins; valley bottoms; along rocky roadsides; arroyos; draws; gulches; bottoms of ravines; seeps; springs; in sand along streams; along sandy streambeds; gravels along and in creeks; cobbly, sandy and silty creekbeds; along rivers; riverbeds; sandy washes; cobbly-loamy and loamy drainages; along watercourses; pondbeds; around lakes; lakebeds; boggy areas; ciénegas; freshwater marshes; marshy areas; about sinks; depressions; along (sandy) banks of arroyos, streams, creeks, rivers and ponds; (mucky-gravelly) borders of rivers; along (gravelly and sandy) edges of springs, streams, creeks, pools, ponds and lakes; along (gravelly) margins of streams, creeks, pools, ponds, lakes and lakebeds; shores of rivers and lakes; sides of streams, pools, ponds and lakes; mudflats; gravel bars; sandy benches; oxbows; sandy terraces; bottomlands; sandy, silty-loamy, clayey and silty floodplains; lowlands; margins of stock tanks; along banks and shorelines of reservoirs; edges of canals; along ditches; along humusy-clayey ditch banks; muddy and sandy riparian areas; waste places, and disturbed areas growing in shallow water; muddy and mucky, and wet, moist, damp and dry (rarely reported) bouldery, rocky, rocky-sandy, cobbly, gravelly and sandy ground; cobbly loam, gravelly loam, gravelly-clayey loam, sandy loam, silty loam and loam ground; rocky-silty clay, sandy clay, silty clay, humusy clay and clay ground, and silty ground, occurring from sea level to 10,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, protection

(powdered roots carried in pocket to ward off snakes and protection against snakebites) and widely used as a drug or medication. *Plantago major* is native to Europe and Asia. *5, 6, 30, 43 (021810), 44 (030713), 46 (Page 804), 48 (genus), 58, 63 (030813 - color presentation), 68, **85** (031113 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a perennial herb), 101 (color photograph)*

***Plantago ovata* P. Forsskål: Desert Indianwheat**

SYNONYMY: *Plantago fastigiata* E.L. Morris; *Plantago insularis* A. Eastwood; *Plantago insularis* A. Eastwood var. *fastigiata* (E.L. Morris) W.L. Jepson. COMMON NAMES: Ataxén (Seri, also shown as being spelled Hataxén for *Plantago ovata* var. *fastigiata* (Morris) Meyers & Liston); Blond Plantain; Blond Psyllium; Blonde Espaghula; Blonde Ispaghula; Blonde Plantain; Blonde Psyllium; Desert Indian Wheat (not recommended); Desert Indian-wheat (not recommended); Desert Indianwheat (not recommended); Fleaseed; Fleawort; Hataxén (Seri, also shown as being spelled Ataxén for *Plantago ovata* var. *fastigiata* (Morris) Meyers & Liston); Indian Plantago; Indian Plantain; Indian Wheat (a name also applied to other taxa, not recommended); Indian-wheat (a name also applied to other taxa, not recommended); Indianwheat (a name also applied to other taxa, not recommended); Ispaghul; Ispaghula; Loqmet El-na'aga (Arabic); Mumsa (Spanish); Muumshum (Gila River Pima); Ovate Plantain; Pale Psyllium; Pastora (a name also applied to other species, Spanish); Psyllium; Spogel Seeds; Tanchagem-ovada (Portuguese: Brazil); Transagem-ovada (Portuguese: Brazil); Vitt Loppfrö (Swedish); White Psyllium; Woolly Plantain. DESCRIPTION: Terrestrial annual forb/herb (plants 2 to 14 inches in height); the basal leaves may be gray-green, grayish or sea-green; the flowers may be cream, pinkish, tan with reddish-brown mid-stripes, white, off-white or white-green; flowering generally takes place between mid-December and early June (additional records: one for early July, one for mid-July, one for early August, one for early September, one for late October, one for early November and two for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; rocky, rocky-sandy and gravelly mesas; bouldery and rocky canyons; rocky canyon bottoms; sandy talus slopes; buttes; ledges; ridges; rocky and gravelly ridgetops; meadows; sandy bases of cinder cones; foothills; rocky, gravelly-sandy and sandy hills; gravelly hillocks; bouldery, rocky and stony hillsides; along bedrock, bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, rocky-loamy, rocky-silty-loamy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey and sandy slopes; sandy bases of slopes; rocky, gravelly and sandy alluvial fans; rocky, gravelly, gravelly-sandy and sandy bajadas; rocky outcrops; amongst boulders and rocks; lava flows; lava fields; sand hills; sand dunes; sand sheets; blow-sand deposits; ridges on sand dunes; sand hummocks; rocky embankments; terraces; gravelly-sandy-loamy and sandy plains; rocky-sandy, gravelly, gravelly-sandy-loamy, gravelly-silty-loamy, pebbly, sandy and silty flats; sandy basins; bolsons; gravelly and sandy valley floors; sandy valley bottoms; coastal prairies; sandy coastal plains; along rocky, rocky-sandy, gravelly-sandy, gravelly-sandy-loamy and sandy roadsides; sandy arroyos; gravelly bottoms of arroyos; gulches; seeps; along creeks; along rivers; riverbeds; along and in rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and clayey washes; within drainages; gravelly drainage ways; silty lakebeds; playas; silty depressions; (gravelly, gravelly-sandy and sandy) banks of streams, creeks, washes and lakes; (gravelly and sandy) edges of rivers, washes and lakes; (silty) margins of washes and playas; (sandy) shores of lakes; gravelly mudflats; gravelly-sand bars; benches; gravelly, gravelly-sandy sandy terraces; floodplains; clayey lowlands; along canals; canal banks; along edges of canals; along ditch banks; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, stony-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, rocky-silty loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam and sandy loam ground; gravelly-sandy clay and clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 6,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, fodder and as a drug or medication. This species was observed being eaten by a desert Tortoise (*Gopherus agassizii*) in Clark County, Nevada. *Plantago ovata* plant is native to southwestern Europe; western and southern Asia and coastal island in the Mediterranean Sea, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, **16** (recorded as *Plantago insularis* Eastw.), 43 (072509), 44 (031213), 46 (recorded as *Plantago insularis* Eastw., Page 805), 48 (genus), **56**, **57**, 63 (031213 - color presentation), 77 (recorded as *Plantago fastigiata* Morris), **85** (031213 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Plantago fastigiata* Morris), 115 (color presentation), 124 (110710 - no record of species; genus record), 127*

Plantago ovata var. *fastigiata* (see footnote 85 under *Plantago ovata*)

***Plantago patagonica* N.J. von Jacquin: Woolly Plantain**

SYNONYMY: *Plantago patagonica* N.J. von Jacquin var. *gnaphalioides* (T. Nuttall) A. Gray; *Plantago purshii* J.J. Roemer & J.A. Schultes. COMMON NAMES: Bristle Bract Plantain; Buckhorn; Hierba del Pastor (Hispanic); Indian Wheat (a name also applied to other taxa, not recommended, Montana); Large-bract Plantain (Oklahoma); Large-bracted Plantain (Oklahoma); Muumsh (River Pima); Pastora (a name also applied to other species, Spanish); Patagonia Plantain; Patagonian Indian Wheat (not recommended); Patagonian Indianwheat (not recommended); Patagonian Plantain; Plantain (a name also applied to other taxa and to the Plantaginaceae); Prairie Plantain (a name also applied to other taxa); Pursh Indian Wheat (*P. purshii*); Pursh Plantain (*P. purshii*); Pursh's Plantain (*P. purshii*); Rabbit's Foot Plantain; Rabbit's-foot Plantain; Salt-and-pepper Plant (a name also applied to other taxa); Salt-and-pepper-plant (a name also applied to other taxa); Western Plantain (a name also applied to other taxa); Woolly Indian Wheat (not recommended); Woolly Indianwheat (not recommended); Woolly Plantain (a name also applied to other taxa); Wooly Indianwheat (not recommended); Wooly Plantain (a name also applied to

other taxa). DESCRIPTION: Terrestrial annual forb/herb (plants 1 to 12 inches in height; plants were observed and described as being 2 to 4 inches in height and 2 inches in width, plants were observed and described as being 4 to 6 inches in height and 2 inches in width); the lance-shaped leaves may be gray-green or green; the tiny flowers may be buff with a brownish tinge toward the center, cream, cream-white, green, purple-gray, straw, white, off-white, dirty white, whitish, whitish-green, yellow, yellowish-white or translucent; flowering generally takes place between mid-February and early September (additional records: one for late September and one for late October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky bases of mountains; rocky-clayey, gravelly, pebbly-sandy, sandy and clayey mesas; plateaus; cliffs; bases of cliffs; along canyon rims; rocky, gravelly-loamy, sandy and clayey canyons; rocky canyon walls; moist canyon drip-walls; bouldery-gravelly, rocky, sandy and sandy-loamy canyon bottoms; chasms; gorges; rocky talus slopes; crevices in rocks; sandy basins in rock; bluffs; rocky-gravelly-clayey, gravelly and gravelly-silty-loamy buttes; sandy pockets of soil in rock; gravelly knolls; rocky and rocky-gravelly-sandy ledges; gravelly, gravelly-clayey and clayey ridges; rocky and clayey ridgetops; ridgelines; meadows; foothills; rocky, shaley and sandy hills; sandy hilltops; rocky, rocky-gravelly and gravelly-sandy hillsides; escarpments; bouldery, rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-sandy, rocky-clayey, shaley-sandy, stony, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-clayey, sandy, sandy-loamy, clayey-loamy, loamy, silty and silty-clayey slopes; rocky-sandy and sandy alluvial fans; gravelly and sandy bajadas; pediments; rocky outcrops; amongst boulders; rocky-clayey and clayey rock beds; sandy lava flows; tops of sand hills; sand dunes; sand banks; clayey bases of banks; sandy terraces; steppes; gravelly-silty-loamy, sandy, loamy, loamy-clayey, silty and silty-loamy prairies; sandy, sandy-loamy, sandy-clayey and loamy plains; sandy fields; gravelly, gravelly-sandy, sandy and clayey flats; rocky, gravelly-silty-loamy, sandy, loamy, loamy-clayey, silty and silty-loamy uplands; clayey catch basins; stony and clayey valley floors; gravelly-sandy-clayey valley bottoms; railroad right-of-ways; along rocky, gravelly, gravelly-loamy, sandy, sandy-silty, clayey and silty-loamy roadsides; along two-tracks; rocky arroyos; along sandy draws; bottoms of draws; gulches; rocky ravines; seeps; around springs; around seeping streams; along streams; gravelly-clayey and sandy streambeds; along creeks; rocky and sandy creekbeds; along rivers; riverbeds; along and in bedrock, bouldery-sandy, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy washes; within sandy, clayey and silty-loamy drainages; sandy drainage ways; along watercourses; marshes; sandy, clayey and silty-loamy depressions; silty swales; (sandy, loamy, loamy-clayey, silty and silty-clayey) banks of rivers and washes; edges of brooks; (sandy) margins of creeks and rivers; shores of lakes; rocky-gravel bars; sandy beaches; along bouldery and sandy benches; gravelly and sandy terraces; sandy and loamy bottomlands; lowlands; bouldery and clayey floodplains; mesquite woodlands; along fencelines; gravelly-clayey-loamy ditches; around stock tanks; gravelly, gravelly-sandy, sandy and sandy-silty riparian areas; waste places, and disturbed areas growing in wet, moist and dry (includes seasonally wet) cryptogamic; bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, shaley-sandy, stony, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, rocky-gravelly clay, gravelly clay, gravelly-sandy clay, sandy clay, loamy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from 400 to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication and as a ceremonial item. *Plantago patagonica* is native to central and southern North America and southern South America. *5, 6, **16**, 28 (recorded as *Plantago purshii*, color photograph 284), 30, 43 (031810 - *Plantago patagonica* var. *gnaphalioides* (Nutt.) A. Gray), 44 (031313), 46 (recorded as *Plantago purshii* Roem. & Schult., Page 804), 48 (genus), **56**, **57**, 58, 63 (031313 - color presentation), 77 (color photograph #89), **85** (031613 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Plantago ignota* Morris), 101 (color photograph), 115 (color presentation), 124 (110710), 127, 140 (Pages 195 & 298)*

Plantago patagonica var. *gnaphalioides* (see *Plantago patagonica*)

Plantago purshii (see *Plantago patagonica*)

***Plantago rhodosperma* J. Decaisne.: Redseed Plantain**

COMMON NAME: Plantain (a name also applied to other taxa and to the Plantaginaceae); Red Seed Plantain; Red-seed Plantain; Redseed Indianwheat (not recommended); Redseed Plantain; Redseeded Plantain. DESCRIPTION: Terrestrial annual forb/herb (plants 5 to 13 inches in height); the flowers may be buff-orange, cream or white; flowering generally takes place between early March and late May (additional records: one for early July and one for early September). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; foothills; chalky hills; hillsides; rocky, sandy, loamy and clayey slopes; rocky bajadas; rocky outcrops; sand dunes; prairies; clayey-loamy plains; gravelly, sandy and sandy-clayey flats; valley floors; along rocky roadsides; rocky arroyos; bottoms of arroyos; silty-clayey draws; springs; along streams; streambeds; along creeks; gravelly-sandy creekbeds; riverbeds; within rocky washes; drainages; depressions; clayey swales; along banks of streambeds and washes; edges of seeps and streams; benches; floodplains; stock tanks; reservoirs; ditches; ditch banks; gravelly-sandy and clayey riparian areas, and disturbed areas growing in moist, damp and dry rocky, gravelly-sandy and sandy ground; clayey loam and loam ground; sandy clay, silty clay and clay ground; silty ground, and chalky ground, occurring from 1,000 to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Plantago rhodosperma* is native to south-central and southern North America. *5, 6, **16**, 43 (031810), 44

(031613), 46 (Page 804), 48 (genus), 63 (031613 - color presentation), **77**, **85** (031613 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Plantago virginica* L.)*

Plantago virginica (see footnote 89 under *Plantago rhodosperma*)

Polemoniaceae: The Phlox Family

***Eriastrum diffusum* (A. Gray) H.L. Mason: Miniature Woollystar**

COMMON NAMES: Blue Star (a name also applied to other species); Diffuse Eriastrum; Diffuse Woolstar; Harwood's Woollystar (*Eriastrum diffusum* var. *harwoodii* - Invalid, *Eriastrum harwoodii* - Valid); Miniature Eriastrum; Miniature Starflower; Miniature Wool Star; Miniature Wool-star; Miniature Woolly-star; Miniature Wooly-star; Miniature Woollystar; Miniature Woolstar; Miniature Woolystar; Prickly Stars; Spreading Eriastrum; Spreading Woollystar; Spreading Woolstar; Starflower (a name also applied to other species); Woollystar (a name also applied to the genus *Eriastrum*). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect with simple to diffusely branching stems 1½ to 14 inches in height); the stems may be dark red or reddish-brown; the foliage is grayish-green; the flowers may be baby-blue with a yellow throat; pale blue, light blue & yellow, blue, blue-lavender, cream, pale lavender, lavender, lavender-white, purple, purple-blue, pale violet, violet or white; the pollen and anthers are white; flowering generally takes place between mid-February and mid-July (additional record: two for mid-August). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; plateaus; rocky canyon rims; cliffs; rocky canyons; rocky-gravelly-sandy and sandy canyon bottoms; buttes; rocky and sandy knolls, rocky ledges; sandy ridges; rocky-sandy and gravelly ridgetops; ridgelines; sandy clearings in woodlands; meadows; sandy foothills; bouldery, rocky, shaley and sandy hills; hilltops; rocky hillsides; bedrock, rocky, rocky-gravelly-sandy, rocky-sandy, rocky-sandy-loamy, gravelly-sandy, sandy and sandy-loamy slopes; rocky-sandy and sandy alluvial fans; rocky, rocky-sandy and gravelly bajadas; rocky outcrops; sand hills; sand dunes; benches; plains; stony, gravelly, gravelly-sandy-clayey, sandy, sandy-clayey and sandy-silty flats; basins; valley floors; valley bottoms; along rocky, stony, gravelly, gravelly-sandy-clayey-loamy, gravelly-clayey, sandy and clayey roadsides; sandy arroyos; draws; gulches; springs; along creeks; along rivers; sandy riverbeds; along and in rocky, stony-gravelly, gravelly, gravelly-sandy and sandy washes; within rocky-sandy, gravelly and sandy drainages; along and in rocky-sandy, gravelly and gravelly-sandy drainage ways; sandy-silty playas; banks of creeks, rivers, riverbeds and washes; among clumps of grasses at the (sandy) edges of arroyos; gravelly-sand bars; sandy and sandy-silty benches; shelves; along gravelly-sandy terraces; sandy-loamy bottomlands; sandy floodplains; silty-loamy stock tanks; along canals; sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, stony, stony-gravelly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-silty-clayey loam, sandy loam, clayey loam and silty loam ground; rocky clay, gravelly clay, gravelly-sandy clay, gravelly clay and sandy clay ground, and sandy silty ground, occurring from 400 to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Eriastrum diffusum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 693), 43 (072609), 44 (080611 - color photograph), 46 (Page 685), **56**, **57**, 58, 63 (031713 - color presentation), 77 (color photograph #49), **85** (031713 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Gilia filifolia* Nutt. var. *diffusa* Gray and as *Gilia floccosa* Gray), 115 (color presentation), 124 (080611 - no record of genus or species), 140 (Page 302)*

***Gilia achilleifolia* G. Bentham subsp. *multicaulis* (G. Bentham) A.D. Grant & V.E. Grant: California Gilia**

SYNONYMY: *Gilia multicaulis* G. Bentham. COMMON NAMES: Annual Slender Gilia; Blue Gilia (a name also applied to other taxa); California Gilia (a name also applied to the species); California Gily-flower (a name also applied to the species); Many-stem California Gilia; Many-stemmed California Gilia; Many-stemmed Gilia (a name also applied to other taxa); Gily-flower; Small California Gilia. DESCRIPTION: Terrestrial annual forb/herb (branching and spreading erect stems 6 to 20 inches in height); the flowers may be lavender, purple or dark purple; the anthers are deep blue; based on few flowering records located, flowering generally takes place between late March and mid-May. HABITAT: Within the range of this species it has been reported from mountains; along ridges; hills; grassy hillsides; rocky moss-covered slopes; coastal ranges; coastal hillsides; along roadsides; cobbly creekbeds, and riparian areas growing in moist and dry rocky, cobbly and sandy ground, occurring from sea level to 4,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Plant. *Gilia achilleifolia* subsp. *multicaulis* is native to California. *5, 6, 18 (genus), 43 (031810), 44 (031813 - color photograph), 46 (recorded as *Gilia multicaulis* G. Benth., Page 691), 63 (031813), 85 (031813), **89** (reported under Miscellaneous Introduced Species as being a winter annual herb, recorded as *Gilia chamissonis* Greene)*

Gilia bigelovii (see *Linanthus bigelovii*)

Gilia chamissonis (see footnote 89 under *Gilia achilleifolia* subsp. *multicaulis*)

***Gilia flavocincta* A. Nelson: Lesser Yellowthroat Gilia**

COMMON NAMES: Gilia (a name also applied to other species and the genus *Gilia*); Gily-flower (a name also applied to other species); Lesser Yellowthroat Gilia; Lesser Yellow-throat Gily-flower; Yellowthroat Gily-flower. DESCRIPTION:

Terrestrial annual forb/herb (branched stems 2 inches to 2 feet in height); the stems are hairy; the leaves are dark green; the flowers may be blue, blue-lavender, blue-yellow, bluish-purple, dark grayish-blue, lavender, lavender-pink, pink-lavender, pink-lavender-blue, pinkish-lavender, pinkish-purple, light purple, purple, purple with a yellow throat, violet, violet-blue or white; the anthers are bluish or pale blue-violet; flowering generally takes place between late January and mid-June (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; bases of cliffs; rocky canyons; sandy canyon bottoms; along talus slopes; along rocky ridges; ridgetops; stony foothills; rocky hills; rocky and gravelly hillsides; rocky, rocky-pebbly, gravelly, gravelly-loamy, sandy, sandy-silty, clayey-loamy and silty-loamy slopes; gravelly bajadas; bouldery and rocky outcrops; rocky and sandy flats; basins; cindery valley floors; railroad right-of-ways; along rocky and sandy roadsides; rocky, rocky-loamy and sandy arroyos; bottoms of arroyos; draws; bottoms of draws; gulches; gullies; ravines; sand along streams; along and in streambeds; along creeks; bouldery-rocky, cobbly and sandy creekbeds; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; along and in sandy drainages; banks of rivers; edges of streambeds; sandy terraces; loamy bottomlands; floodplains; bosques; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, rocky, rocky-cobbly, rocky-pebbly, rocky-sandy, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay ground, and gravelly silty and sandy silty ground, occurring from 600 to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Gilia flavocincta* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (031810), 44 (031813 - no record of species; genus record), 46 (*Gilia flavocincta* A. Nels., Supplement Page 1066, originally included as a possible synonym of *Gilia tenuiflora* Benth. which is known only from coastal California, Page 691), 63 (031813 - color presentation), **85** (031813 - color presentation), 124 (031211 - no record of genus or species), 140 (Page 220 &302)*

***Gilia flavocincta* A. Nelson subsp. *australis* (A.D. Grant & V.E. Grant) A.G. Day & V.E. Grant: Lesser Yellowthroat Gilia**

SYNONYMY: *Gilia ophthalmoides* A. Brand subsp. *australis* A.D. Grant & V.E. Grant. COMMON NAMES: Gilia (a name also applied to the species, other species and the genus *Gilia*); Gily-flower (a name also applied to the species and to other species); Lesser Yellowthroat Gilia; Yellowthroat Gily-flower. DESCRIPTION: Terrestrial annual forb/herb (stems 6 inches to 2 feet in height); the flowers are blue, blue-lavender, bluish-purple, gray-white, dark grayish-blue, pale lavender, pink, pink-blue, pink-lavender, light purple, purple, white or white tinged with violet; the anthers are bluish or pale blue-violet; flowering generally takes place between late February and mid-June (additional record: two for late January). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; rocky-sandy meadows; rocky and sandy hills; hilltops; rocky hillsides; rocky and rocky-loamy slopes; gravelly bajadas; rocky outcrops; sandy flats; gravelly roadsides; along gravelly draws; along streams; cobbly-sandy riverbeds; along bouldery and sandy washes; along and in gravelly-sandy drainages; channel bars; terraces; sandy floodplains; riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, shaley-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground and rocky loam and sandy loam ground, occurring from 2,200 to 7,300 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Gilia flavocincta* subsp. *australis* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (031810 - *Gilia flavocincta* A. Nelson subsp. *australis* (V.E. Grant) A.G. Day & V.E. Grant, *Gilia ophthalmoides* Brand subsp. *australis* V.E. Grant), 44 (031813 - no record of subspecies or species; genus record), 46 (Supplement Page 1066), 58 (*Gilia ophthalmoides* Brand ssp. *australis* A. & V. Grant), 63 (031813), 77, **85** (031813 - color presentation of dried material), 124 (120910 - no record)*

Gilia filifolia var. *diffusa* (see footnote 89 under *Eriastrum diffusum*)

Gilia floccosa (see footnote 89 under *Eriastrum diffusum*)

Gilia glutinosa (see footnote 89 under *Gilia stellata*)

Gilia inconspicua var. *sinuata* (see *Gilia sinuata*)

Gilia longiflora (see *Ipomopsis longiflora* subsp. *longiflora*)

Gilia multicaulis (see *Gilia achilleifolia* subsp. *multicaulis*)

Gilia ophthalmoides subsp. *australis* (see *Gilia flavocincta* subsp. *australis*)

***Gilia sinuata* D. Douglas ex G. Bentham: Rosy Gilia**

SYNONYMY: *Gilia inconspicua* (J.E. Smith) R. Sweet var. *sinuata* (D. Douglas ex G. Bentham) A. Gray. COMMON NAMES: Bare-base Gilia; Cinder Gilia; Gilia (a name also applied to other species, the genus *Gilia* and to the Polemoniaceae); Gily-flower (a name also applied to other taxa); Rosy Gilia; Rosy Gily Flower; Rosy Gily-flower; Sinuate Gilia; Tweedy's Gilia (*Gilia sinuata* var. *tweedyi* - Invalid; *Gilia tweedyi* - Valid). DESCRIPTION: Terrestrial annual forb/herb (simple or branched above rosette and spreading erect plants 2½ to 15 inches in height; plants were observed and described as being 4 to 10 inches in height and 2 to 4 inches in width); the foliage is medium green; the flowers may be pale blue-violet, blue, blue-lavender, blue-purple, blue-yellow, bluish-white, cream, lavender-pink, pink with a yellow throat, pink, light purple, purple, violet, white or pale

yellow; the anthers are blue; flowering generally takes place between early March and early July (additional records: one for mid-February and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; rocky, gravelly and sandy mesas; sandy plateaus; cliffs; sandy canyons; sandy canyon bottoms; sandy bluffs; rocky-gravelly-sandy sides of buttes; gravelly ridges; ridgetops; meadows; rocky-cindery-gravelly cinder cones; rocky and gravelly foothills; rocky, rocky-sandy-silty and gravelly hills; sandy hillocks; rocky hilltops; rocky and stony hillsides; bouldery, rocky, gravelly, gravelly-sandy, sandy and clayey slopes; gravelly and sandy alluvial fans; bajadas; in grass amongst boulders; lava flows; lava fields; sand dunes; blow-sand deposits; benches; sandy breaks; terraces; sandy and silty-loamy plains; gravelly, sandy, sandy-silty and silty flats; sandy valley floors; valley bottoms; along rocky, rocky-gravelly-sandy-clayey-loamy, gravelly and gravelly-sandy roadsides; sandy arroyos; rocky draws; along creeks; along and in gravelly-sandy and sandy creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; in sandy-silty drainage ways; silty lakebeds; sandy depressions; (rocky, gravelly and sandy) banks of creeks, creekbeds and washes; edges of washes and dry lakes; sandy benches; cobbly-sandy terraces; sandy bottomlands; lowlands; gravelly-sandy and silty riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-cindery-gravelly, rocky-gravelly, rocky-gravelly-sandy, rocky-pebbly, rocky-sandy, stony, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, gravelly loam, sandy loam and silty loam ground; clay ground, and rocky-sandy silty, sandy silty and silty ground, occurring from 700 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Gilia sinuata* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 43 (031910 - *Gilia inconspicua* var. *sinuata* (Douglas ex Benth.) Brand), 44 (031813 - color photograph), 46 (Page 691), 63 (031813 - color presentation), 85 (031813 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Gilia inconspicua* (Sm.) Dougl. var. *sinuata* Gray), 127*

Gilia stellata A.A. Heller: Star Gilia

COMMON NAMES: Dotted-throat Gilia; Gilia (a name also applied to other species, the genus *Gilia* and to the Polemoniaceae); Star Gilia; Star Gily Flower; Star Gily-flower; Star-haired Gilia. DESCRIPTION: Terrestrial annual forb/herb (simple to branched erect stems 3 to 28 inches in height); the flowers may be blue, blue-yellow, blue-lavender, blue-pink-lavender, blue-white, cream, pale lavender, lavender, lavender with dark purple stripes, lavender with a yellow throat, lavender-pink, lavender-pink, lavender-yellow, magenta, pink, pink with a yellow throat, pink-lavender, light purple-lavender, purple, purple-lavender, purplish-blue, purplish-lavender, pale violet, violet, yellow, white, white with yellowish throat, white-lavender, whitish or whitish-purplish; flowering generally takes place between late January and early June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky cliffs; along rocky canyons; gravelly-sandy and sandy canyon bottoms; gorges; talus slopes; bases of cliffs; cobbly knoll; sandy ridges; ridgetops; foothills; muddy, rocky, gravelly and clayey hills; sandy hilltops; muddy, rocky and gravelly hillsides; escarpments; bouldery, rocky; cobbly-sandy-loamy, gravelly, gravelly-sandy-clayey, sandy, sandy-loamy and clayey slopes; alluvial fans; gravelly, gravelly-sandy and sandy bajadas; rocky and shaley outcrops; amongst boulders; sand hills; sandy hummocks; sandy benches; breaks; plains; gravelly, sandy and silty flats; basins; valley floors; valley bottoms; rocky, gravelly and sandy roadsides; sandy arroyos; ravines; springs; along streams; streambeds; along creeks; sandy creekbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey-loamy washes; along and in gravelly and gravelly-sandy drainage ways; around pools; (sandy) banks of rivers and washes; along (rocky-sandy) edges of washes; margins of rivers, washes and dry lakes; shores of lakes; sand bars; gravelly and sandy benches; terraces; loamy floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, shaley, cobbly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; gravelly-sandy clay and clay ground, and gravelly-sandy silty and silty ground, occurring from 300 to 6,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Gilia stellata* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 43 (031910), 44 (031813 - color photograph), 46 (Supplement Page 1066), 63 (031813 - color presentation), 77, **85** (031813 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Gilia glutinosa* (Benth.) Gray)*

Ipomopsis longiflora (J. Torrey) V.E. Grant: Flaxflowered Ipomopsis

COMMON NAMES: Blue Gilia; Blue Starflower; Blue Trumpets; Flax-flowered Ipomopsis; Flaxflowered Gilia; Flaxflowered Ipomopsis; Ha'wimo (Zuni, when this plant is used as a depilatory); Long Flower Gilia; Pale Trumpets; Paleflower Gilia; Tsyu'ya an Tsitsinakya (“Hummingbird Sucking-flower”, Zuni); White-flower Skyrocket; White Flowered Gilia; White-flowered Gilia; White-flowered Ipomopsis; Whiteflowered Gilia. DESCRIPTION: Terrestrial annual or biennial forb/herb (simple to branched erect stems 6 to 40 inches in height; plants were observed and described as being 1 to 2 feet in height and width); the thread-like leaves are green; the trumpet-shaped flowers (1 to 2 inches in length) may be light blue, pale blue-lavender, blue, blue-violet, bright blue-purple, bluish-purple, bluish-white, pale lavender, lavender, lavender-blue, pink-white, pale purple, pale purple-blue, purple, purplish, purplish-blue, sky blue, pale violet, white, white tinged with lavender or sometimes with variegated corollas; the anthers are cream-white; flowering generally takes place between early March and early November. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mesas; cindery-sandy plateaus; along (sandy) rims of canyons and craters; rocky and sandy canyons; sandy and sandy-silty canyon bottoms; chalky talus; sandy ridges; openings in woodlands; foothills; rocky hills; clayey hillsides; rocky, cindery, gravelly, sandy, sandy-clayey and clayey slopes; alluvial fans; bajadas; shaley outcrops; lava flows; sand hills; sand dunes; sandy alcoves;

sandy prairies; sandy plains; gravelly, sandy, sandy-clayey and clayey flats; sandy uplands; sandy-silty basins; sandy valley floors; along sandy and sandy-clayey railroad right-of-ways; roadbeds; sandy roadcuts; along cindery, gravelly, gravelly-sandy-clayey-loamy and sandy roadsides; along sandy arroyos; gulches; springs; along and in rocky-sandy streambeds; along creeks; along sandy creekbeds; along rivers; within rocky-sandy, gravelly-clayey, sandy, sandy-silty, clayey and silty washes; sandy-loamy drainages; sandy blowouts; within clayey depressions; sandy sinks; (cobbly and sandy) edges of arroyos and washes; (rocky-sandy) sides of streams; channel bars; sandy terraces; sandy bottomlands; sandy floodplains; riparian areas; waste places, and disturbed areas growing in moist, damp and dry rocky, rocky-sandy, shaley, cobbly, cindery, cindery-gravelly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam and sandy loam ground; gravelly clay, sandy clay and clay ground, and sandy-silty and silty ground, occurring from 1,000 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Moths feed on the nectar. This plant may be browsed by rabbits. *Ipomopsis longiflora* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph 694), 43 (072609), 44 (031913 - no record of species; genus record), 46 (recorded as *Gilia longiflora* (Torr.) G. Don (synonym of *Ipomopsis longiflora* (J. Torrey) V.E. Grant subsp. *longiflora*), Page 692 and Supplement Page 1067), 48 (Genus, *Gilia*), 58, 63 (031913 - color presentation), 77, 85 (031913 - color presentation), 86 (color photograph), 115 (color presentation), 124 (110710 - no record of species), 128*

Ipomopsis longiflora (J. Torrey) V.E. Grant subsp. *longiflora*: Flaxflowered Ipomopsis

SYNONYMY: *Gilia longiflora* (J. Torrey) G. Don. COMMON NAMES: Blue Gilia; Blue Starflower; Flax-flower Ipomopsis; Flaxflowered Ipomopsis; Ha'wimo (Zuni, when this plant is used as a depilatory); Tsyu'ya an Tsitsinakya ("Hummingbird Sucking-flower", Zuni); Pale Trumpets; White Flowered Gilia; White-flower Gilia; White-flowered Gilia; White-flowered Ipomopsis. DESCRIPTION: Terrestrial annual or biennial forb/herb (stems 1 to 2 feet in height); the flowers are pale blue, light blue-lavender, pale lavender, light purple, purple or white sometimes variegated corollas; based on very few flowering records located flowering may take place between late May and late September (additional records: six for early April and two for mid-October). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; along rims of craters; canyons; sandy-silty canyon bottoms; openings in woodlands; foothills; rocky hills; rocky, gravelly, gravelly-sandy and sandy slopes; sand hills; sandy prairies; sandy plains; gravelly, sandy and sandy-clayey flats; along sandy and sandy-clayey railroad right-of-ways; along gravelly, gravelly-loamy and sandy roadsides; arroyos; springs; along sandy creekbeds; within sandy washes; along drainages; bottomlands; floodplains; ditches, and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground and gravelly loam ground; sandy clay ground, and sandy silty ground, occurring from 2,400 to 9,500 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Moths feed on the nectar. *Ipomopsis longiflora* subsp. *longiflora* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (species, color photograph of the species 694), 43 (072609), 44 (031913 - no record of subspecies or species; genus record), 46 (*Gilia longiflora* (Torr.) G. Don, Page 692), 48 (genus, *Gilia*), 58, 63 (031913), 85 (031913), 86 (species, color photograph of the species), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Gilia longiflora* (Torr.) Don), 115 (color presentation of the species), 124 (110710)*

Linanthus bigelovii (A. Gray) E.L. Greene: Bigelow's Linanthus

SYNONYMY: *Gilia bigelovii* A. Gray. COMMON NAMES: Bigelow Desert Trumpet; Bigelow Desert-gold; Bigelow Desert-trumpet; Bigelow Desert-trumpets; Bigelow Deserttrumpets; Bigelow Gilia; Bigelow Linanthus; Bigelow's Desert Trumpet; Bigelow's Desert-gold; Bigelow's Desert-trumpet; Bigelow's Deserttrumpets; Bigelow's Linanthus; Jones' Linanthus (*Linanthus bigelovii* var. *jonesii* - Invalid; *Linanthus jonesii* - Valid). DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 22 inches in height); the flowers may be bluish, cream, cream-white, cream-white with a maroon-brown margin fading yellowish-pink, pale lavender, lavender, lavender-blue, mahogany-tinged cream, lavender-blue, white, white with a yellow throat, white-blue-lavender, white-cream, white-lavender or white-pink; flowering generally takes place between early February and late May. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly and sandy mesas; plateaus; cliffs; rocky canyons; rocky-sandy and sandy canyon bottoms; gravelly-silty bluffs; ledges; ridgetops; openings in chaparral; rocky-sandy meadows; along gravelly cinder cones; rocky foothills; rocky hills; bases of hills; rocky and stony hillsides; along cinder cones; bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, shaley, cobbly, gravelly, gravelly-loamy and sandy slopes; rocky-sandy alluvial fans; gravelly bajadas; rocky and shaley outcrops; amongst boulders, rocks and gravels; lava flows; lava fields; sand dunes; cobbly and gravelly-loamy breaks; benchlands; rocky-sandy plains; rocky, gravelly and sandy flats; basins; cindery and sandy valley floors; valley bottoms; along gravelly, gravelly-sandy and sandy roadsides; draws; gulches; ravines; around seeping streams; along streams; along creeks; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within sandy drainages; banks of washes; bouldery, rocky-sandy and gravelly-sandy benches; sandy terraces; loamy bottomlands; sandy riparian areas; recently burned areas in woodlands, and disturbed areas growing in moist and dry bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; bouldery-loam, gravelly loam, gravelly-clayey loam and loam ground, and gravelly-sandy silty and gravelly silty ground, occurring from 200 to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Linanthus bigelovii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (080611 - *Linanthus bigelovii* Greene), 44 (080611), 46 (Page 687), 63 (031913), 77, **85** (031913 - color

presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Gilia bigelovii* Gray), 124 (080611 - no record of species or genus), 140 (Page 302)*

Polygalaceae: The Milkwort Family

***Polygala macradenia* A. Gray: Glandleaf Milkwort**

COMMON NAMES: Glandleaf Milkwort; Milkwort (a name also applied to the Polygalaceae); Purple Milkwort. DESCRIPTION: Terrestrial perennial subshrub (much branched erect stems 4 to 12 inches in height; one plant was observed and described as being 10 inches in height and 12 inches in width); the foliage may be green or green-gray; the flowers may be blue, blue-purple, pink-purple, light purple, purple, purple-greenish-yellow, purple-rose, purple & white, purple & yellow & white, purplish, reddish, white or white tipped with pink & green; flowering generally takes place between late February and late November (additional record: one for mid-January). HABITAT: Within the range of this species it has been reported from mountains; bouldery and rocky mountaintops; rocky mountainsides; gravelly mesas; cliffs; cobbly canyons; rocky and clayey canyon bottoms; clayey-loamy soil in crevices in rocks; bluffs; ridges; gravelly ridgetops; foothills; rocky, rocky-clayey and clayey hills; rocky hilltops; rocky, rocky-gravelly-loamy, rocky-clayey and gravelly hillsides; bedrock, rocky, rocky-shaley, rocky-gravelly, rocky-clayey, gravelly, gravelly-loamy, sandy-clayey, clayey and clayey-loamy slopes; bajadas; amongst boulders and rocks; rocky breaks; gravelly flats; basins; arroyos; gravelly bottoms of arroyos; springs; rocky washes; rocky-gravelly drainages; margins of washes; benches, and shelves growing in dry desert pavement; bouldery, rocky, rocky-shaley, rocky-gravelly, cobbly and gravelly ground; rocky-gravelly loam, gravelly loam and clayey loam ground, and rocky clay, sandy clay and clay ground, occurring from 1,500 to 6,800 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant is reportedly grazed by the Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Polygala macradenia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (032110), 44 (031913 - no record of species; genus record), 46 (Page 499), 63 (031913), 77, **85** (031913 - color presentation), **89** (reported as being a dwarf shrub herb located on Tumamoc Hill), 140 (Page 302)*

Polygonaceae: The Buckwheat Family

***Chorizanthe brevicornu* J. Torrey (var. *brevicornu* is the variety reported as occurring in Arizona): Brittle Spineflower**

COMMON NAMES: Broad Leaf Britlle Spineflower (var. *spathulata*); Broad-leaf Britlle Spineflower (var. *spathulata*); Brittle Chorizanthe; Brittle Spine Flower; Brittle Spine-flower; Brittle Spineflower; Great Basin Brittle Chorizanthe (var. *spathulata*); Great Basin Brittle Spineflower (var. *spathulata*); Sagebrush Chorizanthe; Short Spineflower; Short-horn Spine-flower; Short-horn Spineflower; Short-horned Spineflower; Spatula-leaved Chorizanthe (var. *spathulata*); Spatula-leaved Spine-flower (var. *spathulata*); Spatula-leaved Spineflower (var. *spathulata*). DESCRIPTION: Terrestrial annual forb/herb (spreading decumbent, ascending and/or erect stems 2 to 20 inches in height and 2 to 12 inches in width; one plant was observed and described as being 7 inches in height and 9 inches in width); the basal rosette of leaves may be lime green, maroon, reddish or yellow-green; the lower stems tinged pink-red with the upper stems yellow-green; the small inconspicuous flowers may be green, greenish, greenish-white, white, yellow-green or yellowish-white; the anthers are white to pale yellow; flowering generally takes place between early January and late May (additional records: four for mid-June, one for late June, two for early July and one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky, sandy and sandy-silty mesas; rocky and rocky-gravelly canyons; canyon walls; sandy and sandy-loamy canyon bottoms; rocky talus slopes; gravelly ridges; ridgetops; openings in woodlands; rocky and gravelly foothills; rocky, rocky-sandy, gravelly and sandy hills; hilltops; rocky and rocky-sandy hillsides; bedrock, bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-gravelly-loamy, rocky-sandy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, sandy and silty slopes; rocky alluvial fans; stony-gravelly-sandy and gravelly bajadas; rocky and shaley outcrops; amongst boulders, rocks and gravels; boulderfields; lava flows; sand dunes; blow-sand deposits; gravelly outwash fans; gravelly-loamy breaks; plains; rocky-sandy, gravelly, gravelly-sandy, sandy and silty flats; rocky uplands; basins; gravelly valley floors; along rocky-gravelly, gravelly and sandy roadsides; arroyos; draws; ravines; springs; along creeks; creekbeds; along rivers; rocky-cobbly-sandy and sandy riverbeds; along and in rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy washes; within cobbly and sandy drainages; sandy depressions; along (muddy, rocky-sandy, gravelly and gravelly-sandy) banks of creeks, rivers and washes; edges of washes; (gravelly-sandy) margins of washes; gravel bars; benches; along gravelly, gravelly-sandy and sandy terraces; bottomlands; riparian areas, and recently burned areas in scrub growing in muddy (rarely reported) and moist (rarely reported) and dry rocky-cobbly-sandy, stony-sandy and gravelly desert pavement; bouldery, bouldery-sandy, rocky, rocky-cobbly-gravelly, rocky-cobbly-sandy, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony-gravelly-sandy, stony-sandy, cobbly, cobbly-gravelly-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam and silty loam ground; gravelly-sandy clay and gravelly clay ground, and sandy silty and silty ground, occurring from below sea level to 10,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Chorizanthe brevicornu* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (032210), 44 (032013), 46 (Pages 229-230), 63 (032013 - color presentation), 77, **85** (032013 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes)*

***Chorizanthe brevicornu* J. Torrey var. *brevicornu*: Brittle Spineflower**

COMMON NAMES: Typical Brittle Chorizanthe; Typical Brittle Spine Flower; Typical Brittle Spine-flower; Typical Brittle Spineflower; Typical Short Spineflower; Typical Short-horn Spine-flower; Typical Short-horn Spineflower; Typical Short-horned Spineflower. DESCRIPTION: Terrestrial annual forb/herb (spreading ascending and/or erect stems 2 to 20 inches in height and 2 to 12 inches in width); the basal rosette of leaves may be maroon, reddish or yellow-green; the stems are yellow-green; the small inconspicuous flowers may be green, white or yellow-green; the anthers are white to pale yellow; flowering generally takes place between early January and late May (additional record: one for mid-June; flowering continuing into July has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky-gravelly canyons; canyon bottoms; talus slopes; gravelly ridges; ridgetops; rocky and gravelly foothills; gravelly, gravelly-clayey and sandy hills; rocky and rocky-sandy hillsides; bedrock, bouldery, rocky, rocky-gravelly, rocky-gravelly-loamy, cobbly-sandy, gravelly, gravelly-sandy, gravelly-sandy-clayey, gravelly-clayey, sandy and silty slopes; alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders, boulderfields; rocks and gravels; lava flows; sand dunes; plains; gravelly, gravelly-sandy, sandy and silty flats; rocky uplands; basins; valley floors; along gravelly and sandy roadsides; arroyos; draws; springs; along creeks; along rivers; sandy riverbeds; along and in rocky, gravelly and sandy washes; cobbly drainages; along (muddy, rocky-sandy and sandy) banks of rivers and washes; edges of washes; (gravelly-sandy) margins of washes; gravel bars; along gravelly, gravelly-sandy and sandy terraces; riparian areas and recently burned areas in scrub growing in muddy (rarely reported) and moist (rarely reported) and dry gravelly desert pavement; bouldery, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy loam and silty loam ground; gravelly clay and gravelly-sandy clay ground, and sandy silty and silty ground, occurring from below sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Chorizanthe brevicornu* var. *brevicornu* is native to southwest-central and southern North America. *5, 6, 43 (032210), 44 (032013), 46 (species, Pages 229-230), 63 (032013), **85** (032013 - color presentation of dried material)*

***Chorizanthe rigida* (J. Torrey) J. Torrey & A. Gray: Devil's Spineflower**

COMMON NAMES: Desert Spiny Herb; Desert Spiny-herb; Devil's Spine Flower; Devil's Spine-flower; Devil's Spineflower; Devil's Spiny-herb; Rigid Chorizanthe; Rigid Spine Flower; Rigid Spine-flower; Rigid Spineflower; Rigid Spiny Herb; Rigid Spiny-herb; Rigid Spinyherb; Rosy-thorn; Spine Herb; Spiny Chorizanthe (a name also applied to other taxa); Turk's Rug (a name also applied to other taxa); Turkshead (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 8 inches in height and ½ to 4 inches in width); the minute flowers may be green, greenish-yellow, white, yellow or yellow-green; the anthers are yellowish; flowering generally takes place between early February and late May (additional records: two for early January, four for mid-January, one for mid-June and one for late July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; bases of cliffs; rocky and gravelly canyons; canyon walls; canyon bottoms; knolls; rocky ridges; stony foothills; rocky, gravelly, sandy and sandy-clayey hills; rocky and rocky-gravelly hilltops; rocky and sandy hillsides; rocky, stony, gravelly, gravelly-sandy, sandy and silty slopes; rocky alluvial fans; gravelly, gravelly-sandy and sandy bajadas; shaley outcrops; amongst boulders and rocks; lava flows; rocky-sandy and sandy lava fields; sand dunes; benches; terraces; gravelly plains; rocky, stony, stony-chalky, gravelly, gravelly-sandy, sandy, sandy-silty and chalky flats; uplands; basins; gravelly valley floors; silty valley bottoms; along gravelly and sandy roadsides; gullies; ravines; springs; along rivers; along and in rocky, gravelly, gravelly-sandy and sandy washes; gravelly drainages; (rocky and sandy) banks of washes; (gravelly and gravelly-sandy) edges of washes; benches; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-sandy, shaley-sandy, stony, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky clay, sandy clay and clay ground; sandy silty and silty ground, and stony chalky and chalky ground, occurring from below sea level to 6,300 feet in elevation in the desertscrub and wetland ecological formation. NOTES: Becomes stiff and bur-like when dried. *Chorizanthe rigida* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph 485), 43 (032210), 44 (032013 - color photograph), 46 (Page 230), 63 (032013 - color presentation), **77**, **85** (032013 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes)*

***Eriogonum abertianum* J. Torrey: Abert's Buckwheat**

SYNONYMY: *Eriogonum abertianum* J. Torrey var. *abertianum*; *Eriogonum abertianum* J. Torrey var. *cyclosepalum* (E.L. Greene) F.R. Fosberg; *Eriogonum abertianum* J. Torrey var. *villosum* F.R. Fosberg. COMMON NAMES: [Abert's] Buckwheat (English)[140]; Abert Wild Buckwheat; Abert's Wild Buckwheat; Buckwheat (a name also applied to other taxa and the Polygonaceae); Hulaqal (Uto-Aztecan: Cahuilla)[140]; Łe'azee' (Athapascan: Navajo)[140]; Powáwi (Uto-Aztecan: Hopi)[140]; Skeleton Weed; Tunabol (a name also applied to other species, Uto-Aztecan: Tübatulabal)[140]; Wild Buckwheat (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb (spreading erect stems 2 to 32 inches in height, plants were observed and described as being 8 to 10 inches in height and up to 6 inches in width); the foliage may be gray, gray-green, or greenish; the flowers may be cream, creamy-peach, cream & red, dull greenish, greenish-yellow tinged with red, pale pink, pink, pink-cream, pink-red, pinkish, pinkish-red, pinkish-white, red, reddish, reddish-pink, reddish-yellow, white, white & pink, white with green or purple stripes or with a pink, purple-pink or red tinge, white-yellow with red tips, whitish, whitish-pink, light yellow, pale yellow & red, yellow with red tints, yellowish or yellowish-pinkish; the anthers are dark purple-pink; flowering generally takes place between mid-February and late November (additional records: three for mid-January and one for mid-December; flowering year-round has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops;

mountainsides; mesas; cliffs; bases of cliffs; rocky canyons; along gravelly, gravelly-sandy and sandy canyon bottoms; talus slopes; crevices in rocks; pockets of sandy soil in rock; buttes; ledges; ridges; ridgetops; bouldery foothills; rocky and gravelly hills; hilltops; rocky and gravelly hillsides; escarpments; rocky, rocky-sandy, stony, gravelly, sandy-loamy, sandy-clayey-loamy and clayey-loamy slopes; sandy alluvial fans; rocky-gravelly-silty, rocky-sandy and gravelly bajadas; gravelly pediment fans; rock outcrops; amongst boulders, rocks and stones; sandy lava flows; sandy-loamy plains; rocky, gravelly, sandy, sandy-clayey, sandy-clayey-loamy and clayey flats; basin bottoms; valley floors; valley bottoms; along rocky, gravelly, gravelly-sandy-clayey-loamy, sandy and sandy-loamy roadsides; rocky and sandy arroyos; bottoms of arroyos; gulches; bouldery-rocky and rocky gullies; along streams; along streambeds; along creeks; along rivers; along and in rocky, gravelly, gravelly-sandy, sandy and clayey washes; within gravelly and sandy drainages; around lakes; marshes; banks of streams; margins of washes; sand bars; benches; terraces; sandy bottomlands; sandy-clayey floodplains; mesquite bosques; gravelly levees; riparian areas, and disturbed areas growing in wet, moist, damp and dry rocky desert pavement; bouldery, bouldery-rocky, rocky, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, gravelly-sandy clay, sandy clay and clay ground, and rocky-gravelly silty, gravelly silty and gravelly-sandy silty ground, occurring from 1,300 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be attractive. The flowers, leaves, seeds and stems are used for food by White-tailed Deer (*Odocoileus virginianus couesi*) and quail, White-tailed Deer and Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*) feed on the seeds. Bees and wasps reportedly visit the flowers. *Eriogonum abertianum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (032210), 44 (032013), 46 (Page 237), 48 (genus), **56**, **57**, 58, 63 (032013 - color presentation), 77 (color photograph #50), **85** (032013 - color presentation), **89** (reported as being a long-lived annual herb located on the Mesa-like Mountain Slopes), 124 (110710 - no record of species; genus record), 140 (Pages 220-221 & 302)*

Eriogonum abertianum var. *abertianum* (see *Eriogonum abertianum*)

Eriogonum abertianum var. *cyclosepalum* (see *Eriogonum abertianum*)

Eriogonum abertianum var. *villosum* (see *Eriogonum abertianum*)

Eriogonum angulosum (see footnote 89 under *Eriogonum maculatum*)

Eriogonum clutei (see *Eriogonum deflexum* var. *deflexum*)

***Eriogonum deflexum* J. Torrey (var. *deflexum* is the variety reported as occurring in Arizona): Flatcrown Buckwheat**

SYNONYMY: (for var. *deflexum*: *Eriogonum clutei* P.A. Rydberg; *Eriogonum deflexum* J. Torrey var. *turbinatum* (J.K. Small) J.L. Reveal). COMMON NAMES: Dugway Buckwheat (*Eriogonum deflexum* subsp. *ultrum* - Not Accepted; *Eriogonum nutans* var. *nutans* - Accepted); Flat Crown Wild Buckwheat; Flat-crown Buckwheat; Flat-crown Wild Buckwheat; Flat-crown Wild-buckwheat; Flat-crowned Buckwheat; Flat-crowned Eriogonum; Flat-topped Buckwheat (a name also applied to other taxa); Flat-topped Skeleton Weed; Flat-topped Skeleton-weed; Flatcrown Buckwheat; Flatcrown Wild Buckwheat; Flatcrowned Wild Buckwheat; Ladder Buckwheat (*Eriogonum deflexum* subsp. *exaltatum* - Not Accepted; *Eriogonum deflexum exaltatum* - Accepted. *Eriogonum deflexum* subsp. *insigne* - Not Accepted; *Eriogonum deflexum* subsp. *deflexum* - Accepted); Nevada Buckwheat (var. *nevadense*); Pagoda Buckwheat (*Eriogonum deflexum* subsp. *rixfordii* - Not Accepted; *Eriogonum rixfordii* - Accepted); Parry's Buckwheat (*Eriogonum deflexum* var. *brachypodum* - Not Accepted; *Eriogonum brachypodum* - Accepted); Skeleton Weed (a name also applied to other taxa); Skeleton Weed Eriogonum; Skeleton-weed (a name also applied to other taxa); Skeleton-weed Buckwheat; Skeleton-weed Wild Buckwheat; Skeleton-weed Wild-buckwheat; Skeletonweed (a name also applied to other taxa); Skeletonweed Buckwheat; Skeletonweed Wild Buckwheat; Skeletonweed Wild-buckwheat; Watson's Buckwheat (*Eriogonum deflexum* subsp. *watsonii* - Not Accepted, *Eriogonum deflexum* var. *multipendunculatum* - Not Accepted, *Eriogonum deflexum* var. *watsonii* - Not Accepted; *Eriogonum watsonii* - Accepted). DESCRIPTION: Terrestrial annual forb/herb (erect to spreading stems 2 inches to 3 feet in height (records to 40 inches to 6½ feet in height have been reported); the stems may be blue-gray, gray-green, green or purple-red; the basal rosette of leaves may be blue-gray, gray-green or green; the small flowers may be cream, cream-pink, pink, pink-white, pinkish, pinkish-purple-lavender-white, purple-red, white or whitish-pink; flowering generally takes place between mid-January and late December (additional record: flowering year-round has been reported); the fruits may be bright pink. HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; plateaus; cliffs; rocky canyons; rocky, gravelly and sandy canyon bottoms; gorges; bouldery scree; talus slopes; bases of bluffs; rocky sides of buttes; knolls; rocky ridges; ridgelines; rocky foothills; rocky, rocky-gravelly, shaley, gravelly and clayey hills; rocky, gravelly and clayey hillsides; bouldery, rocky, stony-cobbly-sandy, cindery, gravelly, sandy, sandy-clayey and clayey slopes; alluvial fans; bajadas; rocky outcrops; rocky boulder fields; blow-sand deposits; cobbly, cobbly-sandy and sandy debris fans; breaks; pebbly and sandy plains; rocky, gravelly and sandy flats; basins; bolsons; valley floors; valley bottoms; roadbeds; along gravelly and sandy roadsides; within gravelly and sandy arroyos; sandy bottoms of arroyos; gulches; gravelly ravines; springs; along streams; streambeds; along creeks; creekbeds; gravelly and sandy riverbeds; along and in cobbly, gravelly, gravelly-sandy, sandy, sandy-clayey and clayey washes; drainages; drainage ways; playas; sinks;

(sandy) banks of rivers; (gravelly) edges of marshes; sand bars; terraces; sandy bottomlands; floodplains; along ditches; along canal banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony-cobbly-sandy, cobbly, cindery, cindery-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam and gravelly loam ground, and sandy clay and clay ground, occurring from below sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The plants are reportedly an important source of small seed for birds; the Desert Metalmark (*Apodemia mormo* subsp. *deserti*) has been found in association with this plant. *Eriogonum deflexum* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 42 (041013), 43 (032310), 44 (032113 - color photograph), 46 (Page 239), 48 (genus), **56**, **57**, 63 (032113 - color presentation of seed), 68, 77, **85** (032113 - color presentation), **89** (reported as being a long-lived annual herb located on the Mesa-like Mountain Slopes), 140 (Page 302), **WTK** (October 28, 2009)*

***Eriogonum deflexum* J. Torrey var. *deflexum*: Flatcrown Buckwheat**

SYNONYMY: *Eriogonum clutei* P.A. Rydberg; *Eriogonum deflexum* J. Torrey var. *turbinatum* (J.K. Small) J.L. Reveal. COMMON NAMES: Flat-topped Buckwheat (a name also applied to other taxa); Skeleton Weed (a name also applied to other taxa); Skeleton-weed (a name also applied to other taxa); Skeletonweed (a name also applied to other taxa); Skeleton Weed Eriogonum; Typical Flat Crown Wild Buckwheat; Typical Flat-crown Buckwheat; Typical Flat-crown Wild Buckwheat; Typical Flat-crown Wild-buckwheat; Typical Flat-crowned Buckwheat; Typical Flat-crowned Eriogonum; Typical Flat-topped Buckwheat; Typical Flat-topped Skeleton Weed; Typical Flat-topped Skeleton-weed; Typical Flatcrown Buckwheat; Typical Flatcrown Wild Buckwheat; Typical Flatcrowned Wild Buckwheat; Typical Skeleton-weed Buckwheat; Typical Skeleton-weed Wild Buckwheat; Typical Skeleton-weed Wild-buckwheat; Typical Skeletonweed Buckwheat; Typical Skeletonweed Wild Buckwheat; Typical Skeletonweed Wild-buckwheat. DESCRIPTION: Terrestrial annual forb/herb (erect to spreading stems 2 inches to 2 feet in height (records to 40 inches to 6½ feet in height have been reported; plants were observed and described as being 12 inches in height by 12 inches in width; plants were observed and described as being 16 inches in height by 16 inches in width); the stems may be blue-gray, gray-green, green or purple-red; the basal rosette of leaves may be blue-gray, gray-green or green; the small flowers may be cream, pink, pink-white, rose-white, white or yellow; flowering generally takes place between mid-January and late December (additional record: flowering year-round has been reported); the fruits may be bright pink. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; plateaus; rocky cliffs; bouldery canyons; rocky and sandy canyon bottoms; shaley talus slopes; bluffs; rocky sides of buttes; rocky ridges; ridgelines; rocky foothills; clayey hills; rocky and gravelly hillsides; bases of hillsides; rocky, rocky-sandy, shaley, cindery, gravelly, gravelly-loamy, sandy and clayey slopes; rocky-gravelly bajadas; amongst boulders; rocky boulder fields; sand dunes; cobbly and sandy debris fans; breaks; gravelly, sandy and sandy-silty flats; basins; valley bottoms; roadbeds; along rocky, gravelly, gravelly-loamy and sandy roadsides; sandy arroyos; sandy draws; gullies; gravelly ravines; around seeping streams; along creeks; along gravelly-sandy creekbeds; along rivers; gravelly riverbeds; along and in bouldery, rocky-sandy, rocky-loamy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; drainages; depressions; swales; banks of rivers; (silty) margins of playas; sand bars; sandy bottomlands; gravelly banks and shores of reservoirs; along canal banks; along ditches; sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam and gravelly-clayey loam ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from below sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Eriogonum deflexum* var. *deflexum* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Eriogonum deflexum* Torrey var. *turbinatum* (Small) Reveal), 18 (genus), 43 (032310 - *Eriogonum deflexum* var. *turbinatum* (Small) Reveal), 44 (032113), 46 (recorded as *Eriogonum clutei* Rydb. and *Eriogonum deflexum* Torr., Page 239), 48 (genus), 58 (recorded as *Eriogonum deflexum* Torrey var. *turbinatum* (Small) Reveal), 63 (032113), 68, **85** (032113 - color presentation of dried material)*

Eriogonum deflexum var. *turbinatum* (see *Eriogonum deflexum* var. *deflexum*)

Eriogonum densum (see *Eriogonum polycladon* and footnote 46 under *Eriogonum palmerianum*)

***Eriogonum maculatum* A.A. Heller: Spotted Buckwheat**

COMMON NAMES: Angle-stemmed Buckwheat (a name also applied to other taxa); Anglestem Buckwheat (a name also applied to other taxa); Skeleton Weed (a name also applied to other taxa); Spotted Buckwheat; Spotted Eriogonum; Spotted Wild Buckwheat; Spotted Wild-buckwheat. DESCRIPTION: Terrestrial annual forb/herb (erect to spreading stems 2 to 12 inches in height); the foliage is greenish to reddish; the flowers may be cream, cream-white, pink, red, rose-pink, rose-red, dull white, white, white-pink, white & pink, white & dark pink, white-purple, white-red, light yellow, yellow, yellow-green or yellowish-white; flowering generally takes place between mid-March and late July (additional records: two for mid-August, one for early September, one for late September, two for early October, one for mid-October, one for early November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy bases of cliffs; rocky canyons; canyon sides; sandy canyon bottoms; talus slopes; bluffs; ledges; gravelly ridges; ridgetops; gravelly foothills; bouldery, rocky, gravelly and gravelly-clayey hills; sandy bases of hills; hilltops; rocky, rocky-gravelly and gravelly hillsides; bedrock, bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, gravelly, sandy, clayey and silty slopes; alluvial fans; foot of

alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders; boulder fields; sandy lava flows; sand dunes; sandy hummocks; gravelly outwash fans; sandy banks; sandy benches; plains; gravelly, gravelly-sandy, sandy and clayey flats; sandy basins; sandy valley floors; sandy valley bottoms; along gravelly and sandy roadsides; springs; along creeks; along rivers; along and in gravelly-sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; sandy depressions; (sandy) banks of rivers; edges of dry lakes; margins of playas; sandy benches; floodplains; shores of reservoirs; sandy riparian areas; recently burned areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy ground; loam ground; gravelly clay and clay ground, and bouldery silty and silty ground, occurring from 300 to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eriogonum maculatum* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 43 (032310), 44 (032113), 46 (Pages 236-237), 48 (genus), 63 (032113 - color presentation), 77, **85** (032113 - color presentation), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Eriogonum angulosum* Benth.), 124 (080711 - no record of species; genus record)*

***Eriogonum nidularium* F.V. Coville: Birdnest Buckwheat**

COMMON NAMES: Bird Nest Wild Buckwheat; Bird's Nest Buckwheat; Bird-nest Buckwheat; Bird-nest Eriogonum; Bird-nest Wild Buckwheat; Bird-nest Wild-buckwheat; Bird's-nest Buckwheat; Birdnest Buckwheat; Birdnest Wild Buckwheat; Birdnest Wild-buckwheat; Nidular Buckwheat; Whisk Broom (a name also applied to other taxa); Whisk Broom Buckwheat; Whisk-broom Buckwheat; Whisk-broom Eriogonum. DESCRIPTION: Terrestrial annual forb/herb (erect to slightly spreading stems 2 to 8 inches in height); the stems may be red; the foliage may be greenish or tawny; the flowers may be cream, cream-white, cream-yellow, cream-yellow-green, greenish-yellow, burnt orange, red, reddish, white, whitish-pink, pale yellow, pale yellow-green, yellow, yellowish or yellowish-white; flowering generally takes place between late March and mid-November (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; bouldery canyons; rocky and sandy canyon bottoms; along ridges; bedrock ridgetops; ridgelines; bouldery-gravelly, rocky, gravelly and clayey hills; rocky and rocky-gravelly hillsides; sandy bases of hills; bedrock, bouldery, rocky, rocky-cobbly-gravelly, cobbly, gravelly and sandy slopes; gravelly-sandy alluvial fans; rocky outcrops; bases of boulders; berms; gravelly-sandy plains; gravelly, sandy and clayey flats; basins; sandy valley floors; along gravelly-sandy and sandy roadsides; draws; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; sand bars; riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, rocky-cobbly-gravelly, shaley, cobbly, gravelly, gravelly-sandy and sandy ground and clay ground, occurring from 900 to 9,100 feet in elevation in the forest, woodland, desertscrub and wetland ecological formations. NOTE: *Eriogonum nidularium* is native to southwest-central North America. *5, 6, 18 (genus), 43 (032310), 44 (032113 - color photograph), 46 (Page 236), 48 (genus), 63 (032213 - color presentation), **85** (032213 - color presentation), **89** (reported as being a long-lived annual herb located on the Mesa-like Mountain Slopes)*

***Eriogonum palmerianum* J.L. Reveal: Palmer's Buckwheat**

COMMON NAMES: Palmer Buckwheat; Palmer Wild Buckwheat; Palmer Wild-buckwheat; Palmer's Buckwheat; Palmer's Wild Buckwheat; Palmer's Wild-buckwheat; Skeleton Weed (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (spreading to erect stems 2 to 20 inches in height); the stems may be gray-green, grayish or tawny; the leaves may be gray-green or greenish; the flowers may be cream-white, dull greenish-yellow, pink, pink-white, pinkish-white, pale white with a red-brown mid-stripe, white, dull white, whitish with a red mid-vein, light yellow or pale yellowish becoming pink to red: flowering generally takes place between mid-April and late November (flowering beginning as early as March has been reported). HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; mesas; plateaus; sandy-loamy bases of cliffs; bouldery and gravelly canyons; gravelly and sandy canyon bottoms; shaley slides; talus slopes; bluffs; buttes; rocky ridges; rocky ridgetops; cindery cinder cones; foothills; gravelly hills; bouldery-sandy-loamy and rocky hillsides; rocky, rocky-clayey-loamy, shaley, stony-gravelly-sandy, gravelly, gravely-sandy, gravelly-loamy, sandy and clayey slopes; alluvial fans; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; sandy benches; berms; gravelly, gravelly-sandy, sandy and sandy-silty flats; basins; valley floors; roadbeds; roadcuts; along gravelly, gravelly-loamy and sandy roadsides; along rocky arroyos; draws; gravelly-sandy bottoms of gulches; within bouldery-rocky gullies; along creeks; rocky creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along and in gravelly and sandy drainages; along (boulder-gravelly-sandy and sandy) banks of creeks, rivers, washes and drainages; (sandy) edges of washes and drainages; margins of washes; sand bars; sandy benches; gravelly and sandy terraces; bottomlands; sandy-loamy floodplains; ditches; gravelly and sandy riparian areas, and disturbed areas growing in dry bouldery-gravelly-sandy, rocky, shaley, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-sandy loam, rocky loam, rocky-clayey loam, gravelly loam, sandy loam and loam ground; sandy clay and clay ground, and sandy silty ground, occurring from 900 to 8,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eriogonum palmerianum* is native to southwest-central North America. *5, 6, 15, 18 (genus), 43 (052410), 44 (032313), 46 (incorrectly included as *Eriogonum densum* Greene, Page 236), 48 (genus), 63 (032313), 77, **85** (032313 - color presentation)*

***Eriogonum polycladon* G. Bentham: Sorrel Buckwheat**

SYNONYMY: *Eriogonum densum* E.L. Greene. COMMON NAMES: Buckwheat (a name also applied to other species and the genus *Eriogonum*); Redroot Buckwheat; Skeleton Weed (a name also applied to other species); Sorrel Buckwheat; Sorrel Eriogonum; Sorrel Wild Buckwheat; Sorrel Wild-buckwheat; Wild Buckwheat (a name also applied to other taxa and the genus *Eriogonum*). DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 inches to 4 feet in height; plants

were observed and described as being 2 to 28 inches in height and 10 inches in width); the stems may be bluish-green, gray, gray-green, grayish or whitish; the flowers may be cream, cream-pink, cream-white, pale pink, pink, pinkish, pinkish-white, red, reddish-pink, reddish-white, russet, white, dull white, white becoming pink or red, white-green-yellow or white tinged pink; flowering generally takes place between late July and mid-November (additional records: one for mid-February, one for late May, one for mid-June and one for late June; flowering year-round has also been reported). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky and gravelly-sandy-clayey-loamy mesas; rocky canyons; rocky knolls; ridges; cindery and sandy clearings and openings in forests and woodlands; meadows; foothills; sandy hills; hillsides; rocky, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; gravelly-sandy bajadas; cindery lava flows; prairies; cindery, gravelly, gravelly-sandy and sandy flats; basins; gravelly-sandy valley floors; cobbly-gravelly, gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey roadsides; along sandy arroyos; sandy bottoms of arroyos; within sandy-loamy draws; gulches; bottoms of gullies; within sandy ravines; springs; along streambeds; along creeks; along and in rocky-sandy creekbeds; bouldery-cobbly-sandy riverbeds; along and in gravelly, gravelly-sandy, sandy and clayey washes; sandy drainages; gravelly drainage ways; ciénegas; (sandy) banks of arroyos, creeks and washes; (rocky-sandy) shores of lakes; sand bars; sandy benches; gravelly-sandy and sandy terraces; gravelly and sandy bottomlands; sandy and silty floodplains; margins of wet lowlands; around stock tanks; ditches; sandy riparian areas, and disturbed areas growing in dry bouldery-cobbly-sandy, rocky, rocky-sandy, cobbly-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, gravelly loam and sandy loam ground; bouldery clay and clay ground, and silty ground, occurring from 600 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eriogonum polycladon* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (072609), 44 (032313), 46 (*Eriogonum densum* Greene, Page 236 and *Eriogonum polycladon* Benth., Page 236), 48 (genus), 58, 63 (032313), **77**, **85** (032313 - color presentation), 115 (color presentation), 124 (080711), 140 (Page 302)*

Eriogonum thurberi J. Torrey: Thurber's Buckwheat

COMMON NAMES: Skeleton Weed (a name also applied to other taxa); Thurber Buckwheat; Thurber Eriogonum; Thurber Wild Buckwheat; Thurber Wild-buckwheat; Thurber's Buckwheat; Thurber's Eriogonum; Thurber's Wild Buckwheat; Thurber's Wild-buckwheat. DESCRIPTION: Terrestrial annual forb/herb (spreading stems 2 to 16 inches in height); the foliage may be greenish, grayish or reddish; the flowers may be cream, light pink, light pink-rosy, pink, dark pink, pink-red, pink-rosy, pink & white, reddish, white, white-pink or whitish-greenish-reddish; flowering generally takes place between late March and early July (additional records: one for early March, two for late July, one for early August, one for late August and one for mid-November; year-round flowering has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; canyons; sandy canyon bottoms; openings in chaparral and grasslands; meadows; foothills; hills; hillsides; rocky, gravelly, sandy and sandy-loamy slopes; bouldery-stony-gravelly-sandy, rocky-sandy and gravelly-sandy alluvial fans; bajadas; sand hills; sand dunes; blow-sand deposits; gravelly-sandy plains; gravelly and sandy flats; sandy valley floors; along gravelly roadsides; along streams; along rivers; sandy riverbeds; along and in sandy washes; in drainages; blow-out areas; banks of washes; sand bars; sandy benches; sandy riparian areas; recently burned areas in chaparral, and disturbed areas growing in dry bouldery, bouldery-stony-gravelly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and sandy loam ground, occurring from 300 to 4,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Thurber Buckwheat is a larval host plant of the Acmon Blue Butterfly (*Icaricia acmon*). *Eriogonum thurberi* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (032310), 44 (032313), 46 (Page 239), 48 (genus), 58, 63 (032313), **77**, **85** (032413 - color presentation), 124 (112010 - no record of species, genus record), 140 (Pages 221 & 302)*

Eriogonum trichopes J. Torrey (var. *trichopes* is the variety reported as occurring in Arizona): Little Deserttrumpet

COMMON NAMES: Hoover's Deserttrumpet (var. *hooveri*); Little Desert Buckwheat; Little Desert Trumpet; Little Desert Trumpet Buckwheat; Little Desert-trumpet; Little Desert-trumpet Buckwheat; Little Deserttrumpet; Little Trumpet; Little-trumpet; Skeleton Weed (a name also applied to other taxa); Tanglefoot Buckwheat; Yellow Trumpet (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb (spreading to somewhat erect stems 2 to 40 inches in height); the stems are olive-green; the foliage may be bright green or yellow-green; the small flowers are cream-yellow, greenish-yellow, dull greenish-yellow, pale yellow, yellow, yellowish, yellow-green or yellowish-green; flowering generally takes place between mid-February and late October (additional records: one for mid-November and one for late November; flowering year-round has been reported). HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; cliffs; bases of cliffs; clayey canyons; mud-stone knolls; rocky ledges; along rocky ridges; gravelly ridgetops; foothills; rocky, rocky-sandy, sandy and sandy-clayey hills; hilltops; gravelly and sandy-clayey hillsides; bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, gravelly, gravelly-pebbly-silty-loamy, gravelly-sandy, sandy, clayey and silty slopes; gravelly-sandy and sandy alluvial fans; gravelly and gravelly-sandy-clayey bajadas; rocky outcrops; sandy lava flows; sand hills; sandy mounds; sand dunes and inter-dune troughs; gravelly breaks; rocky and gravelly-sandy plains; rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-clayey, sandy-silty, clayey and silty flats; basin bottoms; gravelly, gravelly-sandy, sandy and silty valley floors; sandy and silty valley bottoms; along gravelly, gravelly-sandy-clayey-loamy, sandy and sandy-clayey-loamy roadsides; within arroyos; gulches; within rocky gullies; rocky streambeds; creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-clayey, sandy and clayey washes; along gravelly drainages; swales; (rocky and gravelly-sandy) banks of streams and washes; edges of washes; (sandy) margins of washes; gravelly-sand bars; terraces;

sandy bottomlands; sandy floodplains; lowlands; sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-pebbly-silty loam gravelly-sandy-clayey loam, gravelly-clayey loam, gravelly-silty loam, sandy-clayey loam and loam ground; gravelly clay, gravelly-sandy clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 5,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: *Eriogonum trichopodum* G. Bentham is an error of record for *Eriogonum trichopes* J. Torrey). *Eriogonum trichopes* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (032310), 44 (032413), 46 (Page 238), 48 (genus), 58, 63 (032413 - color presentation), **77**, **85** (032513 - color presentation), **89** (reported as being a long-lived annual herb located on the Mesa-like Mountain Slopes, recorded as *Eriogonum trichopodum* Torr.), 124 (112010 - no record of species, genus record)*

Eriogonum trichopodum (see general notes and footnote 89 under *Eriogonum trichopes*)

Persicaria lapathifolia (see *Polygonum lapathifolium*)

Polygonum argyrocoleon **E.G. von Steudel ex G. Kunze: Silversheath Knotweed**

COMMON NAMES: Canutillo (Spanish); Erva-de-bicho (Portuguese); Ghardab (Arabic); Leafless Knotweed; Persian Knotgrass; Persian Knotweed; Persian Wireweed; Silversheath; Silver Sheath Knotweed; Silver-leaved Knotweed; Silver-sheath Knotweed; Silver-sheath Smartweed; Silver-sheathed Knotweed; Silversheath Knotweed; Silversheath Smartweed; Zhou Bian Xu (transcribed Chinese). DESCRIPTION: Terrestrial annual forb/herb (sprawling prostrate, decumbent and/or erect stems 6 to 40 inches in height/length); the stems may be reddish; the flowers may be green, pink or white and usually tinged with with pink, red (rarely), rose or white; flowering generally takes place between early February and mid-October (additional records: two for mid-January and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy-silty mesas; rocky canyons; meadows; foothills; clayey-loamy hills; rocky hillsides; sandy and sandy-silty slopes; hummocks; plains; clayey flats; valley floors; coastal prairies; along sandy, clayey and silty-clayey roadsides; arroyos; draws; bottoms of draws; seeps; streams; along rivers; silty riverbeds; along and in gravelly-sandy-silty and sandy washes; within drainages; playas; clayey freshwater marshes; swampy areas; loamy-clayey depressions; sinks; banks of streams; (silty-clayey) edges of washes and dry lakes; margins of lakes; (muddy) shores of creeks; sand bars; bottomlands; silty-clayey floodplains; lowlands; edges of stock tanks (charcos and represos); along sandy-clayey canal banks; within ditches; ditch banks; riparian areas; waste places, and disturbed areas growing in muddy and moist, damp and dry rocky and sandy ground; sandy loam, clay loam and silty loam ground; sandy clay, loamy clay, silty clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from below sea level to 11,000 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was also noted as having been used for food. Mourning Doves (*Zenaida macroura*) reportedly feed on the seeds. *Polygonum argyrocoleon* is native to eastern Europe and western and central Asia. *5, 6, 43 (032310 - *Polygonum argyrocoleon* Steud. ex Kunze), 44 (032513), 46 (Page 247), **56**, **57**, 63 (032513), 68, 80 (Species of the genus *Polygonum* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These forbs cause skin irritation and gastritis and are suspected of causing nitrate poisoning and photosensitization in livestock."), **85** (032513 - color presentation), 101 (color photograph with comparison to Prostrate Knotweed, *Polygonum aviculare*), 127*

Polygonum aviculare **C. Linnaeus: Prostrate Knotweed**

COMMON NAME: All-seed; Allseed Nine-joints; American Knotweed (*Polygonum aviculare* var. *littorale* - Not Accepted; *Polygonum aviculare* subsp. *buxiforme* - Accepted); Armstrong; Barnyard Knotweed; Beggar Weed; Beggar-weed; Beggarweed; Bian Xu (transcribed Chinese); Bird Grass; Bird Knot-grass; Bird Weed; Bird-grass; Bird-weed; Bird's Grass; Bird's Knot-grass; Bird's Lake-weed; Bird's Tongue; Bird's-tongue; Birdweed; Box Knotweed (*Polygonum aviculare* var. *littorale* - Not Accepted; *Polygonum aviculare* subsp. *buxiforme* - Accepted); Centinode; Centynody; Chivalry Grass; Chivalry-grass; Chivalrygrass; Common Knotweed (subsp. *aviculare*); Cow Grass; Cow-grass; Crab Grass; Crab Weed; Crab-grass; Crab-weed; Dishwater-grass; Dog-tail's (St. Joseph, Missouri); Door Grass (southern Indiana); Door Weed; Door-grass (southern Indiana); Door-weed; Door-yard Grass (South Dakota); Doorweed; Dooryard Grass (South Dakota); Dooryard Knotweed (Iowa); English Knotgrass; Erect Knotweed (*Polygonum aviculare* var. *erectum* - Not Accepted; *Polygonum erectum* - Accepted); Erva-de-bicho-dos-passarinhos (Portuguese: Brazil); Finzach; Goose Grass; Goose-grass; Gorlec (transliterated Russian); Gusjatnica (transliterated Russian); Hog Weed; Hog-weed; Iron Grass; Iron-grass; Knot Grass; Knot-grass; Knot-weed; Knot-word; Knotgrass, Knotweed; Knotwort; Male Knot-grass; Male Knotgrass; Mantil; Narrow-leaf Knotweed (subsp. *neglectum*); Narrowleaf Knotweed (*Polygonum aviculare* var. *angustissimum* - Not Accepted; *Polygonum aviculare* var. *rurivagum* - Accepted); Nine-joints; Ninety Knot; Ninety-knot; Northern Knotweed (subsp. *boreale*); Oval-leaf Knotweed (*Polygonum aviculare* var. *arenastrum* - Not Accepted; *Polygonum aviculare* subsp. *depressum* - Accepted); Pigrush; Pink Weed; Pink-weed; Pinkweed; Prostrate Doorweed; Prostrate Knot Weed; Prostrate Knot-weed; Prostrate Knotgrass; Prostrate Knotweed; Prostrate Smartweed; Prostrate Wiregrass; Renouée Négligée (subsp. *neglectum*); Renouée des Oiseaux (French); Renouee Vulgaire (French); Road-spread; Sempre-noiva-dos-passarinhos (Portuguese: Brazil); Sparrow Tongue; Sparrow-tongue; Sparrow's-tongue; Sporyš Ptičij (transliterated Russian); Stone Weed; Stone-weed; Stoneweed; Swine Grass; Swine-grass; Swine's-grass; Swines-grass; Swines' Grass; Swynel Grass; Tacker Grass; Tacker-grass; Tackergrass; Way Grass; Way-grass; Waygrass;

Wire Grass (northern Ohio, misapplied); Wire Weed; Wire-grass (northern Ohio, misapplied); Wire-weed; Wireweed; Yard Knotweed; Yardgrass (South Dakota). DESCRIPTION: Terrestrial annual or perennial forb/herb (spreading prostrate, decumbent, ascending and/or erect stems 2 inches to 6½ feet in length); the foliage may be bluish-green or green; the inconspicuous flowers may be green, green-pink, green-white, greenish, greenish-white, pink, dark pink, pinkish-white, purple-red, reddish-brown with white, pink or red margins, reddish-pink, white or white-pink; flowering generally takes place between late March and late October (additional records: one for early January, one for late January, one for mid-February, two for early March, two for early December, one for mid-December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; gravelly-loamy mountainsides; cindery mesas; plateaus; bases of cliffs; rocky canyons; bouldery-gravelly-sandy, rocky, rocky-sandy and sandy canyon bottoms; along bluffs; rocky buttes; rocky and clayey meadows; cinder cones; bases of cinder cones; crater bottoms; bouldery foothills; rocky hills; hilltops; hillsides; bedrock, bouldery, rocky, cobbly-loamy, sandy-silty, clayey and silty slopes; bedrock outcrops; steppes; prairies; rocky plains; gravelly, sandy, clayey and clayey-silty-loamy flats; rocky uplands; basins; valley floors; coastal dunes; coastal prairies; coastal plains; along railroad right-of-ways; gravelly-sandy-loamy and clayey roadbeds; silty-clayey roadcuts; along gravelly-loamy, sandy and silty roadsides; within clayey arroyos; draws; gulches; gullies; bottoms of gullies; seeps; springs; in sand along streams; sandy and loamy-clayey streambeds; along creeks; sandy creekbeds; along rivers; bouldery-cobbly-sandy, bouldery-sandy, rocky-cobbly-sandy and rocky-sandy riverbeds; along and in stony-sandy-silty, gravelly, gravelly-loamy, sandy and clayey-loamy washes; along and in clayey-loamy drainages; around ponds; around lakes; silty lakebeds; bogs; freshwater and saltwater marshes; depressions; sinks; (sandy, sandy-silty and loamy) banks of streams, creeks, rivers and ponds; (sandy and clayey) edges of seeps, creeks, ponds, lakes, lagoons and depressions; margins of seeps, streams, ponds and lakes; shores of lakes; areas of drawdown; mudflats; sand bars; rocky and sandy-clayey beaches; sandy benches; bottomlands; floodplains; mesquite bosques; stock tank dams; around and in clayey catch basins; gravelly-clayey banks of stock tanks (charcos); loamy-clayey banks and shores of reservoirs; along canal banks; along ditches; along ditch banks; gravelly-sandy-loamy and sandy riparian areas; clayey-loamy waste places; recently burned areas in forests, and disturbed areas growing in shallow water; mucky, and wet, moist, damp and dry bouldery, bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, stony, cobbly-pebbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; cobbly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, clayey-silty loam and loam ground; gravelly clay, sandy clay, loamy clay, silty clay and clay ground, and rocky silty, stony-sandy silty, sandy silty and silty ground, occurring from sea level to 11,700 feet, in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The origin of *Polygonum aviculare* is unknown; however, it has been reported as being native to Europe and Asia. *5, 6, 15, 42 (041013), 43 (032410), 44 (031311), 46 (Page 247), 58, 63 (032613 - color presentation), 68, 80 (Species of the genus *Polygonum* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “These forbs cause skin irritation and gastritis and are suspected of causing nitrate poisoning and photosensitization in livestock.”), **85** (032613 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb, recorded as *Polygonum aviculare* L. var. *littorale* (Link) Koch.), 101 (color photograph with comparison to Silversheath Knotweed, *Polygonum argyrocoleon*), 124 (031311), 127*

Polygonum aviculare var. *littorale* (see footnote 89 under *Polygonum aviculare*)

***Polygonum lapathifolium* C. Linnaeus: Curlytop Knotweed**

SYNONYMY: *Persicaria lapathifolia* (C. Linnaeus) A. Gray. COMMON NAMES: Ampfer-Knöterich (German); Bulbous Persicaria; Curl-top Lady’s-thumb; Curl-top Smartweed; Curl-topped Lady’s Thumb; Curltop Lady’s Thumb; Curltop Ladysthumb; Curltop Ladysthumb Smartweed; Curltop Smartweed; Curly Top Lady’s Thumb; Curly-top Knotweed; Curly-top Lady’s-thumb; Curly-top Smartweed; Curlytop Buckwheat; Curlytop Knot-weed; Curlytop Knotweed; Curlytop Ladysthumb; Curlytop Smartweed; Dock Leaf Smartweed; Dock Leaved Knotweed; Dock Leaved Persicaria; Dock Leaved Polygonum; Dock Leaved Smartweed; Dock-leaf Persicaria; Dock-leaf Knotweed; Dock-leaf Smartweed; Dock-leafed Knotweed; Dock-leaved Heart’s-ease; Dock-leaved Persicaria; Dock-leaved Polygonum; Dock-leaved Smart-weed; Dock-leaved Smartweed; Dockleaf Knotweed; Dockleaf Smartweed; Erva-de-bicho-pruinosa (Portuguese: Brazil); Green Smartweed; Heart’s Ease (a name also applied to other species, Iowa and a name also applied to the genus *Polygonum* in Erie County, Pennsylvania); Heart’s-ease (a name also applied to other species, Iowa and a name also applied to the genus *Polygonum* in Erie County, Pennsylvania); Heartsease (a name also applied to other species, Iowa and a name also applied to the genus *Polygonum* in Erie County, Pennsylvania); Jointweed (Denver, Colorado); Knodding Knotweed; Knodding Smartweed; Knotted Persicaria; Knudet Pileurt (Danish); Ladysthumb; Ma Liao (transcribed Chinese); Nodding Smartweed (a name also applied to other species, Iowa); Pale Heart’s Ease; Pale Knotweed; Pale Persicaria; Pale Red Persicaria; Pale Polygonum; Pale Smartweed; Pale Willow Weed; Pale Willow-weed; Pale Willowweed; Persicaria major lapathi foliis calyce floris purpureo; Pink Nodding Smartweed (Iowa); Pink Persicaria (a name also applied to other species, Iowa); Pink Smartweed (a name also applied to other species, Iowa); Poligono Nodoso (Italian); Renouée à Feuilles de Patience (French); Rough Heartsease; Smart Weed (a name also applied to other species and the genus *Polygonum*); Smart-weed (a name also applied to other species and the genus *Polygonum*); Smartweed (a name also applied to other species and the genus *Polygonum*); Upland Heart’s-ease (Nebraska); Upland Heartsease (Nebraska); Willow Knotweed; Willow Smartweed (a name also applied to other species); Willow-knotweed; Woolly Smartweed. DESCRIPTION: Terrestrial (and/or semi-aquatic) annual forb/herb (ascending and/or erect stems 2 inches to 6½ feet inches in height); the flowers may be cream-pink, greenish-white, pale pink, pink, pink-white, white or white-pink; the anthers may be pink or red; flowering

generally takes place between mid-April and early December. HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; cliffs; rocky and sandy canyons; bouldery-gravelly-sandy, rocky, gravelly-sandy and sandy canyon bottoms; crevices in rocks; loamy and silty-loamy meadows; foothills; rocky-sandy hillsides; mucky, rocky, sandy, loamy, clayey and silty slopes; bouldery-stony-gravelly-sandy alluvial fans, amongst rocks; rocky prairies; uplands; muddy, sandy, sandy-loamy and silty flats; basins; valley floors; coastal plains; railroad beds; along roadsides; arroyos; sandy bottoms of arroyos; draws; gulches; gullies; bottoms of ravines; along sandy seeps; along springs; along and in streams; along and in streambeds; in mud and gravel along and in creeks; along rocky, gravelly-sandy and loamy creekbeds; along rivers; along and in rocky, rocky-sandy, rocky-clayey, cobbly, sandy, sandy-clayey and silty-clayey riverbeds; in rocky and sandy washes; along and in silty-clayey and clayey drainages; along waterways; in pools; along ponds; gravelly pondbeds; along and in lakes; muddy lakebeds; ciénegas; (loamy) freshwater and saltwater marshes; swampy areas; sloughs; swales; along (muddy, muddy-rocky, muddy-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-clayey and clayey) banks of streams, streambeds; creeks, rivers, riverbeds, ponds and lakes; (sandy, sandy-loamy and clayey) edges of springs, streams, creeks, rivers, pools, ponds, lakes and marshes; along (mucky, muddy and cobbly) margins of streams, creeks, pools, ponds and lakes; along (muddy and sandy) shorelines of ponds and lakes; areas of drawdown; mudflats; on draw-down mud; rocky-sand, stony-sand, gravel, gravelly-sand, sand and sandy-clay bars; gravelly-sandy and sandy beaches; benches; rocky fords; hummocks; oxbows; sandy terraces; muddy, rocky, rocky-clayey, sandy-clayey, loamy and clayey bottomlands; cobbly, gravelly, gravelly-sandy, sandy and silty floodplains; on dams; banks of stock tanks; along rocky-muddy and clayey edges, margins and shorelines of reservoirs; along canals; along canal banks; along and in muddy ditches; clayey-loamy ditch banks; muddy, cobbly, gravelly-loamy, sandy and clayey riparian areas; waste places, and disturbed areas growing in shallow water; mucky; muddy, and wet, moist, damp and dry (seasonally wet) rimrock pavement; bouldery-stony-gravelly-sandy, bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 10,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Polygonum lapathifolium* is native to Europe and coastal islands in the North Atlantic Ocean; Asia and islands in the Indian Ocean and coastal islands in the North Pacific Ocean, and northern Africa and islands in the North Atlantic Ocean; however, the exact native range is obscure. *5, 6, 43 (080711 - *Persicaria lapathifolia* (L.) Gray), 44 (080711 - recorded as *Persicaria lapathifolia* L.), 46 (Page 248), 58, 63 (032713 - color presentation), 80 (Species of the genus *Polygonum* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These forbs cause skin irritation and gastritis and are suspected of causing nitrate poisoning and photosensitization in livestock."), **85** (033013 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (color photograph, 124 (080711), 127*

Rumex berlandieri (see *Rumex chrysocarpus*)

***Rumex chrysocarpus* (*chrysocarpos* spelling also noted) G.G. Moris: Amamastla**

SYNONYMY: *Rumex berlandieri* C.D. Meisner. COMMON NAME: Amamastla; Amamastla Dock. DESCRIPTION: Terrestrial perennial forb/herb (ascending and/or erect stems 16 to 32 inches in height); the leaves are deep olive-green; flowering generally takes place between spring and summer. HABITAT: Within the range of this species it has been reported from prairies; coastal plains; marshes; swamps; shores, and ditches growing in dry sandy ground; loam ground, and clay ground, occurring from sea level to 700 feet in elevation in the wetland ecological formation. NOTES: EXOTIC Plant. This plant was most likely misidentified. This plant is not known to occur in Arizona. It has not been reported from Arizona except for its inclusion in the 1909 J.J. Thornber Listing for Tumamoc Hill. *Rumex chrysocarpus* is native to south-central (Louisiana and Texas) and southern North America. *5, 6, 43 (033013 - *Rumex chrysocarpos* Moris), 44 (033013 - no record of species; genus record), 46 (no record of this species), 63 (033013), 80 (Species of the genus Rumex are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Poisoning by oxalates in these forbs has been reported in other countries but not in the United States. Plants also accumulate toxic levels of nitrate."), 85 (033013 - no record of species), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Rumex berlandieri* Meisner), 95 (possibly referring to *Rumex romossa* Remey ex A. Gray which occurs from southern Mexico to Argentina, Personal Communication 052206)*

***Rumex crispus* C. Linnaeus (subsp. *crispus* is the subspecies reported as occurring in Arizona): Curly Dock**

COMMON NAMES: Aingappawaia (Uto-Aztecan: Shoshoni)[140]; Coffee-weed (a name also applied to other species); Coffeeweed (a name also applied to other species); Common Curled Dock; Curl Dock; Curl Leaved Dock; Curled Dock; Curled Leaf Dock; Curled Leafed Dock; Curled Leaved Dock; Curley Dock; Curly Dock; Curly Leaf Dock; Curly Leafed Dock; Curly Leafed Dock Sorrel; Curly Leaved Dock; Curl-leaf Dock; Curl-leafed Dock; Curled-leafed Dock; Curley-leaf Dock; Curly-leaf Dock; Curled-leaved Dock; Curly-leafed Dock; Curly-leafed Dock Sorrel; Curl-leaved Dock; Curly-leaf Dock; Curly-leafed Dock; Curly-leaved Dock; Curlyleaf Dock; Dock (a name also applied to other species and to the genus *Rumex*); Eviloriva (Tarahumara); Garden Patience (a name also applied to other species); Ginoje'wûkûn ("Pike Plant", Chippewa); Indian Tobacco; ɬtsākān^{va} (Uto-Aztecan: Northern Paiute)[140]; Ketamba Aukasiri (Purépecha); Krauser Ampfer (German); Krultongblaar (Afrikaans); Krusskräppa (Swedish); Kwimi Shipba ("Root Sour", Zuni); Labaça-crespa (Portuguese: Brazil); Labaça-selvagem (Portuguese: Brazil); Lengua de Vaca (Hispanic); Lingua-de-vaca (Portuguese: Brazil); Narrow Dock; Narrowdock; Narrowleaf Dock (a name also applied to other species); Out-sting; Oza'widji'bik ("Yellow Root", Chippewa); Paciência (Portuguese:

Brazil); Patience Crépue (French); Patience Friseé (French); Reguette (French); Romice Conglomerato (Italian); Rumex (a name also applied to other species and to the genus *Rumex*); Rumex Crépu (French); Sharp Pointed Dock; Sharp-point Dock; Sharp-pointed Dock; Shiakipi (Dakota); Sour Dock (misapplied, a name also applied to other species and to the genus *Rumex*); Weeblaar (Afrikaans); Winter Dock; Yaller Dock; Yellow Dock (a name also applied to other species); Yellowed Tail; Zhou Ye Suan Mo (transcribed Chinese). DESCRIPTION: Terrestrial (or semi-aquatic) perennial forb/herb (erect stems 14 inches to 6 feet in height); the flowers are green, green-yellow or yellowish-green becoming rosy to reddish-brown; flowering generally takes place between early February and mid-October (additional records: one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; gravelly-loamy mesas; cliffs; bases of cliffs; rocky canyons; along canyonsides; bouldery-gravelly-sandy and rocky canyon bottoms; talus slopes; bluffs; knolls; ledges; shaley ridges; gravelly ridgetops; stony, sandy, sandy-loamy, loamy and clayey meadows; foothills; clayey-loamy hills; rocky hillsides; rocky, rocky-sandy, rocky-loamy, rocky-loamy-clayey, gravelly, gravelly-silty-loamy, sandy, sandy-loamy, sandy-clayey-loamy, sandy-silty, loamy, clayey and clayey-loamy slopes; rocky outcrops; amongst rocks; bases of boulders; sand dunes; clayey shelves; prairies; sandy plains; uplands; rocky, cobbly-loam, gravelly, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, clayey, clayey-loamy and loamy flats; uplands; basins; valley floors; valley bottoms; coastal prairies; coastal plains; along sandy railroad right-of-ways; roadcuts; sandy roadbeds; along rocky-sandy, gravelly, gravelly-sandy and clayey roadsides; arroyos; within loamy and loamy-clayey draws; bottoms of draws; within gulches; gullies; within ravines; seeps; seepbeds; around springs; rocky and sandy soils along and in streams; along rocky and sandy streambeds; rocks, sand and clay along and in creeks; along and in muddy and rocky-sandy creekbeds; in sand along rivers; rocky-cobbly-sandy riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; along and in rocky, sandy-loamy and clayey-loamy drainages; along waterways; around and in pools; vernal pools; around and in ponds; vernal ponds; around and in lakes; silty lakebeds; sandy-loamy playas; boggy areas; ciénegas; freshwater and saltwater marshes; swamps; depressions; sloughs; along (muddy, rocky, gravelly, gravelly-sandy, sandy and loamy) banks of springs, streams, creeks, rivers, drainages and ponds; borders of washes and pools; along (rocky, stony and clayey) edges of streams, creeks, rivers, vernal pools, ponds, lakes and marshes; along (rocky and sandy) margins of creeks, creekbeds, pools, ponds and lakes; (muddy, muddy-rocky, gravelly-sandy and sandy) shorelines of rivers, ponds and lakes; mudflats; gravel, gravelly-sand and sand bars; rocky, gravelly-sandy and sandy beaches; cobbly-sandy and sandy benches; coves; moist hummock fields; gravelly-sandy and sandy-loamy terraces; bottomlands; mucky-clayey, rocky-sandy-clayey, stony, cobbly, gravelly, gravelly-sandy, clayey and silty floodplains; sandy-clayey lowlands; along fencelines; dams; around stock tanks; shores of reservoirs; along canals; along and in sandy ditches; along ditch banks; muddy, rocky, gravelly, sandy and clayey riparian areas; waste places, and disturbed areas growing in shallow water; mucky; muddy, and wet, moist, damp and dry (usually seasonally wet) rimrock pavement; bouldery-gravelly-sandy, rocky, rocky-stony-sandy, rocky-cobbly-sandy, rocky-sandy, shaley, shaley-sandy, stony, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, cobbly loam, gravelly loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky-sandy clay, rocky-loamy clay, gravelly-sandy clay, sandy clay, loamy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 10,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as a dye (yellow) and widely used as a drug or medication. *Rumex crispu*s is native to Europe and coastal islands in the North Atlantic Ocean and Mediterranean Sea; Asia and coastal islands in the North Pacific Ocean, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, 28 (color photograph), 30, 43 (032410), 44 (080911), 46 (Page 245), **56**, **57**, 58, 63 (040213 - color presentation), 68, 80 (Species of the genus Rumex are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “Poisoning by oxalates in these forbs has been reported in other countries but not in the United States. Plants also accumulate toxic levels of nitrate.”), 85 (040213 - color presentation), **89** (reported under Miscellaneous Introduced Species as being a perennial herb), 101 (color photograph), 124 (080911), 127, 140 (Page 224)*

***Rumex hymenosepalus* J. Torrey: Canaigre Dock**

COMMON NAMES: Abanal (Uto-Aztecan: Tübatulabal)[140]; Alaqpɬi (Chumash: Ventureño Chumash)[140]; Akyés (Yuman: Maricopa, Yuma)[140]; Akyésa (Yuman: Mohave)[140]; Arizona Dock (a name also applied to other species); ‘Asdzą́ą́ Nádleehébishéé <ʔasʒą́ná-ehébižéʔ> (Athapascan: Navajo)[140]; Avaanarɬbɬ (Uto-Aztecan: Kawaiisu)[140]; Cañagria (Spanish)[140]; Canaigre; Canaigre Dock; Chaad’iniih <chaat’inii, ča’t’íní, tchąat’iniih> (Athapascan: Navajo)[140]; Ch’ilt’ozhé <jiɬ dozhe> (Athapascan: Western Apache)[140]; Conaigre; Desert Ginseng; Desert Rhubarb; Dock (a name also applied to the genus *Rumex*); Ganagra; Cañagria (Spanish); Gerbampfer (German); Hierba Colorada (“Red Herb”, Spanish: Baja California, Sonora)[140]; Hierba de la Mula (“Mule Herb”, Spanish: Coahuila)[140]; Kahts-pirakari (or Kahts-pilakari “medicine with many children”, Pawnee); Ki:š <kíš> (Yuman: Cocopa)[140]; Maalval (Uto-Aztecan: Cahuilla)[140], Pawai (Uto-Aztecan: Northern Paiute)[140]; Raíz Colorada (“Red Root”, Spanish: Sonora)[140]; Raíz del Indio (“Indian Root”, Spanish: Chihuahua, Coahuila)[140]; Red Desert Ginseng; Red Dock (a name also applied to other species); Sand Dock (a name also applied to other species); Sayávi (Uto-Aztecan: Hopi)[140]; Sha’w (Chumash: Barbareño Chumash, Ineseño Chumash)[140]; Sivijlt (Pima); Sivijuls (Uto-Aztecan: Akimel O’odham)[140]; Siwidculis <s-hiwiculs, siwidculs> (Uto-Aztecan: Tohono O’odham)[140]; Sorrel (a name also applied to other species and the genus *Rumex*); Tanner’s Dock; Tanners Dock; Thi’hach (Yuman: Walapai)[140]; Tjiłt’oo’íh <jilt’o’í, jil’t’o’í> (Athapascan: Navajo)[140]; Wakondam (Uto-Aztecan: Tohono O’odham)[140]; Wild Pie Plant (a name also applied to other species); Wild Pie-plant; Wild Red Desert Ginseng; Wild Rhubarb (a name also applied to other species); Wild-rhubarb (a name also applied to other species). DESCRIPTION: Terrestrial perennial forb/herb (ascending (rarely) and/or erect stems 10 to 52 inches in height; one plant was observed and described as being 40 inches in height and 40 inches in width); the leaves are gray-green or dark green; the flowers

may be green, greenish, greenish-purple, greenish-red, pale pink, pink, pinkish, pinkish-green or yellow; flowering generally takes place between mid-February and late June (additional records: two for mid-July, one for early August and one for late September); the winged seed capsules are pinkish or reddish. HABITAT: Within the range of this species it has been reported from mountains; shaley mountaintops; pebbly-sandy-silty and sandy mesas; hanging gardens; sandy canyons; along rocky, gravelly-sandy-loamy and sandy canyon bottoms; crevices in rocks; gravelly, sandy and clayey ridgetops; edges of meadows; gravelly and sandy hills; along rocky, stony-cobbly-clayey, sandy and sandy-clayey hillsides; sandy bases of escarpments; bouldery-rocky-gravelly, rocky, shaley-clayey, sandy, sandy-loamy, sandy-silty, loamy, clayey, silty and silty-clayey slopes; rocky-sandy and sandy alluvial fans; bajadas; clayey outcrops; amongst rocks; sandy lava flows; sand dunes; deposits of wind-blown sand; sandy hummocks; plains; rocky, shaley-clayey, gravelly-loamy, sandy and clayey flats; basin bottoms; sandy valley floors; sandy valley bottoms; along sandy roadsides; along sandy arroyos; bottoms of arroyos; grassy draws; springs; along rocky-sandy, gravelly-sandy and sandy streambeds; along creeks; sandy creekbeds; along rivers; along sandy and silty riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and clayey washes; sandy drainages; stagnant pools; along (gravelly-sandy and sandy) banks of streams, creeks, rivers and washes; borders of washes; (sandy) edges of streams; sand bars; sandy benches; cobbly-sandy terraces; sandy bottomlands; floodplains; mesquite bosques; edges of stock tanks; sandy culverts; ditches; ditch banks; sandy riparian areas, and disturbed areas growing in dry bouldery-rocky-gravelly, rocky, rocky-sandy, shaley, cobbly-sandy, gravelly, gravelly-pebbly-sandy, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam and loam ground; shaley clay, stony-cobbly clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 9,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or dye (brown, gold, green, orange and red) crop; it was also noted as having been used as a tool and/or as a drug or medication. *Rumex hymenosepalus* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 802), 43 (032510), 44 (081211), 46 (Page 245), 48, 58, 63 (040213 - color presentation), 68, 80 (Species of the genus Rumex are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Poisoning by oxalates in these forbs has been reported in other countries but not in the United States. Plants also accumulate toxic levels of nitrate."), **85** (040213 - color presentation), 86 (note), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 115 (color presentation), 124 (081211), 127, 140 (Pages 223-225 & 302)*

Rumex romossa (see footnote 95 under *Rumex chrysocarpus*)

Portulacaceae: The Purselane Family

***Calandrinia ciliata* (H.R. López & J.A. Pavón) A.P. de Candolle: Fringed Redmaids**

SYNONYMY: *Calandrinia ciliata* (H.R. López & J.A. Pavón) A.P. de Candolle var. *menziesii* (W.J. Hooker) J.F. Macbride. COMMON NAMES: Ciliate Red Maids; Ciliate Red-maids; Ciliate Redmaids; Common Red Maids; Common Red-maids; Common Redmaids; Desert Rock Purslane (possibly an error, a name also applied to other species); Desert Rockpurslane (possibly an error, a name also applied to other species); Fringed Red Maid; Fringed Red Maids; Fringed Red-maid; Fringed Red-maids; Fringed Redmaid; Fringed Redmaids; Magenta Red Maid; Magenta Red Maids; Magenta Red-maid; Magenta Red-maids; Magenta Redmaids; Menzie's Red-maids (var. *menziesii*); Menzies Red-maids (var. *menziesii*); Menzies' Red-maids (var. *menziesii*); Red Maids (a name also applied to the genus *Calandrinia*); Red-maids (a name also applied to the genus *Calandrinia*); Redmaids (a name also applied to the genus *Calandrinia*); Rock Purslane (a name also applied to the genus *Calandrinia*). DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate, decumbent, ascending and/or erect stems 1 to 18 inches in height/length); the leaves are green; the flowers (to ½ inch in width) may be blue-purple, magenta, magenta-pink, magenta-purple, bright pink, pink, deep pink, deep pink-maroon, pink-magenta, pink-maroon, pink-purple, deep pink-purple, pink-red, purple, purple-pink, purplish-pink, red, deep red, deep red-purple, red-pink, reddish-pink, reddish-purple, reddish-violet, rose, rose-red, violet, violet-purple, white or white-purple; flowering generally takes place between mid-January and late May (additional records: two for early September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; along rocky canyons; rocky and sandy-loamy canyon bottoms; chasms; crevices in rocks; along rims of bluffs; bouldery knobs; ridges; ridgetops; rocky-sandy and sandy meadows; sandy and clayey foothills; bouldery and rocky, rocky-clayey-loamy and loamy hills; rocky-loamy hilltops; rocky and clayey hillsides; bouldery, bouldery-rocky-clayey, bouldery-gravelly, rocky, rocky-loamy-clayey, rocky-clayey, stony, gravelly, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, clayey and clayey-loamy slopes; bajadas; amongst rocks; sandy alluvial fans; sand dunes; sandy plains; gravelly, sandy, clayey and silty flats; basins; hollows; valley floors; loamy and clayey-loamy valley bottoms; roadbeds; along clayey-loamy roadsides; dirt tracks; bedrock and sandy arroyos; along sandy bottoms of arroyos; along draws; gulches; gullies; seeps; around seeping streams; in gravelly, gravelly-loamy, sandy and loamy soils along streams; streambeds; along creeks; bouldery-rocky, rocky-sandy and sandy creekbeds; rocky-sandy and sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; around clayey pools; silty-clayey poolbeds; muddy and loamy-clayey depressions; swales; (rocky) banks of streams, creeks and rivers; along (clayey) edges of streams and ponds; margins of vernal marshes and pools; mudflats; terraces; rocky-sandy and sandy bottomlands; sandy-silty floodplains; sandy riparian areas; recently burned areas in chaparral, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-sandy, stony, gravelly and sandy ground; rocky loam, rocky-clayey loam, gravelly loam,

sandy loam, clayey loam and loam ground; bouldery clay, bouldery-rocky clay, rocky clay, rocky-loamy clay, gravelly clay and clay ground, and sandy-silty and silty ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Calandrinia ciliata* is native to west-central and southern North America, Central America and northwestern South America. *5, 6, 15, 28 (color photographs 176 & 585), 43 (072609), 44 (040313 - color photograph), 46 (Page 288), 58, 63 (040313 - color presentation), 77, **85** (040413 - color presentation), 86 (color photograph), **89** (reported as being a winter annual located on the Mesa-like Mountain Slopes, recorded as *Calandrinia menziesii* (Hook.) T.&G.), 101 (color photograph), 115 (color presentation), 124 (110710 - no record of species), 127, 140 (Page 302)*

Calandrinia ciliata var. *menziesii* (see *Calandrinia ciliata*)

Calandrinia menziesii (see footnote 89 under *Calandrinia ciliata*)

Calyptridium monandrum (see *Cistanthe monandra*)

***Cistanthe monandra* (T. Nuttall) M.A. Hershkovitz: Common Pussypaws**

SYNONYMY: *Calyptridium monandrum* T. Nuttall. COMMON NAMES: Common Calyptridium; Common Pussy Paws; Common Pussy-paws; Common Pussypaws (a name also applied to other taxa); Roseate Calyptridium; Sand Cress (a name also applied to other taxa); Sand Cress Calyptridium; Sand-cress (a name also applied to other taxa); Sand-cress Calyptridium; Sand-cress Pussy Paws; Sand-cress Pussy-paws; Sand-cress Pussypaws; Sandcress (a name also applied to other taxa); Sandcress Calyptridium; Sand-cress Pussy Paws; Sandcress Pussy-paws. DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate, procumbent, decumbent and/or ascending stems ½ to 7 inches in height/length; prostrate plants were observed and described that measured 3 to 40 inches in diameter); the semi-succulent foliage may be bright red or yellow-green; the small flowers may be cream, greenish, greenish-white, pink, pink-reddish, reddish, reddish-green, white, white-pink or whitish; the anthers are yellow; flowering generally takes place between early March and early July (additional record: flowering beginning as early as February has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mesas; plateaus; sandy canyons; rocky, rocky-sandy and sandy canyon bottoms; bouldery talus slopes; sandy ridges; bedrock and rocky ridgetops; rocky openings in chaparral; foothills; bouldery, bouldery-sandy, rocky, gravelly and sandy hills; rocky and rocky-cobbly-sandy hillsides; bouldery, bouldery-sandy, rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-loamy slopes; rocky-sandy, gravelly, gravelly-sandy and sandy alluvial fans; sandy bajadas; rocky and shaley outcrops; amongst rocks; sand dunes; rocky-sandy outwash; rocky-sandy debris fans; sandy benches; berms; along sandy outwash terraces; gravelly-sandy and sandy plains; rocky, gravelly, gravelly-sandy, gravelly-silty and sandy flats; rocky-sandy and sandy valley floors; valley bottoms; coastal dunes; along gravelly, gravelly-sandy and sandy roadsides; along bottoms of arroyos; sandy bottoms of gullies; along streams; gravelly-clayey-loamy streambeds; along and in sandy creeks; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; drying depressions; along (rocky-sandy and sandy) banks of arroyos and washes; (sandy) edges of marshes; margins of streams; gravelly and sandy benches; sandy terraces; sandy bottomlands; mesquite bosques; gravelly-sandy riparian areas; recently burned areas in forests, woodlands and scrubs, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-gravelly-sandy, rocky-sandy, shaley, stony-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam and sandy loam ground; clay ground, and gravelly silty ground, occurring from sea level to 6,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Cistanthe monandra* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Calyptridium monandrum* Nutt.), **16** (recorded as *Calyptridium monandrum* Nutt.), 43 (032510), 44 (040413 - listings for Common Names located under *Calyptridium monandrum*, placed in the Montiaceae), 46 (recorded as *Calyptridium monandrum* Nutt., Page 289), 58 (recorded as *Calyptridium monandrum* Nutt.), 63 (040513), **77** (recorded as *Calyptridium monandrum* Nutt.), **85** (040513 - color presentation), **89** (reported as being a winter annual located the Mesa-like Mountain Slopes, recorded as *Calyptridium monandrum* Nutt.), 127, 140 (Page 302)*

***Claytonia perfoliata* J. Donn ex C.L. von Wildenow: Miner's Lettuce**

SYNONYMY: *Montia perfoliata* (J. Donn ex C.L. von Wildenow) T.J. Howell. COMMON NAMES: Angle-leaf Miner's Lettuce (subsp. *mexicana*); Clasp-leaf Miner's Lettuce; Clasp-leaf Miner's-lettuce; Claspleaf Miner's Lettuce; Claspleaf Miner's-lettuce; Claytonie Perfoliée (French); Common Miner's Lettuce; Common Miners Lettuce; Common Miner's-lettuce; Common Miners-lettuce; Cuban Spinach (a name also applied to other taxa); Gypsum Springbeauty (*Claytonia perfoliata* var. *nubigena* - Not Accepted, *Claytonia gysophiloides* - Accepted); Indian Lettuce (not recommended); Indian Lettuce (English)[140]; Indian-lettuce (not recommended); Intermountain Miner's Lettuce (subsp. *intermontana*); Intermountain Miners Lettuce (subsp. *intermontana*); Intermountain Miner's-lettuce (subsp. *intermontana*); Intermountain Miners-lettuce (subsp. *intermontana*); Madrean Miner's Lettuce (subsp. *mexicana*); Madrean Miner's-lettuce (subsp. *mexicana*); Mexican Miner's Lettuce (subsp. *mexicana*); Mexican Miner's-lettuce (subsp. *mexicana*); Miner's Lettuce (a name also applied to other taxa); Miner's Lettuce (English)[140]; Miner's-lettuce (a name also applied to other taxa); Miners-lettuce; Minerslettuce (a name also applied to other taxa); Naiad Spring Beauty; Naiad Spring-beauty; Pa'gwodzûp (Uto-Aztecan: Shoshoni)[140]; Palsingat (Uto-Aztecan: Cahuilla)[140];

Perfoliate Claytonia; Perfoliate Miner's Lettuce; Perfoliate Miners Lettuce; Perfoliate Miners-lettuce; Perfoliate Miner's-lettuce; Perfoliate Minerslettuce; Petota (a name also applied to other taxa); Petota (Spanish: California)[140]; Portuguese Lettuce; Pourpier d'Hiver (French); Redstem Springbeauty (*Claytonia perfoliata* var. *depressa* - Not Accepted, *Claytonia rubra* ssp. *depressa* - Accepted); Shilik (Chumash: Ineseño Chumash)[140]; Shilik' (Chumash: Barbareño Chumash)[140]; Southern Miner's Lettuce (subsp. *mexicana*); Southern Miner's-lettuce (subsp. *mexicana*); Spanish Lettuce (a name also applied to other taxa); Spinacio di Cuba (Italian); Springbank Springbeauty (*Claytonia perfoliata* var. *parviflora* - Not Accepted, *Claytonia parviflora* ssp. *parviflora* - Accepted; *Claytonia perfoliata* var. *utahensis* - Not Accepted, *Claytonia parviflora* ssp. *utahensis* - Accepted; *Claytonia perfoliata* ssp. *vridis* - Not Accepted, *Claytonia parviflora* ssp. *vridis* - Accepted); Springbeauty (a name also applied to other taxa and the genus *Claytonia*); True Miner's Lettuce; True Miner's-lettuce; Uutuk^{w}a'ar$\dot{\imath}$b$\dot{\imath}$ (Uto-Aztecan: Kawaiisu)[140]; Verdolaga de Invierno ("Winter Purslane", Spanish: Mexico)[140]; Winter Miner's Lettuce; Winter Miners Lettuce; Winter Miner's-lettuce; Winter Miners-lettuce; Winter-portulak; Winter Purslane; Winter Purslane (English)[140]; Winter-purslane; Winterpurslane. DESCRIPTION: Terrestrial annual or perennial forb/herb (spreading prostrate, decumbent, ascending and/or erect stems 2 to 20 inches in height); the stems may be reddish; the leaves may be dark green or mottled green & reddish; the small flowers (¼ inch in diameter) may be pink, pink-cream, pink-lavender, pink-purple, pinkish, pinkish-white, pale purple, white, white-green, white with purplish tips; whitish, yellow or yellow-white; flowering generally takes place between mid-January and early August (additional records: one for late August, one for late September, one for mid-October, one for mid-November, one for early December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey and clayey mountaintops; mountainsides; mesas; plateaus; cliffs; cliff faces; bases of cliffs; rocky and rocky-silty canyons; along shaded canyon floors; rocky canyon bottoms; gorges; rockslides; scree; along talus slopes; crevices in rocks and stone; sandy bluffs; faces of rock knobs; shaded ledges; rocky ridges; ridgetops; rocky balds; rocky clearings and openings in forests and woodlands; rocky and rocky-gravelly meadows; gravelly cinder cones; foothills; rocky and loamy hills; clayey-loamy hilltops; rocky, rocky-gravelly, rocky-clayey-loamy, and loamy hillsides; bouldery-rocky-clayey, rocky, rocky-gravelly, rocky-loamy-clayey, stony, gravelly, gravelly-shale, gravelly-sandy-loamy, sandy, sandy-clayey, loamy, clayey, clayey-loamy and silty-loamy slopes; along bases of slopes; along rocky outcrops; bases of rock outcrops; amongst boulders and rocks; shaded areas beneath overhanging rocks; in leaf litter and pine needles; perched sand dunes; banks; wet areas at the base of banks; steppes; llanos; virgin fields; silty-loamy flats; rocky uplands; hollows; valley bottoms; roadcuts; along roadsides; bottoms of arroyos; draws; gulches; rocky gullies; ravines; seeps; around springs; along streams (including vernal streams); along rocky streambeds; along brooks; along creeks; rocky, rocky-sandy and rocky-loamy creekbeds; along rivers; along and in bouldery, gravelly and sandy washes; along and in drainages; rocky-sandy bases of waterfalls; sandy depressions; along (cobbly-sandy, sandy-silty and loamy) banks of springs, streams, creeks, creekbeds, rivers and washes; edges of streams and wet meadows; along margins of washes; along sides of streams and creeks; shores of lakes; sand bars; rocky-sandy and sandy benches; terraces; rocky and rocky-loamy bottomlands; sandy floodplains; along fencerows; along canals; canal banks; sandy riparian areas; waste places; recently burned areas in forests, woodlands, scrubs and grasslands, and disturbed areas (particularly following fire) growing in wet, moist (including vernally moist sites) and damp bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-shale, gravelly-sandy and sandy ground; bouldery-sandy loam, rocky loam, rocky-clayey loam, stony loam, gravelly-sandy loam, clayey loam, silty loam and loam ground; bouldery-rocky clay, rocky clay, rocky-loamy clay, sandy clay and clay ground; rocky silty and sandy-silty ground, and humusy ground often in the shade of trees, shrubs and rocks, occurring from sea level to 10,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a toy or in games and as a drug or medication. The nutritional composition of miner's-lettuce has been determined to be 37.1 percent protein, 42.5 percent total carbohydrate, and 12.4 percent crude fiber (United State Department of Agriculture Forest Service, Fire Effects Information System). Miner's-lettuce is browsed by Pocket Gophers, Mourning Doves (*Zenaida macroura*) and California Quail (*Callipepla californica*), other seed-eating birds, including the Western Meadow Lark (*Sturnella neglecta*), feed on the fruits; the larvae of the Purslane Sawfly feed on the seeds, and this plant is a host to the Beet Western Yellows Virus. *Claytonia perfoliata* is native to northwestern, west-central and southern North America and Central America. *5, 6, 28 (color photograph 177), 43 (040513), 44 (040613 - color photograph, listed in the Montiaceae), 46 (recorded as *Montia perfoliata*, Page 290), 63 (040513 - color presentation), 80 (This species (*Montia* (*Claytonia*) *perfoliata*) is listed as a Rarely Poisonous and suspected Poisonous Range Plant. "This small, annual forb has been reported to accumulate toxic levels of nitrate."), **85** (040713 - color presentation, NOTE: The inclusion of this species is based on a collection made by J.W. Toumey from Tucson on April 8, 1892. This plant was not included in the 1909 *Vegetation Groups of the Desert Laboratory Domain* listing compiled by J. J. Thornber.), 115 (color presentation), 140 (recorded as *Claytonia perfoliata* Donn (*Montia perfoliata* (Donn) Howell), Pages 40, 225-226 & 302)*

Montia perfoliata (see *Claytonia perfoliata* and/or *Claytonia perfoliata* subsp. *perfoliata*)

***Phemeranthus aurantiacus* (G. Engelmann) R.W. Kiger: Orange Flameflower**

SYNONYMY: *Talinum angustissimum* (A. Gray) E.O. Wooton & P.C. Standley; *Talinum aurantiacum* G. Engelmann. COMMON NAMES: Flame Flower; Flame-flower; Flameflower (Texas); Orange Flame Flower; Orange Flameflower; Talinum; Yellow Flame Flower; Yellow Flameflower. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 6 to 20 inches in height); the leaves are dark green; the flowers (to 1 inch in width) may be apricot-orange, pale orange, orange, orange-yellow, peach-orange, pinkish (rarely), pinkish-orange, reddish, reddish-orange, rosy-pink, pale yellow, pale yellow-orange, yellow or yellow-orange; flowering generally takes place between early June and late September (flowering beginning as early as

April and ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; cobbly and gravelly canyon bottoms; pockets of soil on cliffs; bluffs; ledges; along rocky and shaley ridges; ridgetops; meadows; foothills; gravelly-loamy and sandy hills; rocky hilltops; rocky, rocky-gravelly-loamy, rocky-clayey and gravelly hillsides; rocky, rocky-gravelly, rocky-sandy, stony, cobbly-clayey gravelly, gravelly-sandy, gravelly-clayey-loamy, sandy, sandy-loamy and sandy-clayey-loamy slopes; sandy bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; dunes; blow-sand deposits; prairies; sandy-loamy plains; gravelly, gravelly-sandy, sandy, sandy-loamy and sandy-clayey-loamy flats; valley floors; sandy-silty valley bottoms; along gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy and gravelly-loamy roadsides; rocky arroyos; draws; ravines; streambeds; along creeks; along washes; along edges of lakes and playas; shores of lakes; rocky benches; terraces; floodplains; sandy-loamy lowlands; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground; rocky clay, cobbly clay and clay ground, and sandy silty ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Kearney and Peebles' reported in Arizona Flora that *Talinum aurantiacum* Engelm. is "Arizona's largest flowered and showiest species. Indians in Arizona cooked and ate the roots, which often become very large and more or less woody." This plant could be investigated to determine its value as a home garden or commercial food crop. *Phemeranthus aurantiacus* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Talinum aurantiacum* Engelm.), 43 (072709), 44 (040713 - no record of species or genus), 46 (recorded as *Talinum angustissimum* (Gray) Woot. & Standl., Page 287, and *Talinum aurantiacum* Engelm., Page 287), 58 (*Talinum aurantiacum* Engelm.), 63 (040713), 77 (recorded as *Talinum aurantiacum* Engelm., color photograph #51 labeled *Talinum aurantiacum*), **85** (040713 - color presentation), 86 (recorded as *Talinum aurantiacum* color photograph), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Talinum lineare* H.B.K.), 115 (color presentation), 124 (110710 - recorded as *Talinum aurantiacum* Engelm.), 140 (Page 302)*

Portulaca oleracea C. Linnaeus: Little Hogweed

SYNONYMY: *Portulaca retusa* G. Engelmann. COMMON NAMES: Akulikuli-kula; Baqlah (Arabic); Barbir (Arabic); Beldroega (Portuguese); Chamó (Tarahumara); Chamokó (Hispanic); Common Purselane; Common Purslain; Common Pursland; Common Purslane; Common Pursley; Common Pusley; Common Pussley; Doejipul (transcribed Korean); Duckweed (a name also applied to other taxa); Duckweed Pursley; Duckweed Purslane; Fatweed; Garden Purslain; Garden Purslane (a name also applied to other taxa); Ghol (India); Green Leaf Purslane; Green Purslane; Inland Pigweed; Kitchen-garden Purslane; Ku'umpuri (Pima Baj o); Little Hogweed; Little Hog-weed; Little Hogweed; Little Hogweed Purslane; Little-hogweed; Ma Chi Xian (transcribed Chinese); Notched Purslane; Portulak (German); Portulak Ogorodnyj (transliterated Russian); Portulak Ovosenoj (transliterated Russian); Pourpier (French); Purslane (a name also applied to other species, the genus *Portulaca* and the Portulacaceae); Pursley (a name also applied to other taxa); Pusley (a name also applied to other taxa); Rijlah (Arabic); Rough-seed Purslane; Roughseed Purslane; Roughseeded Purslane; Sa´luchi (Tarahumara); Soebireum (transcribed Korean); Suberi-hiyu (Japanese Rōmaji); Summer Purslane; Verdolaga (a name also applied to other taxa, Spanish); Verdolagas (a name also applied to other taxa, Hispanic); Verdolaguilla (Hispanic); Vildportlak (Swedish); Weed Purslain; Weed Purslane; Western Pulsey; Western Pusley; Wild Portulaca (a name also applied to other taxa); Xakua Tsirakua (Purépecha); Yiwa Xiquitú (Hispanic). DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate to somewhat ascending stems 1 to 8 inches in height and 2 inches to 2 feet in length; one plant had developed into sparsely-branched mat that was described as being 8 inches in height and 6½ to13 feet in diameter); the stems are often pink-red or reddish; the leaves may be shiny brownish-green or gray-green; the small flowers (¼ inch in width) are orange-yellow, yellow, yellow-orange or yellowish; flowering generally takes place between late April and mid-November (additional records: one for mid-January, one for early March, one for mid-March, one for late March, one for early December and two for mid-December). HABITAT: Within the range of this species it has been reported from sandy mountains; sandy and clayey mesas; plateaus; rocky, rocky-sandy and sandy canyons; canyon walls; rocky, gravelly-sandy and sandy canyon bottoms; chasms; rocky gorges; bases of cliffs; rocky buttes; knolls; rocky ledges; clayey-loamy and silty ridges; ridgetops; ridgelines; clearings in forests; meadows; crater bottoms; foothills; rocky hills; rocky and clayey hillsides; rocky, cindery, gravelly, gravelly-sandy, gravelly-loamy, gravelly-silty-loamy, sandy and clayey slopes; bajadas; rocky outcrops; amongst boulders; along rocks; sand dunes; clay hardpans; prairies; plains; fields; cindery, sandy, sandy-clayey, clayey and clayey-loamy flats; basins; sandy hollows; sandy valley floors; valley bottoms; coasts; along cindery railroad right-of-ways; sandy roadbeds; along rocky, rocky-sandy, gravelly, gravelly-loamy, gravelly-sandy, sandy, sandy-silty and loamy-clayey roadsides; within rocky and sandy arroyos; gravelly and sandy bottoms of arroyos; draws; clayey bottoms of draws; rocky gullies; within ravines; sandy seeps; springs; along and in sandy streams; along and in gravelly, sandy and loamy-clayey streambeds; along creeks; sandy creekbeds; along and in rivers; along and in bouldery-cobbly-sandy, rocky-cobbly-sandy and sandy riverbeds; in gravelly, sandy, loamy and clayey washes; along and in rocky-sandy and sandy drainages; in sandy drainage ways; clayey lakebeds; sandy-loamy playas; freshwater marshes; swampy areas; clayey depressions; (muddy and sandy) banks of arroyos, rivers; riverbeds and pools; (sandy and clayey) edges of streams, rivers, washes, ponds, lagoons, playas and marshes; along (muddy and sandy) margins of streams, washes and ponds; (sandy) shores of creeks and lakes; sand bars; sandy beaches; cobbly-sandy, gravelly, sandy and sandy-loamy terraces; sandy bottomlands; sandy floodplains; mesquite bosques; dams; banks and shores of reservoirs; margins of stock tanks; along canals; ditches; gravelly banks of ditches; bouldery-cobbly-sandy, rocky and sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry bouldery, bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy

ground; gravelly loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; sandy clay, loamy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as forage for sheep and as a drug or medication. *Portulaca oleracea* has been reported to have been introduced from Europe; however, its native range is unknown. *5, 6, 18, 28 (color photograph 341), 30, 43 (032710), 44 (040713), 46 (recorded as *Portulaca oleracea* L. and *Portulaca retusa* Engelm., Page 291), **57**, 63 (040713 - color presentation), 68, 77, 80 (*Portulaca oleracea* and others are listed as a Rarely Poisonous and Suspected Poisonous Range Plants. "These fleshy forbs accumulate toxic levels of oxalates and may cause sickness and death in livestock."), 85 (040813 - color presentation), 86 (color photograph), **89** (reported as *Portulaca retusa* Engelm. being a long-lived annual herb located on the Santa Cruz Flood-plain, and under Miscellaneous Introduced Species as *Portulaca oleracea* L.being a being a long-lived annual herb), 101 (color photograph), 115 (color presentation), 127, 140 (Page 302), **WTK** (July 8, 2011)*

Portulaca retusa (see *Portulaca oleracea*)

Talinum angustissimum (see *Phemeranthus aurantiacus*)

Talinum aurantiacum (see *Phemeranthus aurantiacus*)

Talinum lineare (see footnote 89 under *Phemeranthus aurantiacus*)

Primulaceae: The Primrose Family

***Androsace occidentalis* F.T. Pursh: Western Rockjasmine**

SYNONYMY: *Androsace occidentalis* F.T. Pursh var. *arizonica* (A. Gray) H. St. John. COMMON NAMES: Rock Jasmine (a name also applied to other taxa); Rock-jasmine (a name also applied to other taxa); Western Fairy Candelabra; Western Androsace; Western Fairy Candelabra; Western Fairy-candelabra; Western Rock Jasmine; Western Rock-jasmine; Western Rockjasmine. DESCRIPTION: Terrestrial annual forb/herb (stems 1 to 5 inches in height); the basal rosette leaves may be reddish; the minute flowers (1/8 inch in diameter) may be pink, purple, red, white or white with a pink, pinkish or red tinge; flowering generally takes place between early February and mid-June (additional records: one for early August and one for mid-August). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, gravelly and sandy mesas; plateaus; cliffs; bases of cliffs; along rocky and sandy canyons; along bedrock and sandy-loamy canyon bottoms; crevices in rock; buttes; rocky and gravelly ledges; ridges; sandy ridgetops; on and around edges of volcanic balds; openings in forests; meadows; rocky foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly-loamy, rocky-sandy, rocky-loamy, shaley, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-clayey, sandy-silty, clayey and clayey-loamy slopes; rocky-sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; shaded rock niches; banks; prairies; rocky-sandy plains; rocky, clayey-loamy, silty and silty-loamy flats; rocky uplands; basins; sandy valley floors; gravelly-sandy and clayey roadbeds; along roadsides; along two-tracks; within bedrock arroyos; along rocky and sandy draws; ravines; seeps; springs; around seeping streams; along rocky and sandy streams; sandy streambeds; along creeks; along and in sandy creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; drainages; depressions; (rocky and gravelly) banks of rivers and washes; margins of streams; channel bars in rivers; terraces; sandy bottomlands; clayey floodplains; lowlands; rocky mesquite bosques; banks of stock tanks; gravelly-sandy riparian areas, and disturbed areas growing in muddy; wet, moist, damp and dry cryptogamic soil; rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam gravelly loam, sandy loam, clayey loam and silty loam ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from 1,000 to 11,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Androsace occidentalis* is native to central and southern North America. *5, 6, 15, **16**, 43 (072809), 44 (040813), 46 (Page 636), 58, 63 (040813 - color presentation), 77, **85** (040813 - color presentation), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain), 127, 140 (Pages 227-228 & 302)*

Androsace occidentalis var. *arizonica* (see *Androsace occidentalis*)

Samolus floribundus (see *Samolus valerandi* subsp. *parviflorus*)

Samolus parviflorus (see *Samolus valerandi* subsp. *parviflorus*)

***Samolus valerandi* C. Linnaeus subsp. *parviflorus* (C.S. Rafinesque-Schmaltz) O.E. Hultén: Seaside Brookweed**

SYNONYMY: *Samolus floribundus* K.S. Kunth; *Samolus parviflorus* C.S. Rafinesque-Schmaltz. COMMON NAMES: American Water Pimpernel (a name also applied to the species); American Water-pimpernel; False Water Pimpernel (a

name also applied to the species); False Water Pimpernell; Pineland Pimpernel (a name also applied to the species); Seaside Brookweed (a name also applied to the species); Small-flowered Samolus; Smallflower Water Pimpernel (a name also applied to the species); Thinleaf Brookweed (a name also applied to the species); Water Brookweed (a name also applied to the species); Water Pimpernel (a name also applied to other taxa); Water-pimpernel (a name also applied to other taxa). DESCRIPTION: Terrestrial perennial forb/herb (ascending and/or erect stems 4 to 34 inches in height); the leaves and stem are bright green or yellow-green; the small flowers (1/8 inch in diameter) may be cream or white; flowering generally takes place between mid-April and early November (additional record: one for mid-March). HABITAT: Within the range of this species it has been reported from mountains; rocky cliffs; rocky canyons; rocky-sandy canyon bottoms; along bluffs; rocky meadows; hillsides; slopes; sandy flats; basins; valley floors; stony arroyos; along and in seeps; along and in springs; along and in streams; along creeks; along creekbeds; riverbeds; along drainages; watercourses; bogs; ciénegas; freshwater marshes; swampy areas; sloughs; (muddy and sandy) banks of arroyos, creeks and rivers; (sandy) edges of springs; streams, creeks, rivers and ponds; along and in margins of creeks; sides of streams and lakes; shores of lakes; mudflats; sandy beaches; sandy benches; bottomlands; floodplains; canals; along rocky-silty ditches, and sandy riparian areas growing in shallow water; muddy, and wet and moist ground in rocky, rocky-sandy, stony and sandy ground and rocky-silty and silty ground, occurring from 300 to 5,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Samolus valerandi* subsp. *parviflorus* is native to northeast-central, south-central and southern North America and South America. *5, 6, 43 (032810), 44 (040813 - no listings under Common Names for subsp. *parviflorus*; species and genus records), 46 (*Samolus floribundus* H.B.K., Page 637), 63 (040813 - color presentation), 85 (040813 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain, recorded as *Samolus floribundus* H.B.K.), 106 (032810 - species)*

Ranunculaceae: The Buttercup Family

Anemone sphenophylla (see footnote 89 under *Anemone tuberosa*)

Anemone tuberosa **P.A. Rydberg (var. *tuberosa is*/was the variety reported as occurring in Arizona): Tuber Anemone**

COMMON NAMES: Desert Anemone [Windflower] (English)[140]; Desert Pasque Flower; Desert Thimble-weed; Desert Thimbleweed; Desert Wind-flower; Desert Windflower; Okennon's Anemone (*Anemone okennonii* - Accepted; *Anemone tuberosa* var. *texana* - Not Accepted); Tuber Anemone (*Anemone tuberosa* - Accepted; *Anemone tuberosa* var. *tuberosa* - Not Accepted); Tuber Anemone (English: New Mexico)[140]; Windflower (a name also applied to other species and the genus *Anemone*). DESCRIPTION: Terrestrial (tuberous) perennial forb/herb (aerial shoots from tubers 3 to 20 inches in height); the stems may be purplish; the flowers may be cream & pink, creamy-white, pink, pinkish, pinkish-purple, pinkish-white, purple, rose-pink, white (aging to pink or rose), white with pinkish-violet tinges, white-blue, white-lavender, white-pink, white-purple and whitish-yellow; flowering generally takes place between early January and late May. HABITAT: Within the range of this species it has been reported from reported from mountains; rocky mountainsides; rocky mesas; cliffs; bases of cliffs; rocky canyons; rocky canyon walls; rocky canyon bottoms; gorges; talus slopes; crevices in rocks; buttes; rocky ledges; rocky promontories; along bedrock, bouldery and rocky ridges; rocky ridgetops; rocky barrens; rocky foothills; bouldery-rocky and rocky hills; rocky hilltops; bouldery and rocky hillsides; rocky, rocky-gravelly-sandy, rocky-gravelly-loamy, rocky-clayey, gravelly, gravelly-sandy, gravelly-loamy and sandy-loamy slopes; bajadas; rocky outcrops; amongst and beneath rocks; boulder fields; volcanic dikes and plugs; sandy lava flows; rocky shelves; rocky, gravelly and sandy flats; rocky basins; along rocky roadsides; along rocky draws; bouldery-rocky ravines; seeps; springs; along creeks; creekbeds; along and in gravelly washes; within bouldery-cobbly and cobbly drainage ways; along banks of streams and washes; rocky benches; terraces, and riparian areas growing in wet (rarely reported) and dry bouldery, bouldery-rocky, bouldery-cobbly, rocky, rocky-gravelly, rocky-gravelly-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-clayey loam and sandy loam ground, and rocky clay and clay ground, occurring from 1,400 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Anemone tuberosa* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph 246), 42 (040913), 43 (072309), 44 (031411 - color photograph), 46 (Page 311), 58, 63 (040913 - color presentation), 77 (color photograph #90), 80 (Species in the genus *Anemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These perennial forbs have been suspected of causing poisoning of livestock and have caused hairballs in the digestive tract of sheep."), **85** (040913 - color presentation), 86 (color photograph), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Anemone sphenophylla* Poepp.), 115 (color presentation), 124 (031411 - no record of species; genus record), 140 (Page 234-235 & 303)*

Clematis drummondii **J. Torrey & A. Gray: Drummond's Clematis**

COMMON NAMES: Barba Chivato (Spanish); Barba de Chivato [Chivo] ("Goat's Beard", Spanish: Chihuahua, Coahuila, San Luis Potosí, Sonora, Tamaulipas, Zacatecas)[140]; Barba de Viejo (Spanish); Barbas de Chivato (Spanish); Ch'iɬ Na'atɬ'oii [Ts'oh, Ts'ósí] <č'il naʾaƛ'óʾi ałc'ósí, c'il naʾar-ʾóʾi [coh, c'o's]> (Athapascan: Navajo)[140]; Chililllo (Spanish)[140]; Chiva'ato Himsita Saila ("Brother of Goat's Moustache", Yaqui); Clematis (a name also applied to the genus *Clematis*); Drummond Clematis; Drummond's Clematis; Hierba de los Averos ("Herb of the Disgraceful Ones", Spanish: San Luis

Potosí)[140]; Kava Vopar <kaava boporo> (Uto-Aztecan: Mountain Pima)[140]; Keli Ciñwo (Uto-Aztecan: Tohono O'odham)[140]; Keri Tenvo <kuri tunvo> ("Old Man's Whiskers", Uto-Aztecan: Onavas Pima, Sonora)[140]; Nanisdiz (Athapascan: Western Apache)[140]; Old Man's Beard; Old-man's-beard; Pipe-stem (Pipe Stem is a name also applied to the genus *Clematis*); Pog^{w}itina Hɬapiina ("Grizzly Bear's Trap", Uto-Aztecan: Kawaiisu)[140]; Redadura de Nopal ("Wraps Around Cactus", Spanish: Mountain Pima)[140]; Texas Virgin Bower; Texas Virgin's Bower; Texas-virgin Bower; Virgin's Bower (a name also applied to the genus *Clematis*). DESCRIPTION: Terrestrial perennial deciduous vine (scrambling and/or climbing stems 10 to 40 feet in length); the trifoliate leaves are grayish-green or medium green; the flowers may be cream, cream-white, green & yellow-green, white, yellow, yellow-white, yellowish-green-white or yellowish-white; flowering generally takes place between early March and late October (additional records: one for early January, one for late January and two for early December). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; cliffs; rocky canyons; rocky canyon bottoms; chasms; bases of cliffs; crevices; bluffs; foothills; rocky hills; rocky hillsides; rocky, rocky-cobbly-gravelly, sandy and clayey slopes; bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; lava beds; plains; sandy flats; basins; valley floors; railroad right-of-ways; along roadsides; within bouldery and gravelly-sandy and sandy arroyos; rocky bottoms of arroyos; around springs; along streams; along streambeds; along creeks; along creekbeds; along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; drainages; within sandy drainage ways; around ponds; around lakes; along (rocky and gravelly-sandy) banks of creeks, rivers and washes; borders of washes; edges of creeks, washes and lakes; terraces; bottomlands; floodplains; mesquite bosques and woodlands; fencerows; edges of stock tanks (charcos); along canals; riparian areas, and disturbed areas growing in moist, damp and dry bouldery, rocky, rocky-cobbly-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam ground; clay ground, and sandy silty and silty ground often reported as growing in shrubs and trees, occurring from sea level to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This woody vine may be an attractive component of a restored native habitat. *Clematis drummondii* is native to southwest-central and southern North America. *5, 6, 13 (Page 88), 15, **16**, 18 (genus), 28 (color photograph 149), 43 (042010), 44 (081211 - no listings recorded under Common Names; genus record), 46 (Page 312), 58, 63 (042010 - color presentation), **77**, 80 (Species in the genus *Clematis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These climbing, perennial forbs contain toxins that have been suspected of causing losses in other countries but none have been reported in the United States. Some species do cause dermatitis."), **85** (040913 - color presentation), **89** (reported as being a woody climber located on the Santa Cruz Flood-plain, recorded as *Clematis ligustifolia* Nutt.), 115 (color presentation), 124 (081211 - no record of species; genus record), 140 (Pages 235-236 & 303)*

Clematis ligustifolia (see footnote 89 under *Clematis drummondii*)

Delphinium amabile (see *Delphinium parishii* subsp. *parishii*)

Delphinium amabile subsp. *apachense* (see *Delphinium parishii* subsp. *parishii*)

***Delphinium parishii* A. Gray subsp. *parishii*: Parish's Larkspur**

SYNONYMY: *Delphinium amabile* I. Tidestrøm; *Delphinium amabile* I. Tidestrøm subsp. *apachense* (A. Eastwood) J.A. Ewan. COMMON NAMES: Chiinō Hiitpa (Uto-Aztecan: Akimel O'odham)[140]; Desert Larkspur (a name also applied to other taxa); Mojave Larkspur; Sky Blue Larkspur; Sky-blue Larkspur; Typical Ocean Blue Larkspur; Typical Ocean-blue Larkspur; Typical Paleface Delphinium; Typical Paleface Larkspur; Typical Parish Desert Delphinium; Typical Parish Desert Larkspur; Typical Parish Larkspur; Typical Parish's Desert Delphinium; Typical Parish's Desert Larkspur; Typical Parish's Larkspur. DESCRIPTION: Terrestrial perennial forb/herb (erect stems 6½ inches to 4 feet in height); the stems may be brownish-purple; the basal rosette of leaves is dark green; the flowers may be azure-blue, light blue, blue, dark blue, blue-violet, bluish-purple, lavender, lavender-blue-violet, pinkish-violet-purple, purple, purple-blue, sky-blue or violet-blue; flowering generally takes place between mid-February and late June (additional records: one for early January and one for late August). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; rocky-gravelly-sandy canyon walls; sandy canyon bottoms; talus slopes; rocky knolls; sandy ridges; along bouldery ridgetops; rocky foothills; rocky hills; rocky and gravelly hillsides; bouldery-rocky, bouldery-rocky-gravelly-sandy, rocky, rocky-sandy, rocky-clayey, gravelly-sandy, gravelly-loamy, gravelly-clayey, sandy and clayey slopes; gravelly-sandy bajadas; bedrock and rocky outcrops; amongst boulders and rocks; lava fields; sand dunes; sandy and sandy-silty plains; sandy flats; sandy valley floors; along roadsides; arroyos; clayey gulches; gullies; ravines; springs; around seeping streams; along streams; streambeds; along creeks; creekbeds; rivers; along and in rocky, rocky-gravelly, rocky-sandy and sandy washes; drainages; high ground in marshes; (rocky, rocky-gravelly-sandy and sandy) banks of streams and washes; edges of arroyos; benches; gravelly terraces, and riparian areas growing in damp (rarely reported) and dry bouldery, bouldery-rocky, bouldery-rocky-gravelly-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam and loam ground; rocky clay, gravelly clay and clay, and sandy silty ground occurring from 600 to 12,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This is the most drought tolerant of the North American Larkspurs. *Delphinium parishii* subsp. *parishii* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 758), 42 (041013), 43 (042010 - *Delphinium amabile* Tidestr. subsp. *apachense* Ewan), 44 (041013 - color photograph), 46 (recorded as *Delphinium amabile* Tidestrøm, Page 309 and *Delphinium amabile* Tidestrøm subsp. *apachense* (Eastw.) Ewan, Page 309), 48 (genus), 63 (042010 - color presentation), 80 (Four species of Larkspur are listed

as Major Poisonous Range Plants; however, "All species of Larkspur in Arizona should be considered potentially dangerous. ... The most toxic period of growth is when the plant is young and prior to flowering": May and June for Low Larkspur (*Delphinium nelsoni*, *Delphinium scaposum* and *Delphinium virescens*) and May through July for Tall Larkspur (*Delphinium scopulorum*). "Plants remain dangerous throughout their life. Cattle are the principle livestock poisoned by larkspur. Sheep apparently graze larkspur without harm. ... Since cattle will graze on larkspur even though other forage is available, management to keep them away from heavily infested areas during this period is the best control technique." See text for additional information.), **85** (041013 - color presentation), 140 (Pages 237 (species) & 303)*

Delphinium scaposum E.L. Greene: Tall Mountain Larkspur

COMMON NAMES: 'Akee' 'Ąą <k'ey ahi'> (Athapascan: Navajo)[140]; Bare-stem Delphinium; Bare-stem Larkspur; Bare-stemmed Larkspur; Barestem Delphinium; Barestem Larkspur; Bik'íhoochįįh Nteel <k'ixwootxyeelíh> (Athapascan: Navajo)[140]; Cucul I'ispul <cu:cul, chuchul-i'spul, cuculi 'i'ispul, kuksho-wuuplim> (Uto-Aztecan: Tohono O'odham)[140]; Desert Larkspur (a name also applied to other taxa); Espuelita (Spanish); Espuelita Cimarrona ("Wild Little Spurs", Spanish: Arizona, Sonora)[140]; Kukṣo Wu:plim <kukṣo wu:pulim> (Uto-Aztecan: Tohono O'odham)[140]; Larkspur (a name also applied to other taxa and the Ranunculaceae); [Tall Mountain, Bare-stem] Larkspur (English)[140]; Low Larkspur (a name also applied to other taxa); Naked Delphinium; Scapose Delphinium; Tall Mountain Larkspur; Tcoro'si (Hopi); [Biką'] Tádidįįn Dootł'izh <tádídín do~~ł~~ 'iš, tádidíín dootł'izhii, [biką'í] tididi'n do'y'is, txatitįiootl'ij> (Athapascan: Navajo)[140]; Teoro'si <tcorosi> (Uto-Aztecan: Hopi)[140]; Tł'ízí 'Azee' <~~ł~~'ízí 'aze·'> (Athapascan: Navajo)[140]; Tu'kubagûmp [Pa'gasauwinoûp] (Uto-Aztecan: Shoshoni)[140]; Tukymsi <tukyámsi> (Uto-Aztecan: Hopi)[140]; Wild Delphinium. DESCRIPTION: Terrestrial perennial forb/herb (erect stems 6 inches to 4 feet in height); the leafless stems may be reddish; the basal leaves may be gray-green, green, dark green or yellow-green; the flowers (to 1 inch in width) may be blue, blue & cream-white, blue-purple, blue-purple-white, blue-violet, blue & white, bright dark blue, dark blue, lavender-blue-purple, purple, dark purple-blue, dark purple-blue & white, purple-blue, royal blue-white, deep royal blue, violet, violet-blue or white; flowering generally takes place between early March and mid-July (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bouldery, gravelly and sandy mesas; plateaus; along rocky rims of canyons and gorges; cliff faces; bases of cliffs; rocky, rocky-sandy, rocky-clayey-loamy and sandy canyons; rocky and sandy canyon bottoms; gorges; talus slopes; bluffs; buttes; knolls; rocky ledges; ridges; clearings in forests; meadows; rocky foothills; rocky and sandy hills; rocky and sandy-loamy hillsides; bouldery, bouldery-rocky-gravelly, rocky, rocky-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-clayey, loamy and clayey slopes; bajadas; bouldery and gypsum outcrops; amongst boulders; sand dunes; benches; gravelly, sandy, clayey and silty flats, basins; valley floors; along railroad right-of-ways; along rocky, gravelly-sandy and sandy roadsides; arroyos; gravelly gullies; along seeping washes; along streams; streambeds; along rivers; along rocky and sandy washes; drainages; along water courses; gravelly-silty-clayey and gravelly-clayey depressions; clayey swales; (rocky) banks of washes; borders of washes; (rocky) edges of washes; sides of rivers and washes; shores of lakes; sandy beaches; benches; gravelly-sandy terraces; sandy bottomlands, and riparian areas growing in moist (rarely reported) and dry cryptogamic soil; bouldery, bouldery-rocky-gravelly, rocky, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; rocky clay, stony-sandy clay, gravelly clay, gravelly-silty clay, sandy clay and clay ground; silty ground, and chalky ground occurring from 800 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used in ceremonies; as a toy or in games, and as a drug or medication. The Tall Mountain Larkspur is reportedly visited by butterflies. *Delphinium scaposum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph), 43 (042110), 44 (041013), 46 (Pages 308-309), 48 (genus), 58, 63 (041013 - color presentation including habitat), 68, 77 (color photograph #91), 80 (This species is listed as a Major Poisonous Range Plant; however, "All species of Larkspur in Arizona should be considered potentially dangerous. ... The most toxic period of growth is when the plant is young and prior to flowering" - May and June for Low Larkspur (*Delphinium nelsoni*, *Delphinium scaposum* and *Delphinium virescens*) and May through July for Tall Larkspur (*Delphinium scopulorum*). "Plants remain dangerous throughout their life. Cattle are the principle livestock poisoned by larkspur. Sheep apparently graze larkspur without harm. ... Since cattle will graze on larkspur even though other forage is available, management to keep them away from heavily infested areas during this period is the best control technique." See text for additional information.), **85** (041013 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill), 115 (color presentation), 127, 140 (Pages 236-238 & 303)*

Myosurus minimus C. Linnaeus: Tiny Mousetail

COMMON NAMES: Blood Strange; Blood-strange; Bristly Mousetail (*Myosurus minimus* var. *aristatus* - Not Accepted; *Myosurus apetalus* var. *borealis* - Accepted. *Myosurus minimus* subsp. *montanus* - Not Accepted; *Myosurus apetalus* var. *montanus* - Accepted); Common Mouse Tail; Common Mouse-tail; Common Mousetail; Eastern Mousetail; Least Mouse Tail; Least Mouse-tail; Least Mousetail; Little Mouse Tail (a name also applied to other taxa); Little Mouse-tail; Little Mousetail; Mouse Tail (a name also applied to other taxa); Mouse-tail (a name also applied to other taxa); Mousetail (a name also applied to other taxa); Small Mouse-tail; Tiny Mouse's-tail (a name also applied to other taxa); Tiny Mouse-tail (a name also applied to other taxa); Tiny Mousetail (a name also applied to other taxa); Vernal Pool Mousetail (*Myosurus minimus* var. *sessiliflorus* - Not Accepted; *Myosurus sessilis* - Accepted). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1¼ to 6½ inches in height);

the stems may be green or pink-tan; the green leaves are in a basal rosette; the inconspicuous flowers may be green, greenish, greenish-white, pink, white or yellowish; flowering generally takes place between mid-March and late June (additional record: one for mid-October); the fruits are reddish-brown. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; ridges; meadows; along sandy canyon bottoms; hills; rocky-gravelly and clayey slopes; amongst boulders and rocks; sand dunes; plains; clayey flats; vernal flats; rocky-gravelly uplands; basins; valley floors; roadsides; draws; gullies; seeps; spring seeps; around springs; in clay along streams; streambeds; along creeks; along rivers; riverbeds; along silty washes; along and in drainages; around pools; in sandy-clayey and clayey vernal pools; poolbeds; along ponds; muddy pondbeds; around lakes; lakebeds; dried up lagoons; boggy areas; ciénegas; marshlands; marshy areas; swampy areas; depressions; swales; (clayey and silty) banks of streams, creeks, rivers, drainages and lakes; edges of creeks, pools, ponds, lakebeds and marshes; margins of streams, vernal pools and lakes; (muddy) shores of ponds; thin layers of drying mud; mudflats; channel bars; benches; bottomlands; clayey lowlands; muddy and sandy-loamy floodplains; impoundments; around stock tanks; cow pies; shores of reservoirs; ditches; riparian areas, and disturbed areas growing in shallow water; muddy, and wet (and seasonally wet), moist and damp bouldery, rocky, rocky-gravelly, gravelly and sandy ground; sandy loam and loam ground; sandy clay, silty clay and clay ground, and silty ground, occurring from sea level to 9,900 feet in elevation in wetland ecological formations within the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Myosurus minimus* is native to central and southern North America; Europe; southwestern Asia, and northern Africa. *5, 6, 15 (listed as an Excluded Species), 42 (041113), 43 (042210), 44 (041113 - color photograph), 46 (Page 314), 58, 63 (041113 - color presentation), **85** (041113 - color presentation), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain), 106 (042210 - color presentation), 127, 140 (Page 303)*

Resedaceae: The Mignonette Family

Oligomeris glaucescens (see footnote 89 under *Oligomeris linifolia*)

***Oligomeris linifolia* (M.H. Vahl) J.F. Macbride: Lineleaf Whitepuff**

COMMON NAMES: Cambess; Desert Cambess; Line Leaf Whitepuff; Line-leaf Oligomeris; Line-leaf Whitepuff; Linear-leaf Cambess; Linearleaf Cambess; Linear-leaved Cambess; Linear-leaved Oligomeris; Lineleaf Whitepuff; Narrow-leaf Oligomeris; Narrow-leaved Oligomeris; Narrowleaf Oligomeris; Oligomeris (a name also applied to the genus *Oligomeris*); Slender-leaf Cambess; Xamassa (Seri). DESCRIPTION: Terrestrial annual (rarely perennial) forb/herb (ascending and/or erect stems 3 to 18 inches in height; one plant was reported to be 15 inches in height and width); the stems may be orange; the leaves may be green or yellow-green, and turn red before dying; the tiny flowers may be cream, green, greenish, white or whitish; flowering generally takes place between late December and early June (additional record: one for late June). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; plateaus; cliffs; rocky bases of cliffs; rocky canyons; canyon sides; canyon bottoms; gravelly talus; sandy-clayey bluffs; sandy knolls; ledges; rocky ridges; ridgelines; crater walls; crater floors; rocky foothills; gravelly-loamy and sandy hills; rocky hillsides; rocky, rocky-sandy, gravelly, sandy, clayey and silty slopes; rocky, rocky-sandy, cobbly and silty-clayey alluvial fans; rocky and gravelly bajadas; amongst rocks; sandy lava flows; sand dunes; bases of sand ramps; blow-sand deposits; berms; sandy breaks; sandy mounds; gravelly-loamy and sandy plains; rocky, gravelly, gravelly-sandy, sandy, sandy-silty, clayey and silty flats; basins; bolsons; sandy valley floors; silty valley bottoms; beach dunes; sandy-silty coastal plains; coastal beaches; sandy coastlines; along gravelly-sandy-loamy and sandy roadsides; rocky-gravelly draws; along rocky gullies; seeps; springs; around seeping streams; in clay around springs; along streams; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; sandy and silty lakebeds; clayey and silty playas; silty depressions; sandy swales; (rocky and gravelly) banks of rivers, washes, drainages and lakes; (cobbly and sandy) edges of lakes and playas; (silty) margins of playas and ciénegas; shores of lakes; mudflats; channel bars; sandy beaches; benches; gravelly terraces; clayey bottomlands; sandy floodplains; along sandy-clayey canals; canal banks; along ditches; gravelly-sandy riparian areas; waste places, and disturbed areas growing in moist (rarely reported) dry desert pavement; rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam and gravelly-sandy loam ground; sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from below sea level to 5,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems and leaves are semi-succulent. This plant may be toxic to cattle. *Oligomeris linifolia* is native to southwest-central and southern North America; southern Europe; central and southwestern Asia, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, **16**, 43 (042210 - *Oligomeris linifolia* J.F. Macbr.), 44 (081211), 46 (Page 358), **56**, **57**, 63 (041113), 77, **85** (041113 - color presentation), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain, recorded as *Oligomeris glaucescens* Camb.), 106 - 081211 - color presentation), 124 (081211 - no record of genus or species)*

Rhamnaceae: The Buckthorn Family

Condalia lycioides (see footnote 89 under *Ziziphus obtusifolia* var. *canescens*)

Condalia lycioides var. *canescens* (see *Ziziphus obtusifolia* var. *canescens*)

Condalia spathulata (see footnotes 46 and 89 under *Condalia warnockii* var. *kearneyana*)

***Condalia warnockii* M.C. Johnston (var. *kearneyana* M.C. Johnston is the variety reported as occurring in Arizona): Warnock's Snakewood**

COMMON NAMES: <balchata> (Uto-Aztecan: Onavas Pima)[140]; Bindó (Spanish: San Luis Potosí)[140]; [Mexican] Buck-thorn (English)[140]; Buckthorn (a name also applied to the Rhamnaceae); Crucillo; Frutillo (var. *kearneyana*, Spanish); Guichutilla (var. *kearneyana*, Spanish); Guichutilla (Spanish: Sonora)[140]; Kearney Condalia (var. *kearneyana*); Kearney Snakewood (var. *kearneyana*); Kearney's Snakewood (var. *kearneyana*); Mexican Crucillo (English)[140]; [Warnock's] Snakewood (English: New Mexico)[140]; Squaw-bush (English: Arizona, New Mexico)[140]; Squabush; Teconblate [Tecomblate] (Spanish: New Mexico)[140]; U:sbaḍ <'u:padh, u'usbaḍ, u:spa't> (Uto-Aztecan: Tohono O'odham)[140]; Warnock Condalia; Warnock's Snakewood. DESCRIPTION: Terrestrial perennial deciduous (considered evergreen except during periods of severe drought) shrub (diffusely branched 20 inches to 13 feet in height; one plant was observed and described as being 7 feet in height with a crown 10 feet in width, one plant was observed and described as being 10 feet in height with a crown 10 feet in width); the bark is gray-brown; the leaves may be gray or dull green; the minute flowers are yellowish; flowering generally takes place between February and November (flowering records: one for mid-February, one record for mid-May, one record for late June, one record for mid-August, one record for late August and one for mid-September; however, flowering taking place throughout the year has also been reported); the fruits are black, dark purple or reddish-black. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; footslopes; gravelly and sandy mesas; cliffs; cliff faces; rocky canyons; canyon bottoms; cliff faces; along rocky ledges; rocky and gravelly ridgetops; edges of meadows; foothills; rocky and gravelly hills; hillsides; bedrock, bouldery, rocky, rocky-cobbly-gravelly, gravelly and sandy slopes; gravelly bajadas; gypsum outcrops; amongst boulders and rocks; clayey-loamy plains; gravelly and sandy flats; within rocky and sandy arroyos; gulches; along drainages; banks of creeks, washes and drainage ways; terraces; floodplains; around stock tanks; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly, gravelly, gravelly-sandy and sandy ground and clayey loam ground, occurring from 200 to 6,000 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; older, weathered plants have considerable character. *Condalia warnockii* is native to southwest-central and southern North America. *5, 6, 13 (Pages 148-149), 28 (color photograph 843, *Condalia warnockii* var. *kearneyana*), 43 (042210), 44 (081211 - no record of species; genus record),), 46 (recorded as *Condalia spathulata* Gray, Page 530), 63 (041113), 77, **85** (041113 - color presentation), 91 (*Condalia warnockii* var. *kearneyana*, Pages 166-167), 124 (081211 - no record of species or genus), 140 (recorded as *Condalia warnockii* M.C. Johnston [*Condalia spathulata* of authors, not A. Gray], Pages 239-240 & 304)*

***Condalia warnockii* M.C. Johnston var. *kearneyana* M.C. Johnston: Kearney's Snakewood**

COMMON NAMES: <balchata> (Uto-Aztecan: Onavas Pima)[140]; Bindó (Spanish: San Luis Potosí)[140]; [Mexican] Buck-thorn (English)[140]; Buckthorn (a name also applied to the Rhamnaceae); Crucillo (a name also applied to the species); Frutillo (Spanish); Guichutilla (Spanish: Sonora)[140]; Kearney Condalia; Kearney Snakewood; Kearney's Snakewood; Lote-bush (a name also applied to other species); Mexican Buckthorn; Mexican Crucillo (English)[140]; [Warnock's] Snakewood (English: New Mexico)[140]; Squaw-bush (English: Arizona, New Mexico)[140]; Squawbush (a name also applied to the species); Teconblate [Tecomblate] (Spanish: New Mexico)[140]; U:sbaḍ <'u:padh, u'usbaḍ, u:spa't> (Uto-Aztecan: Tohono O'odham)[140]; Warnock's Snakewood (a name also applied to the species). DESCRIPTION: Terrestrial perennial deciduous (considered evergreen except during periods of severe drought) shrub (diffusely branched 20 inches to 13 feet in height; one plant was observed and described as being 6½ feet in height with a crown 10 feet in width, one plant was observed and described as being 10 feet in height with a crown 10 feet width); the leaves are dark green; the minute flowers may be yellow-green or are yellowish; based on few records located, flowering generally takes place between mid-February and mid-September (flowering records: one for mid-February, two for early August, one for mid-August, one for late August and one for mid-September; however, flowering taking place throughout the year has also been reported); the fruits are black, dark purple, red or reddish-black. HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; cliff faces; canyons; canyon bottoms; rocky ledges; ridges; edges of meadows; foothills; hills; rocky, gravelly and sandy slopes; rocky and gravelly bajadas; amongst boulders; gravelly and sandy flats; basins; valley floors; rocky arroyos; gulches; along rocky washes; along and in drainages; banks of creeks; (gravelly) edges of washes and drainages; terraces; floodplains, and around gravelly-sandy stock tanks growing in dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground, occurring from 200 to 5,600 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; older, weathered plants have considerable character. *Condalia warnockii* var. *kearneyana* is native to southwest-central and southern North America. *5, 6, 13 (Page 149), 15, **16**, 28 (color photograph 843), 43 (042210), 44 (081211 - no record of variety or species; genus record), 46 (recorded as *Condalia spathulata* A. Gray, Page 530), 58, 63 (041113), 77, **85** (041113 - color presentation of dried material), **89** (reported as being a shrub located on the Santa Cruz Flood-plain, recorded as *Condalia spathulata* Gray), 91 (Pages 166-167), 124 (081211 - no record of variety, species or genus), 140 (recorded as *Condalia warnockii* M.C. Johnston [*Condalia spathulata* of authors, not A. Gray], Pages 239-240 & 304), **WTK** (October 28, 2009)*

***Ziziphus obtusifolia* (W.J. Hooker ex J. Torrey & A. Gray) A. Gray: Lotebush**

COMMON NAMES: Abrojo (Spanish: Mexico)[140]; Amole Dulce (var. *canescens*, Spanish); Bachata (Spanish: Sonora)[140]; Barabachatas ("Dearest Bearded One", Spanish: Sonora)[140]; Barchata (Spanish); Bluebush; Buchthorn; Ch'il Ńłdzig

<chi gatoiłjit> (Athapascan: Western Apache)[140]; Chaparral; Chaparro (a name also applied to other species); Chaparro Prieto ("Black Thicket", Spanish: Tamaulipas)[140]; Ciruela de Monte ("Wild Cherry", Spanish: Sonora)[140]; Clepe; Crucillo Blanco ("Little White Cross", Spanish: Sonora)[140]; Garambullo ("Spiny Plant", Spanish: Mayo, Sonora)[140]; Garrapata ("Tick", Spanish: Mexico)[140]; Gray-leafed Abrojo; Gray-leaved Abrojo; Gray Thorn; Gray-thorn; Graythorn; Graythorn Abrojo; Graythorn Aborojo; Graythorn Lotebush; Grey Thorn; Grey-thorn; Greythorn; Gumdrop Tree (English: Texas)[140]; Huichilame (Uto-Aztecan: Mayo)[140]; Hutki <jutuqui> (Uto-Aztecan: Mayo)[140]; Jeweḍbaḍu:s <duwastbaḍ uus> ("Tall, Dead-looking Bush", Uto-Aztecan: Onavas Pima)[140]; Jó'otoro (Uto-Aztecan: Mayo)[140]; Lote; Lote Bush; Lote-bush; Lotebush (English)[140]; Lotebrush; Lotebush; Lotibush; Oschuvapat (Pima); Palo Blanco ("White Tree", Spanish: Mexico)[140]; Southwestern Condalia; Texas Buckthorn; Thorn (English: Arizona)[140]; U:s Jeweḍbaḍ <'us jewedhpadh, u:s tcui'tpa't> (Uto-Aztecan: Tohono O'odham)[140]; U:spaḍ <'uspaḍ> (Uto-Aztecan: Tohono O'odham)[140]; U'us Chevaḍbaḍ <ositc u'wutpat, u-us dji-wuht-paht> (Uto-Aztecan: Akimel O'odham)[140]; 'U:spaḍ <u:supaḍ> (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; 'Us Jeveḍpaḍ (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Uwé (Yuman: Maricopa)[140]; White Crucillo (English)[140]; Whitethorn (a name also applied to other species). DESCRIPTION: Terrestrial perennial drought deciduous shrub or tree (3 to 13 feet in height; one plant was observed and described as being 40 inches in height with a crown 18 inches in width, one plant was observed and described as being 7 feet in height with a crown 7 feet in width, one plant was observed and described as being 10 feet in height with a crown 10 feet in width, one plant was observed and described as being 10 feet in height with a crown 13 feet in width, one plant was observed and described as being 13 feet in height with a crown 13 feet in width, one plant was observed and described as being 13 feet in height with a crown 20 feet in width); the branches may be light gray, gray, gray-green or green; the stems may be bluish, brown, gray, gray-green, green or whitish with the branchlets ending in stout thorns; the leaves are gray-green, pale green, green or yellow-green; the inconspicuous flowers may be cream, light green, green, greenish-white, greenish-yellow, dark purple, yellow-green, white or whitish-green; flowering generally takes place between mid-May and late November (additional records: one for mid-January, one for late January, one for early March, two for mid-March, three for late March, three for mid-April and one for late April); the ripe fruits may be black, blue, dark blue or purple. HABITAT: Within range of this species it has been reported from mountains; mountainsides; gravelly mesas; rocky cliffs; bases of cliffs; rocky and gravelly canyons; sandy-clayey canyonsides; along rocky canyon bottoms; scree; talus slopes; crevices in rocks; buttes; rocky and gravelly-clayey-loamy ridges; rocky and gravelly ridgetops; ridgelines; foothills; rocky, cobbly and cobbly-gravelly-loamy hills; hilltops; rocky hillsides; bedrock, rocky, rocky-cobbly-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-loamy and gravelly-clayey-loamy slopes; rocky alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders, rocks and gravels; sandy dunes; breaks; prairies; gravelly, gravelly-silty, sandy-silty and silty plains; rocky, gravelly and sandy-loamy flats; uplands; basin bottoms; rocky valley floors; valley bottoms; coastal plains; coastal beaches; along gravelly, gravelly-sandy-clayey-loamy, gravelly-loamy and sandy-clayey-loamy roadsides; along rocky, gravelly, gravelly-sandy and sandy arroyos; along rocky, gravelly and sandy bottoms of arroyos; draws; gulches; ravines; bouldery bottoms of ravines; seeps; in clay around springs; along streams; along rocky streambeds; along creeks; along gravelly-sandy creekbeds; in gravels along rivers; along gravelly and gravelly-sandy rivers; sandy riverbeds; along and in rocky, sandy and sandy-clayey washes; along drainages; marshes; swales; along (bouldery-sandy, rocky, gravelly-sandy and sandy) banks of streams, creeks, rivers and washes; borders of washes; (gravelly-sandy) edges of arroyos and creeks; margins of springs; beaches; sandy benches; gravelly terraces; sandy bottomlands; gravelly-sandy floodplains; mesquite bosques; thickets of Soapberry (*Sapindus saponaria*); along fencerows; along canals; gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground; sandy clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or beverage crop; it was also noted as having been used as a tool, as a drug or medication and as a commodity used in personal hygiene. The heartwood may be red-brown and may be honey-scented. The flowers are visited by orange-winged Spider Wasps. Gray Foxes (*Urocyon cinereoargenteus*), Raccoons (*Procyon lotor*), Ringtails (*Bassariscus astutus*), Gambel's Quail (*Callipepla gambelii*), Scaled Quail (*Callipepla squamata*), Mockingbirds (*Mimus polyglottos*), Northern Orioles (*Icterus bullockii*), Phainopeplas (*Phainopepla nitens*), Band-tailed Pigeons (*Columba fasciata*), White-necked Ravens (*Corvus cryptoleucus*), Curved-billed Thrashers (*Toxostoma curvirostre*), Golden-fronted Woodpeckers (*Melanerpes aurifrons*), White-winged Doves (*Zenaida asiatica*) and other birds feed on the fruit. The plants numerous spines provide an impenetrable refuge for birds and many species of birds make use of the Lotebush as a preferred nesting site. The Northern Bobwhite (*Colinus virginianus*) may use larger lotebushes for fall, winter and spring loafing cover. *Ziziphus obtusifolia* is native to southwest-central and southern North America. *5, 6, 13 (Pages 146-147, color photograph of *Z.o.* var. *canescens*: Plate M.2., Page 400), 28 (color photograph 848), 43 (042210), 44 (121310), 46 (recorded as *Condalia lycioides* (Gray) Weberb., Page 530), 63 (041213), **85** (041313 - color presentation), 91(Pages 421-422), 124 (110710), 127, 140 (reported as *Ziziphus obtusifolia* (Hooker ex Torrey & A. Gray) A. Gray var. *canescens* (A. Gray) M.C. Johnston [*Condalia lycioides* (A. Gray) Weberbauer var. *canescens* (A. Gray) Trelease], Pages 243-244 & 304)*

***Ziziphus obtusifolia* (W.J. Hooker ex J. Torrey & A. Gray) A. Gray var. *canescens* (A. Gray) M.C. Johnston: Lotebush**

SYNONYMY: *Condalia lycioides* (A. Gray) A. Weberbauer var. *canescens* (A. Gray) W. Trelease. COMMON NAMES: Abrojo (Spanish: Mexico)[140]; Amole Dulce (Spanish); Bachata (Spanish: Sonora)[140]; Barabachatas ("Dearest Bearded One", Spanish: Sonora)[140]; Barchata (Spanish); Buchthorn; Ch'il Ńłdzig <chi gatoiłjit> (Athapascan: Western Apache)[140]; Chaparro (a name also applied to other species); Chaparro Prieto ("Black Thicket", Spanish: Tamaulipas)[140]; Ciruela de Monte ("Wild Cherry", Spanish: Sonora)[140]; Clepe (a name also applied to the species); Crucillo Blanco ("Little White Cross", Spanish: Sonora)[140]; Garambullo ("Spiny Plant", Spanish: Mayo, Sonora)[140]; Garrapata ("Tick", Spanish: Mexico)[140]; Gray Crucillo; Gray Thorn (a name also applied to the species); Gray-leaf Condalia; Gray-leafed Abrojo (a name also applied to the species); Gray-leaved Abrojo (a name also applied to the species); Grayleaf Condalia; Gray-thorn (a name also applied to the species); Graythorn (a name also applied to the species); Graythorn Abrojo (a name also applied to the species); Graythorn Aborojo (a name also applied to the species); Graythorn Lotebush (a name also applied to the species); Grey Thorn (a name also applied to the species); Grey-leaved Abrojo; Grey-thorn (a name also applied to the species); Greythorn (a name also applied to the species); Gumdrop Tree (a name also applied to the species, Texas); Gumdrop Tree (English: Texas)[140]; Huichilame (Uto-Aztecan: Mayo)[140]; Hutki <jutuqui> (Uto-Aztecan: Mayo)[140]; Jeweḍbaḍu:s <duwastbaḍ uus> ("Tall, Dead-looking Bush", Uto-Aztecan: Onavas Pima)[140]; Jó'otoro (Uto-Aztecan: Mayo)[140]; Lote Bush (a name also applied to the species and to the genus *Ziziphus*); Lote-bush (a name also applied to the species and to the genus *Ziziphus*); Lotebush (a name also applied to the species and to the genus *Ziziphus*); Lotebush (English)[140]; Lotebrush (a name also applied to the species); Lotibush (a name also applied to the species); Oschuvapat (Pima); Palo Blanco ("White Tree", Spanish: Mexico)[140]; Southwestern Condalia (a name also applied to the species); Thorn (English: Arizona)[140]; U:s Jeweḍbaḍ <'us jewedhpadh, u:s tcui'tpa't> (Uto-Aztecan: Tohono O'odham)[140]; U:spaḍ <'uspaḍ> (Uto-Aztecan: Tohono O'odham)[140]; U'us Chevaḍbaḍ <ositc u'wutpat, u-us dji-wuht-paht> (Uto-Aztecan: Akimel O'odham)[140]; 'U:spaḍ <u:supaḍ> (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; 'Us Jeveḍpaḍ (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Uwé (Yuman: Maricopa)[140]; White Crucillo (English)[140]; White Crucillo (a name also applied to the species). DESCRIPTION: Terrestrial perennial drought deciduous shrub or tree (3 to 13 feet in height; one plant was observed and described as being 40 inches in height with a crown 18 inches in width, one plant was observed and described as being 7 feet in height with a crown 7 feet in width, one plant was observed and described as being 10 feet in height with a crown 10 feet in width, one plant was observed and described as being 13 feet in height with a crown 13 feet in width); the stems may be bluish, gray, gray-green, green or whitish with the twigs ending in stout thorns; the leaves may be gray-green, green or yellow-green, the inconspicuous flowers may be cream, green, greenish-white, yellow, yellow-green or whitish-green; flowering generally takes place between mid-May and late November (additional records: one for late January, one for mid-March, one for late March, one for mid-April and one for late April); the ripe fruits may be black, blue-purple, dark blue or purple. HABITAT: Within range of this species it has been reported from mountains; mountainsides; mesas; cliffs; rocky canyons; along canyon bottoms; scree; talus slopes; bases of cliffs; crevices in rocks; buttes; ridges; ridgelines; foothills; rocky hills; hilltops; rocky hillsides; rocky and gravelly slopes; rocky alluvial fans; gravelly bajadas; amongst boulders, rocks and gravels; sandy-silty plains; rocky and gravelly flats; basins; rocky valley floors; gravelly and gravelly-loamy roadsides; arroyos; bottoms of arroyos; gulches; ravines; bouldery bottoms of ravines; seeps; in clay around springs; rivulets; along streams; along rocky streambeds; along creeks; along gravelly-sandy creekbeds; along gravelly and gravelly-sandy rivers; riverbeds; along and in rocky and sandy washes; drainages; marshes; along (rocky) banks of streams, creeks, rivers and washes; borders of washes; (gravelly-sandy) edges of arroyos and creeks; beaches; sandy benches; terraces; bottomlands; floodplains; mesquite bosques; along fencerows; along canals; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, gravelly loam and gravelly-clayey loam ground; sandy clay and clay ground, and sandy silty ground, occurring from sea level to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or beverage (*Ziziphus obtusifolia*) crop; it was also noted as having been used as a tool, as a drug or medication and as a commodity used in personal hygiene. The flowers are visited by orange-winged Spider Wasps. Gray Foxes (*Urocyon cinereoargenteus*), Raccoons (*Procyon lotor*), Ringtails (*Bassariscus astutus*), Gambel's Quail (*Callipepla gambelii*), Scaled Quail (*Callipepla squamata*), Mockingbirds (*Mimus polyglottos*), Northern Orioles (*Icterus bullockii*), Phainopeplas (*Phainopepla nitens*), Band-tailed Pigeons (*Columba fasciata*), White-necked Ravens (*Corvus cryptoleucus*), Curved-billed Thrashers (*Toxostoma curvirostre*), Golden-fronted Woodpeckers (*Melanerpes aurifrons*), White-winged Doves (*Zenaida asiatica*) and other birds feed on the fruit. The plants numerous spines provide an impenetrable refuge for birds and many species of birds make use of the Lotebush as a preferred nesting site. *Ziziphus obtusifolia* var. *canescens* is native to southwest-central and southern North America. *5, 6, 13 (Page 147, color photograph: Plate M.2., Page 400), 15, **16**, 28 (species, color photograph of species 848), 43 (042210), 44 (040211), 46 (recorded as *Condalia lycioides* (Gray) Weberb. var. *canescens* (Gray) Trel., Page 530), **56**, **57**, 58, 63 (041213), 77, **85** (041313 - color presentation), **89** (reported as being a shrub located on the Mesa-like Mountain Slopes, recorded as *Condalia lycioides* (Gray) Weberbaur), 91 (species, Pages 421-422), 124 (040211 - no record of variety; species and genus records), 127, 140 (reported as *Ziziphus obtusifolia* (Hooker ex Torrey & A. Gray) A. Gray var. *canescens* (A. Gray) M.C. Johnston [*Condalia lycioides* (A. Gray) Weberbauer var. *canescens* (A. Gray) Trelease], Pages 243-244 & 304), **WTK** (October 28, 2009)*

Rubiaceae: The Madder Family

Bouvardia glaberrima (see *Bouvardia ternifolia*)

***Bouvardia ternifolia* (A.J. Cavanilles) D.F. von Schlechtendal: Firecrackerbush**

SYNONYMY: *Bouvardia glaberrima* G. Engelmann. COMMON NAMES: Akuitsi Uarhiraku (Purépecha); Cántaris (Hispanic); Cerillito (Hispanic); Chilito (Hispanic); Chuparrosa ("Rose-sucker" a name also applied to other species, Spanish: Sonora)[140]; Cigarrillo (Hispanic); Cigarrito; Cigarritos (Spanish); Clavillo ("Little Carnation" a name also applied to other species, Spanish: Arizona)[140]; Contrahierba [Colorado] ([Red] Counter-poison, Antidote", Spanish: Edo. México)[140]; Contrahierba Colorado (Spanish); Corneta (Hispanic); Doncellita ("Little Lady", Spanish: Oaxaca)[140]; Erisipela (Hispanic); Escobilla (Hispanic); Expatli (Uto-Aztecan: Náhuatl)[140]; Firecrackerbush; Firecracker Bush (English: New Mexico)[140]; Flor de Valleta (Hispanic); Hierba de Burro (Hispanic); Hierba del Indio ("Indian's Herb", Spanish: Sinaloa, Sonora)[140]; Hierba del Pasmo ("Herb for Pasmo", Spanish: Sonora)[140]; Indita ("Little Indian Girl", Spanish: Chihuahua)[140]; Lengua de Víbora (Hispanic); Mirto [del Campo] ("[Wild] Myrtle", Spanish: Coahuila, Durango)[140]; Pasto (Hispanic); Rnanta (Oto-Manguean: Mazahua)[140]; Rurikuchi (Hispanic); Rurikuči (Uto-Aztecan: Tarahumara)[140]; Scarlet Bouvardia (English)[140]; Smooth Bouvardia; Sombra de la Virgen (Hispanic); Tabaquillo ("Little Tobacco", Spanish: Michoacán)[140]; Tlacoxiuitl (Uto-Aztecan: Náhuatl)[140]; Tlacoxóchitl <tlacosúchil> (Uto-Aztecan: Náhuatl)[140]; Tonati-sochit (Language Family Unknown: Hidalgo)[140]; Trompetilla [Rosa] ("Little [Red] Trumpet", Spanish: Hildago, Edo. México, Oaxaca, Sonora, Vera-cruz)[140]; Trompetillo (Hispanic); Trumpetflower; Wipismal Je:j <wipismal jehj> ("Humming-bird's Mother", Uto-Aztecan: Tohono O'odham)[140]; Yerba de Zorrillo ("Little Skunk's Herb", Spanish: Mountain Pima)[140]; Yita Ticuay (Mixteco en Guerrero). DESCRIPTION: Terrestrial perennial subshrub or shrub (ascending to erect stems 8 inches to 5 feet in height); the leaves may be gray, pale green, green or dark green; the tubular flowers (1¼ inches in length with the petal lobes flaring to 5/16 inch in diameter) may be coral, orange, orange-red, pink (rarely), red, red-orange, reddish-orange, scarlet or white (rarely); flowering generally takes place between early May and early November (additional records: two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; cliff faces; rocky canyons; canyonettes; rocky canyonsides; along rocky canyon bottoms; crevices in rocks; sandy and humusy-loamy meadows; foothills; bouldery, rocky and gravelly hillsides; rocky, rocky-loamy, rocky-silty-loamy, gravelly, sandy-loamy and loamy slopes; rocky outcrops; amongst boulders and rocks; bases of boulders; banks; sandy flats; along rocky roadsides; within arroyos; bottoms of draws; bouldery ravines; along streams; in rocky streambeds; in sandy loam along creeks; in rocky riverbeds; along stony washes; drainages; along watercourses; bases of waterfalls; banks of creeks; edges of washes; rocky bottomlands, and rocky riparian areas preferring partial shade growing in moist and dry bouldery, rocky, rocky-sandy, stony, gravelly and sandy ground and rocky loam, rocky-silty loam, sandy loam, humusy loam and loam ground, occurring from 2,400 to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. This plant attracts and provides nectar for hummingbirds; the Broad-billed Hummingbird (*Cynanthus latirostris*), Rufous Hummingbird (*Selasphorus rufus*) and Violet-crowned Hummingbird (*Amazilia violiceps*) have been observed visiting the flowers. *Bouvardia ternifolia* is native to southwest-central and southern North America. *5, 6, 10, 15 (recorded as *Bouvardia ternifolia* (Cav.) Schlecht.), 18, 28 (recorded as *Bouvardia glaberrima*, color photograph 566), 30, 43 (031411 - *Bouvardia ternifolia* Schltdl.), 44 (031411 - no record of species or genus), 46 (recorded as *Bouvardia glaberrima* Engelmn., Page 807), 48, 63 (041413 - color presentation), **85** (041413 - color presentation), 86, 115 (color presentation), 124 (031411 - no record of species or genus), 140 (Pages 250-251 & 304)*

***Cephalanthus occidentalis* C. Linnaeus: Common Buttonbush**

SYNONYMY: *Cephalanthus occidentalis* C. Linnaeus var. *californicus* G. Bentham. COMMON NAMES: Americansiche Weissball (German); Bois Bouton (a name also applied to the genus *Cephalanthus*, French); Bois de Marais (French: Louisiana); Bois de Plomb (French); Bollbuske (Swedish); Box (a name also applied to other species, misapplied); Buck Brush (misapplied); Buckbrush (misapplied); Button Bush (a name also applied to other species and the genus *Cephalanthus*); Button Tree (a name also applied to other species and the genus *Cephalanthus*, misapplied); Button Willow; Button Wood (a name also applied to other species); Button-bush (a name also applied to other species and the genus *Cephalanthus*); Button-tree (a name also applied to other species, misapplied); Button-willow; Button-wood Shrub (a name also applied to other species); Buttonball (a name also applied to other species); Buttonbush (a name also applied to other species and the genus *Cephalanthus*); Buttonwillow; Buttonwood (a name also applied to other species); Buttonwood Shrub (a name also applied to other species); California Button Bush (var. *californicus*); California Button Willow (var. *californicus*); California Button-bush (var. *californicus*); California Button-willow (var. *californicus*); California Buttonbush (var. *californicus*); California Buttonwillow (var. *californicus*); Céphalante d'Occident (French); Cephalanthe d'Amerique (French); Cephalanthus Cortex; Common Button Bush; Common Button-bush; Common Buttonbush; Common Cottonbush; Crane Willow; Crane-willow; Crooked-wood (a name also applied to other species); Crookedwood (a name also applied to other species); Crouper; Crouper Brush; Crouper Bush (Ferrisburgh, Vermont); Crouper-brush; Crouper-bush (Ferrisburgh, Vermont); Crouperbrush; Eastern Buttonbush; Elbow-bush (a name also applied to other species); Elbowbush (a name also applied to other species); Globe Flower (a name also applied to other species); Globe-flower; Globe-flowers; Globeflower (a name also applied to other species); Honey-ball; Honey-balls (a name also applied to other species); Honey-bells (a name also applied to other species); Honeyballs; Knopfbusch (German); Little Snow-ball; Little Snowball; Mountain Globe Flower (a name also applied to other species); Mountain Globe-flower (a name also applied to other species); Mountain Globeflower (a name also applied to other species); Pin Ball; Pin-ball; Pinball (a name also applied to other species); Pond Buttonwood (Ferrisburgh, Vermont); Pond Dog Wood; Pond Dog-wood; Pond Dogwood; Pond-dogwood; River Bush (a name also applied to other species); River-bush (a name also applied to other species); Riverbush; Rosa de Juan; Snowball; Southern Buttonbush; Spanish Pin-cushion; Spanish Pincushion; Swamp Dogwood; Swamp

Wood (a name also applied to other species); Swamp-wood (a name also applied to other species); Swampwood (a name also applied to other species); Western Buttonbush; White Ball (a name also applied to other species); Whiteball (a name also applied to other species). DESCRIPTION: Terrestrial perennial deciduous shrub or tree (3 to 33 feet in height and width); the bark is brown, gray or gray-brown; the twigs are reddish-brown; the leaves are bright green or yellow-green; the tiny flowers (clustered in balls 1 to 1½ inches in diameter) may be cream, creamy-white, white, white fading to rust, whitish or yellowish; flowering generally takes place between early June and early October; the mature button-like balls fruit (¾ to1 inch in diameter) are made up of many brown or reddish-brown nutlets (¼ inch in length). HABITAT: Within the range of this species it has been reported from mountains; stony canyons; along rocky and sandy canyon bottoms; foothills; hillsides; silty slopes; amongst boulders and rocks; basins; valley floors; along roadsides; along streams; along and in bouldery and rocky streambeds; along creeks; along and in rocky and clayey creekbeds; riverbeds; along and in sandy washes; around lakes; along bogs; ciénegas; along marshes; along swamps; sloughs; along banks of creeks, rivers, drainage ways and lakes; along edges of rivulets, creeks, rivers and lakes; margins of lakes; sides of creeks; along shores of lakes; terraces; clayey bottomlands; stony and cobbly floodplains; lowlands; along ditches, and sandy riparian areas growing in wet, moist or damp bouldery, rocky, stony, cobbly and sandy ground; sandy loam and loam ground; clay ground, and silty ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was also noted as having been used as a drug or medication and the wood was made into game sticks. The flowers are fragrant, the foliage is poisonous. White-tailed Deer (*Odocoileus virginianus*) browse this plant; the flowers attract bees and butterflies, and water-birds and shore-birds feed on the seeds. The Common Buttonbush has most likely been EXTIRPATED from this township *Cephalanthus occidentalis* is native to northeast-central, south-central and southern North America. *5, 6, 13 (recorded as *Cephalanthus occidentalis* L. var. *californicus* Benth.), 15, 18, 28 (color photograph 171), 43 (042310), 44 (081311 - color photograph of *Cephalanthus occidentalis* var. *californicus*), 46 (recorded as *Cephalanthus occidentalis* L. var. *californicus* Benth., Page 807), 52 (color photograph), 63 (041413 - color presentation), 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This stream-bottom shrub contains a bitter glycoside and has been suspected of causing poisoning in cattle."), **85** (041413 - color presentation), **89** (reported as being a shrub located on the Santa Cruz Flood-plain), 115 (color presentation), 124 (081311), 127*

Cephalanthus occidentalis var. *californicus* (see *Cephalanthus occidentalis*)

***Galium proliferum* A. Gray: Limestone Bedstraw**

COMMON NAMES: Bear Bedstraw; Bedstraw (a name also applied to the genus *Galium*); Desert Annual Bed-straw; Desert Bedstraw (a name also applied to other taxa); Great Basin Bedstraw; Limestone Bedstraw (a name also applied to other taxa); Prolific Bedstraw; Slender Bedstraw (a name also applied to other taxa); Spreading Bedstraw (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 4 to 12 inches in height); the herbage is dark green; the minute flowers may be cream, white or pale yellow; flowering generally takes place between early February and late May (additional records: two for mid-January and one for early December; flowering beginning as early as December and ending as late as June has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; hanging gardens; rocky canyons; rocky and sandy canyon bottoms; rocky talus slopes; along crevices in rocks; around knolls; rocky-gravelly-sandy ledges; rocky and shaley-clayey ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; along and on bedrock, bouldery, bouldery-cobbly-sandy, rocky, rocky-clayey and gravelly slopes; rocky bajadas; gravelly pediments; rocky outcrops; amongst boulders and rocks; cobbly plains; rocky and sandy flats; basins; rocky roadsides; along two-tracks; rocky arroyos; gravelly and gravelly-sandy bottoms of arroyos; gravelly draws; along streams; along streambeds; creeks; creekbeds; along rivers; along gravelly riverbeds; along and in bedrock, rocky-sandy and sandy washes; along and in rocky drainages; (rocky) banks of rivers; edges of washes; (gravelly-sandy and sandy) margins of arroyos and watercourses; floodplains; along rocky fencelines; riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; clayey loam ground, and rocky clay and shaley clay ground, occurring from 700 to 7,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Galium proliferum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (042310), 44 (041413), 46 (Page 812), 58, 63 (041413), 77, **85** (041413 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill), 140 (Page 304)*

***Galium stellatum* A. Kellogg (subsp. *eremicum* (M.L. Hilend & J.T. Howell) F. Ehrendorfer is the subspecies reported as occurring in Arizona): Starry Bedstraw**

SYNONYMY: (for subsp. *eremicum*: *Galium stellatum* A. Kellogg var. *eremicum* M.L. Hilend & J.T. Howell). COMMON NAMES: Bedstraw (a name also applied to other taxa and the genus *Galium*); Crevice Bedstraw (subsp. *eremicum*); Desert Bedstraw (a name also applied to other taxa); Shrubby Bedstraw; Star Bedstraw; Star Flowered Bedstraw; Star-flowered Bedstraw; Starry Bedstraw; Stellate Bedstraw. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (sprawling and spreading with densely matted [semi-prostrate in subsp. *stellatum*] woody stems 6 to 40 inches in height; one plant was observed and described as being 20 inches in height with a crown 14 inches in width; one plant was observed and described as being 32 inches in height and width); the bark is gray; the stems are reddish; the leaves are dark green; the flowers may be cream, cream-white, gray-yellow, pale green, greenish, greenish-yellow, white, yellow-green, yellowish or yellowish-cream; flowering generally takes place between early February and mid-June (additional records: one for early July, one for mid-August, one for

late August, one for early September, two for mid-September, one for late October and one for late November). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; bases of mountains; mesas; rocky cliffs; rock walls; bases of cliffs; rocky canyons; rocky canyon walls; bouldery-gravelly-sandy and sandy canyon bottoms; chasms; gorges; scree, talus slopes; crevices in boulders and rocks; pockets of soil; bluffs; tops of bluffs; buttes; ledges; rocky and shaley ridges; gravelly-clayey ridgetops; rocky and shaley foothills; bouldery-rocky, rocky and gravelly hills; rocky, rocky-shaley, rocky-gravelly and gravelly hillsides; bouldery, bouldery-rocky, rocky, rocky-gravelly-loamy, rocky-clayey-loamy, stony, cindery and gravelly-loamy slopes; gravelly-sandy and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of rocks; rocky alcoves; bouldery-sandy grottos; lava flows; rocky banks; uplands; valley floors; along roadsides; along arroyos; rocky gulches; gravelly ravines; seeps; springs; along streams; rivers; along and in bouldery, bouldery-rocky-sandy, rocky, gravelly and sandy washes; bouldery-cobbly drainages; drainage ways; (sandy) banks of creeks and rivers; borders of washes; margins of drainages; shores of rivers; bouldery-sand and gravel bars; rocky beaches; debris fans; sandy terraces, and riparian areas growing in dry bouldery, bouldery-rocky, bouldery-rocky-sandy, bouldery-cobbly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly and sandy ground; rocky-gravelly loam, rocky-clayey loam and gravelly loam ground, and gravelly clay ground, occurring from 200 to 10,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Galium stellatum* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 28 (color photograph 174), 43 (042310 - *Galium stellatum* Kellogg, *Galium stellatum* subsp. *eremicum* (Hilend & J.T. Howell) Ehrend., *Galium stellatum* var. *eremicum* Hilend & J.T. Howell), 44 (041413), 46 (Page 811), 63 (042310), **85** (041413 - color presentation), **89** (reported as being a half-shrub located on Tumamoc Hill), 140 (Page 304)*

Galium stellatum var. *eremicum* (see *Galium stellatum* subsp. *eremicum*)

Rutaceae: The Rue Family

***Thamnosma texana* (A. Gray) J. Torrey: Rue of the Mountains**

COMMON NAMES: Cordoncillo (a name also applied to other species, Spanish); Desert Rue (a name also applied to the genus *Thamnosma*); Dutchman's Breetches (a name also applied to other taxa); Dutchman's Britches; Hierba del Venado (Spanish); Ruda del Monte; Rue of the Mountains; Texas Desertrue. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (3 to 32 inches in height); the herbage is blue-green, gray-green, grayish-green, green or dark green; the flowers are brownish-purple, dark lavender, magenta, pink, purple, purple & white, dull red-maroon, red-purple, reddish, rose-red, white & pink, whitish or yellowish; flowering generally takes place between early February and mid-May (additional records: three for early August, one for mid-August, one for late August, one for mid-September, one for late September, one for early October, four for late October, one for early December and one for mid-December); the mature fruits are green tinged with purple or red. HABITAT: Within the range of this species it has been reported from mountains; bedrock-gravelly-clayey-loamy mountainsides; mesas; along rocky canyons; rocky canyon bottoms; crevices in rocks; bluffs; ridges; rocky ridgetops; foothills; rocky hills; hilltops; rocky and rocky-gravelly-loamy hillsides; bedrock, rocky, rocky-gravelly-loamy, gravelly and sandy-clayey-loamy slopes; alluvial fans; gravelly bajadas; rocky outcrops; outwash fans; gravelly flats; valley floors; roadcuts; along roadsides; two-tracks; rocky arroyos; sandy bottoms of arroyos; around springs; along rivers; along rocky washes; along drainages; banks of washes; (rocky) edges of washes; benches; floodplains; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, gravelly and sandy ground and rocky-gravelly loam, gravelly-clayey loam and sandy-clayey loam ground, occurring from 2,000 to 6,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Desert Rue is reportedly aromatic with the herbage being pleasantly fragrant. *Thamnosma texana* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (042410 - *Thamnosma texana* Torr.), 44 (041413 - no record of species; genus record), 46 (Page 494), 63 (041413 - color presentation), **77**, **85** (041413 - color presentation)*

Salicaceae: The Willow Family

Populus arizonica (see *Populus fremontii* subsp. *fremontii* and/or *Populus fremontii* subsp. *mesetae*)

***Populus fremontii* S. Watson: Frémont Cottonwood**

COMMON NAMES: Álamo (a name also applied to other species and the the genus *Populus*, Spanish); Alamo Cottonwood (a name also applied to other species); Arizona Cottonwood (subsp. *mesetae*); Cottonwood (a name also applied to other species, the genus *Populus* and to the Salicaceae); Fremont Alamo; Frémont Alamo; Fremont Cotton Wood; Frémont Cotton Wood; Fremont Cotton-wood; Frémont Cotton-wood; Fremont Cottonwood; Frémont Cottonwood; Fremont Poplar; Frémont Poplar; Fremont Western Cottonwood; Frémont Western Cottonwood; Fremont's Alamo; Frémont's Alamo; Fremont's Cotton Wood; Frémont's Cotton Wood; Fremont's Cotton-wood; Frémont's Cotton-wood; Fremont's Cottonwood; Frémont's Cottonwood; Fremont's Poplar; Frémont's Poplar; Fremont's Western Cottonwood; Frémont's Western Cottonwood; Meseta Cottonwood (subsp. *mesetae*); Rio Grande Cottonwood; Riparian Forest cottonwood; Rio Grande Cottonwood (*Populus fremontii* var. *wislizeni* - Not Acdepted; *Populus deltoides* subsp. *wislizeni* - Accepted); Western Cottonwood (a name also

applied to other species). DESCRIPTION: Terrestrial perennial deciduous tree (20 inches to 112 feet in height with a broad, spreading flat-topped or rounded crown; one sapling was observed and described as being 20 inches in height and 8 inches in width; one large tree was observed and described as being 92 feet in height with a crown 108 feet across); the older fissured bark is brownish, gray, gray-brown, grayish-white, pale tan or whitish; the branches are gray-brown to reddish-brown; the twigs are yellow before turning a bone-white, pale gray, tan or tannish-white; the leaves are a shiny gray-green, bright green or yellow-green turning golden-yellow or lemon-yellow in autumn; the flowers (catkins with the male (1 to 3¼ inches in length) and female (2 to 5 inches in length) on separate trees) may be greenish-yellow, reddish or yellowish-green; flowering generally takes place between early February and early May (additional records: one for late August and one for mid-September); the cottony seeds are fuzzy and white. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; plateaus; hanging gardens; bases of cliffs; along bouldery, rocky and sandy canyons; along bouldery-sandy, rocky, rocky-sandy-silty and sandy canyon bottoms; chasms; bluffs; edges of meadows; foothills; along bouldery hills; rocky hillsides; bouldery-gravelly, bouldery-loamy, rocky, gravelly-sandy, sandy-clayey-loamy and silty slopes; along and amongst boulders and rocks; gravelly, gravelly-sandy-clayey, sandy and clayey flats; basins; valley floors; along valley bottoms; coastal prairies; along railroad right-of-ways; along gravelly-loamy and sandy-loamy roadsides; within stony, sandy and sandy-silty arroyos; bottoms of arroyos; draws; within seeps; along and around springs; along streams; gravelly streambeds; along creeks; rocky and sandy creekbeds; along rivers; sandy-clayey-loamy riverbeds; along and in bouldery-sandy, rocky, rocky-sandy, sandy and loamy washes; drainages; waterholes; oases; around ponds; ciénegas; freshwater marshes; along (rocky and sandy) banks of streams, creeks, rivers and washes; borders of washes; along (silty-clayey) edges of streams, creeks, rivers, washes, ponds and lakes; (sandy-clayey) margins of rivers and playas; (clayey) sides of freshwater marshes; along shores of lakes; gravel and sand bars; rocky-gravelly-sandy-loamy, rocky-sandy and gravelly benches; terraces; rocky bottomlands; gravelly-sandy and sandy floodplains; lowlands; sandy mesquite bosques; stock tanks; edges of reservoirs; along canals; along ditches; ditch banks; bouldery-gravelly-sandy, rocky-silty-loamy, sandy and silty-loamy riparian areas, and disturbed areas growing in moist, damp and dry ground (areas where subsurface water is available) in bouldery, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, bouldery-loamy, rocky, rocky-gravelly-pebbly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; bouldery loam, rocky-gravelly-sandy loam, rocky-silty loam, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, silty loam and loam ground; gravelly-sandy clay, silty clay and clay ground, and rocky-sandy silty, sandy silty and silty ground, occurring from below sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and its rapid early growth makes it an excellent plant for use in re-vegetating riparian areas. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as an indicator of planting seasons; as tools; as musical instruments, fuel and as a drug or medication. The Frémont Cottonwood may have a life span of more than 130 year of age. It reaches reproductive maturity in 5 to 10 years. Consider planting male trees if the "cotton" produced by female trees is objectionable. The Frémont Cottonwood is very useful in slowing soil and stream bank erosion and in re-vegetating damaged riparian areas. The cottonwood provides food for Beaver (*Castor canadensis*), Elk (*Cervus elaphus*), Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), and squirrels, and the Golden Eagle (*Aquila chrysaetos*), Swainson's Hawk (*Buteo swainsoni*), Red-tailed Hawk (*Buteo jamaicensis*), Bell's Vireo (*Vireo bellii*) build nests in the crown. Cottonwood bark is a principle food of the American Beaver (*Castor canadensis*), and the stems of poplars are used in the construction of their dams. The trees are sometimes parasitized by the Yellow (or Colorado Desert) Mistletoe (*Phoradendron macrophyllum* subsp. *macrophyllum*). Native stands of Cottonwood Trees have been decimated due to the altering of natural water flows, the clearing and development of the flood plains, stream channelization and the loss of suitable recruitment sites. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). *Populus fremontii* subsp. *fremontii* intergrades with *Populus fremontii* subsp. *mesetae*. The Fremont Cottonwood has been EXTIRPATED from this township. *Populus fremontii* is native to southwest-central and southern North America. *5, 6, 13, 18, 26 (color photograph), 28 (color photograph 57), 42 (041513), 43 (042410), 44 (041513), 46 (Pages 208-209), 48, 52 (color photograph), 53, 58, 63 (041513 - color presentation), 77, **85** (041513 - color presentation), 89 (reported as being a tree located on the Santa Cruz Flood-plain), 115 (color presentation), 127, ADS (website

November 2, 2012, Landmark S. Ariz. Cottonwood Tree Topples: this article reported that this tree was 150 years of age, it was 92 feet in height, had a crown spread of 108 feet and was 42 feet around)*

***Populus fremontii* S. Watson subsp. *fremontii*: Frémont Cottonwood**

SYNONYMY: *Populus arizonica* C.S. Sargent; *Populus fremontii* S. Watson var. *arizonica* (C.S. Sargent) W.L. Jepson; *Populus fremontii* S. Watson var. *macdougalii* (J.N. Rose) W.L. Jepson; *Populus fremontii* S. Watson var. *pubescens* C.S. Sargent; *Populus fremontii* S. Watson var. *thornberi* C.S. Sargent; *Populus fremontii* S. Watson var. *toumeyi* C.S. Sargent. COMMON NAMES: Álamo (a name also applied to the species, other species and the genus *Populus*, Spanish); Alamo Cottonwood (a name also applied to the species and other species); Arizona Cottonwood (a name also applied to other taxa); Cordate-leaved Cottonwood; Cottonwood (a name also applied to the species, other species, the genus *Populus* and to the Salicaceae); Typical Fremont Alamo; Typical Frémont Alamo; Typical Fremont Cotton Wood; Typical Frémont Cotton Wood; Typical Fremont Cotton-wood; Typical Frémont Cotton-wood; Typical Fremont Cottonwood; Typical Frémont Cottonwood; Typical Fremont Poplar; Typical Frémont Poplar; Typical Fremont Western Cottonwood; Typical Frémont Western Cottonwood; Typical Fremont's Alamo; Typical Frémont's Alamo; Typical Fremont's Cotton Wood; Typical Frémont's Cotton Wood; Typical Fremont's Cotton-wood; Typical Frémont's Cotton-wood; Typical Fremont's Cottonwood; Typical Frémont's Cottonwood; Typical Fremont's Poplar; Typical Frémont's Poplar; Typical Fremont's Western Cottonwood; Typical Frémont's Western Cottonwood; Rio Grande Cottonwood (a name also applied to the species); Typical Riparian Forest Cottonwood; Western Cottonwood (a name also applied to the species and other species). DESCRIPTION: Terrestrial perennial deciduous tree (10 to 112 feet in height with a wide and a broad, spreading flat-topped crown); the older bark may be brownish, gray, gray-brown, grayish-white, pale tan or whitish; the branches are gray-brown to reddish-brown; the twigs are yellow before turning a bone-white, pale gray, tan or tannish-white; the leaves are a shiny bright green or yellow-green turning golden-yellow or lemon-yellow in autumn; the flowers (catkins with the male (1 to 3¼ inches in length) and female (2 to 5 inches in length) on separate trees) may be greenish-yellow, reddish or yellowish-green; flowering generally takes place between early February and early May (additional record: one for late September); the cottony seeds are fuzzy and white. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; along bouldery canyons; canyon bottoms; foothills; along bouldery hills; bouldery-loamy and rocky slopes; along boulders; gravelly, gravelly-sandy-clayey, sandy and clayey flats; basins; valley floors; springs; along streams; streambeds; along creeks; sandy and sandy-loamy creekbeds; along rivers; sandy-clayey-loamy riverbeds; along bouldery-sandy washes; drainages; waterholes; oases; ciénegas; along banks of streams, creeks and rivers; edges of ponds and lakes; margins of playas; (clayey) sides of freshwater marshes; along shores of lakes; gravel and sand bars; rocky-gravelly-sandy-loamy benches, terraces; bottomlands; floodplains; mesquite bosques; stock tanks; edges of reservoirs; along ditches; ditch banks; bouldery-gravelly-sandy riparian areas, and disturbed areas growing in moist, damp and dry ground (areas where subsurface water is available) in bouldery, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly-pebbly, gravelly and sandy ground; bouldery loam, rocky-gravelly-sandy loam, sandy loam and sandy-clayey loam ground; gravelly-sandy clay and clay ground, and sandy silty and silty ground, occurring from below sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and its rapid early growth makes it an excellent plant for use in re-vegetating riparian areas. The species, *Populus fremontii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as an indicator of planting seasons; as tools; as musical instruments, fuel and as a drug or medication. The Frémont Cottonwood may have a life span of more than 130 year of age. It reaches reproductive maturity in 5 to 10 years. Use as a specimen plant in a large area and as a re-vegetation plant for the areas immediately adjacent to the main channel of streams, creeks, and rivers. Consider planting male trees if the "cotton" produced by female trees is objectionable. The cottonwood provides food for Beaver (*Castor canadensis*), Elk (*Cervus elaphus*), Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), and squirrels, and the Golden Eagle (*Aquila chrysaetos*), Swainson's Hawk (*Buteo swainsoni*), Red-tailed Hawk (*Buteo jamaicensis*), Bell's Vireo (*Vireo bellii*) build nests in the crown. Cottonwood bark is a principle food of the American Beaver (*Castor canadensis*), and the stems of poplars are used in the construction of their dams. The trees are sometimes parasitized by the Yellow (or Colorado Desert) Mistletoe (*Phoradendron macrophyllum* subsp. *macrophyllum*). Native stands of Cottonwood Trees have been decimated due to the altering of natural water flows, the clearing and development of the flood plains, stream channelization and the loss of suitable recruitment sites. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*),

Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). *Populus fremontii* subsp. *fremontii* intergrades with *Populus fremontii* subsp. *mesetae*. The Fremont Cottonwood has been EXTIRPATED from this township. *Populus fremontii* subsp. *fremontii* is native to southwest-central and southern North America. *5, 6, 13, 15, 18 (species), 26 (species, color photograph of species), 28 (species, color photograph of the species 57), 42 (041513), 43 (042410), 44 (041513), 46 (Pages 208-209), 48 (species), 52 (species, color photograph of the species), 53 (species), 58 (species), 63 (041513 - color presentation), **85** (041513 - color presentation), 115 (color presentation of the species), 124 (081411 - no record of species or subspecies; genus record), 127 (species), 140 (Page 304)*

***Populus fremontii* S. Watson subsp. *mesetae* J.E. Eckenwalder: Frémont Cottonwood**

SYNONYMY: *Populus arizonica* C.S. Sargent; *Populus fremontii* S. Watson var. *mesetae* (J.E. Eckenwalder) E.L. Little; *Populus mexicana* auct. non A. Wesmael. COMMON NAMES: Álamo (a name also applied to the species, other species and the genus *Populus*, Spanish); Alamo Cottonwood (a name also applied to the species and other species); Arizona Cottonwood (a name also applied to the species); Cottonwood (a name also applied to the species, other species, the genus *Populus* and to the Salicaceae); Frémont Cottonwood (a name also applied to the species); Frémont Poplar (a name also applied to the species); Frémont's Cottonwood (a name also applied to the species); Meseta Cottonwood; Rio Grande Cottonwood (a name also applied to the species); Western Cottonwood (a name also applied to the species and other species). DESCRIPTION: Terrestrial perennial deciduous tree (10 to 112 feet in height with a broad, spreading rounded crown); the older bark is brownish, gray, gray-brown, grayish-white, pale tan or whitish; the branches are gray-brown to reddish-brown; the twigs are yellow before turning a bone-white, pale gray, tan or tannish-white; the leaves are a shiny bright green or yellow-green turning golden-yellow or lemon-yellow in autumn; the flowers (catkins with the male (1 to 3¼ inches in length) and female (2 to 5 inches in length) on separate trees) may be greenish-yellow, reddish or yellowish-green; flowering generally takes place between early February and early May; the cottony seeds are fuzzy and white. HABITAT: Within the range of this species it has been reported from canyons; canyon bottoms; foothills; rocky slopes; valley floors; stony arroyos; springs; along streams; streambeds; along creeks; along rivers; along sandy washes; drainages; waterholes; oases; ciénegas; along banks of streams, creeks and rivers; (sandy-clayey) margins of rivers; gravel and sand bars; terraces; bottomlands; sandy floodplains; mesquite bosques; canal banks; along ditches; riparian areas, and disturbed areas growing in moist, damp and dry ground (areas where subsurface water is available in rocky, stony, gravelly and sandy ground; sandy-clayey loam ground; clay ground, and sandy silty ground, occurring from sea level to 9,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and its rapid early growth makes it an excellent plant for use in re-vegetating riparian areas. The species, *Populus fremontii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as an indicator of planting seasons and as tools; musical instruments, fuel and as a drug or medication. The Frémont Cottonwood may have a life span of more than 130 year of age. It reaches reproductive maturity in 5 to 10 years. Consider planting male trees if the "cotton" produced by female trees is objectionable. The Cottonwood Tree is very useful in slowing soil and stream bank erosion and in re-vegetating damaged riparian areas. The cottonwood provides food for Beaver (*Castor canadensis*), Elk (*Cervus elaphus*), Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), and squirrels, and the Golden Eagle (*Aquila chrysaetos*), Swainson's Hawk (*Buteo swainsoni*), Red-tailed Hawk (*Buteo jamaicensis*), Bell's Vireo (*Vireo bellii*) build nests in the crown. Cottonwood bark is a principle food of the American Beaver (*Castor canadensis*), and the stems of poplars are used in the construction of their dams. The trees are sometimes parasitized by the Yellow (or Colorado Desert) Mistletoe (*Phoradendron macrophyllum* subsp. *macrophyllum*). Native stands of Cottonwood Trees have been decimated due to the altering of natural water flows, the clearing and development of the flood plains, stream channelization and the loss of suitable recruitment sites. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). *Populus fremontii* subsp. *mesetae* intergrades with *Populus fremontii* subsp. *fremontii*. The Fremont Cottonwood has been EXTIRPATED from this township. *Populus fremontii* subsp. *mesetae* is native to southwest-central and southern North America. *5, 6, 13 (species), 18 (species), 26 (species, color photograph of the species), 28

(species, color photograph of the species 57), 42 (041513), 43 (042410), 44 (041513 - no record of subspecies; species and genus records), 46 (species, Pages 208-209), 48 (species), 52 (species, color photograph of the species), 53 (species), 58 (species), 63 (041513), 77 (species), **85** (041513 - color presentation of dried material), 115 (color presentation of the species), 127 (species)*

Populus fremontii var. *arizonica* (see *Populus fremontii* subsp. *fremontii*)

Populus fremontii var. *macdougalii* (see *Populus fremontii* subsp. *fremontii*)

Populus fremontii var. *mesetae* (see *Populus fremontii* subsp. *mesetae*)

Populus fremontii var. *pubescens* (see *Populus fremontii* subsp. *fremontii*)

Populus fremontii var. *thornberi* (see *Populus fremontii* subsp. *fremontii*)

Populus fremontii var. *toumeyi* (see *Populus fremontii* subsp. *fremontii*)

Populus mexicana (see *Populus fremontii* subsp. *mesetae*)

Salix C. Linnaeus: Willow

COMMON NAME: Osier; Pussy Willow; Pussy Willows; Pussy-willow; Pussywillow; Salix; Sally; Sally Tree; Sallys; Sally-tree; Saugh; Saugh Tree; Saugh-tree; Scrub Willow; Scrub-willow; Willow (a name also applied to the Salicaceae); Willow Tree; Willow-tree; Willowtree. NOTE: The Willows have been EXTIRPATED from this township. *43 (042510), 44 (041513), 46 (Pages 209-213 and Supplement Page 1044), 63 (041513), 85 (041513), **89** (reported as being a tree located on the Santa Cruz Flood-plain. This entry most likely refers to *Salix exigua* which was reported by Thornber in 1913 as being present at the Santa Cruz River (in the river bed, along sand bars, along the banks and bottom lands) at Tucson, Arizona.)*

Salix exigua T. Nuttall: Narrowleaf Willow

SYNONYMY: (for *Salix exigua* var. *exigua*: *Salix exigua* T. Nuttall var. *nevadensis* (S. Watson) C.K. Schneider; *Salix exigua* T. Nuttall var. *stenophylla* (P.A. Rydberg) C.K. Schneider. COMMON NAMES: Acequia Willow; Basket Willow; Bila (Zuni for Willow, Bark of the Willow is Bila Tsikwa:we); Common Coyote Willow; Coyote Sand Bar Willow; Coyote Sand-bar Willow; Coyote Sandbar Willow; Coyote Willow; Coyote Willow (var. *exigua*); Coyotevide (Swedish); Desert Willow (a name also applied to other taxa); Dusky Willow (*Salix exigua* var. *gracilipes*, subsp. *melanopsis* and var. *tenerrima* - Not Accepted; *Salix melanopsis* - Accepted); Gray Willow; Hinds Willow (var. *hindsiana*); Hinds' Willow (var. *hindsiana*); Linear-leaf Willow (Oklahoma); Linear-leaved Willow (Oklahoma); Longleaf Willow; Narrow Leaf Sandbar Willow; Narrow-leaf Sandbar Willow; Narrow Leaf Willow; Narrow-leaf Willow; Narrow-leaved Hairy Willow; Narrow-leaved Sandbar Willow; Narrow-leaved Willow; Narrowleaf Willow; Narrowleaf Willow (var. *exigua*); Northwest Sandbar Willow (*Salix exigua* var. *sessilifolia* - Not Accepted; *Salix sessilifolia* - Accepted); Parish Willow; Parish' Willow; Sandbar Willow; Sandbar Willow (*Salix exigua* var. *exterior*, subsp. *interior*, var. *pedicellata* and var. *sericans* - Not Accepted; *Salix interior* - Accepted); Sauce (Spanish); Saule à Feuilles Argentees (French); Silver-leaf Willow; Silver-leaved Willow; Silverleaf Willow; Silvery Desert Willow; Slender Willow; Texas Sandbar Willow. DESCRIPTION: Terrestrial perennial winter-deciduous shrub or tree (20 inches to 56 feet in height though usually reported as growing well less than half this height); the bark may be greenish or green-gray becoming gray-brown with age; the branches may be gray-brown, red-brown or yellow-brown; the twigs may be reddish or yellow-brown aging to gray or red-brown; the leaves may be gray-green, green, silvery or yellow-green; the male flowers (catkins ½ to 1 inch in length) and female flowers (catkins ½ to 1½ inches in length), usually borne on separate trees, are yellow; the anthers are reddish (turning yellow) or yellow; flowering generally takes place between early February and mid-September (additional records: two for early October, three for mid-October, one for mid-November and two for late December; flowering occurring after leaf development in mid- to late spring reaching its peak in May and continuing sporadically through the growing season has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; plateaus; along bouldery, rocky, gravelly, sandy and clayey canyons; rocky canyon walls; along bouldery, bouldery-sandy, rocky, rocky-sandy, sandy, sandy-loamy and sandy-silty canyon bottoms; silty bases of cliffs; crevices in rocks; rocky knobs; ridges; stony and sandy-silty meadows; foothills; hills; bouldery-sandy, rocky, cindery, gravelly-clayey, sandy, sandy-loamy, clayey-loamy and silty-loamy slopes; rocky outcrops; amongst boulders; clay pans; sandy steppes; prairies; plains; cindery, gravelly-sandy-clayey, sandy, clayey, silty, silty-loamy and silty-clayey flats; upland areas; basins; hollows; sandy valley floors; bouldery-gravelly valley bottoms; sandy coastal dunes; coastal flats; railbeds; along gravelly roadsides; within rocky, stony and sandy arroyos; within loamy, loamy-clayey, clayey and silty draws; silty bottoms of draws; gulches; gullies; ravines; bottoms of ravines; stony and gravelly seeps; around springs; along and in bouldery-rocky, gravelly and sandy streams; bouldery, bouldery-stony-sandy-silty, bouldery-sandy, rocky-sandy, gravelly-clayey and sandy streambeds; along and in rocky and rocky-gravelly-sandy creeks; along and in bouldery, gravelly-clayey, sandy and silty creekbeds; along and in rivers; along and in rocky-sandy, gravelly, gravelly-sandy, sandy and clayey riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in rocky, gravelly-sandy, sandy-loamy and clayey-loamy drainages; drainageways; among and in pools; along and in silty ponds; along beaver ponds; pondbeds; along lakes; waterholes; backwaters; boggy areas; cienegas; freshwater marshes; silty depressions; vernally moist swales; along (rocky, shaley, sandy and clayey) banks of springs, streams, streambeds,

creeks, creekbeds; rivers, riverbeds, washes and drainages; along (rocky, gravelly, sandy, sandy-loamy and silty) edges of springs, streams, creeks, rivers, riverbeds, washes, ponds, lakes, freshwater and saltwater marshes and swamps; along (rocky and rocky-sandy) margins of rivers, lakes and lakebeds; (sandy) sides of streams, creeks and lakes; along (gravelly-sandy, gravelly-clayey, clayey, clayey-loamy and silty) shores of rivers and lakes; mudflats; along rocky-sand, gravel and sand bars; beaches; sandy benches; sandy terraces; gravelly-clayey, sandy, clayey and silty bottomlands; bedrock, bouldery, bouldery-gravelly-sandy, stony-sandy, gravelly, gravelly-sandy, sandy, clayey and silty floodplains; lowlands; mesquite bosques; willow thickets; dams; edges of stock tanks; borders, edges and shorelines of reservoirs; around and in dry bottoms of reservoirs; along canals; along canal banks; along ditches; along sandy ditch banks; along muddy, bouldery, rocky-gravelly-sandy, rocky-sandy, gravelly-loamy, sandy and clayey riparian areas, and disturbed areas growing in shallow water; clay muck and muddy, and wet, moist, damp and dry (roots must be in moist soil in the hottest and lowest deserts) bouldery, bouldery-rocky, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-pebbly, rocky-sandy, shaley, stony, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam, silty loam and loam ground; gravelly clay, gravelly-sandy clay, sandy clay, loamy clay, silty clay and clay ground, and bouldery-stony-sandy silty, rocky silty, shaley silty, sandy silty and silty ground, occurring from sea level to 11,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, individual stems may live to be 10 to 20 years of age, it is drought-resistant and tolerant of flooding which promotes adventitious or secondary root development. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (candy), fodder, beverage, and/or fiber crop; it was also noted as having been used as a fuel, as tools, to make clappers and whistles, as a drug or medication and as ceremonial items. The Narrowleaf Willow may be useful in re-vegetating riparian areas and planting on stream bottoms to prevent surface erosion. It is more of a thicket-forming than a tree-forming species with individual stems having a life span of 10 to 20 years of age. Narrowleaf Willow is browsed by Moose (*Alces alces*), Elk (*Cervus elaphus*), Mule Deer (*Odocoileus hemionus*) and American Beaver (*Castor canadensis*) with the thickets providing excellent cover for birds and other wildlife. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Narrowleaf Willow has been EXTIRPATED from this township. *Salix exigua* is native to northwestern, central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph 39), 43 (042510), 44 (041613), 46 (recorded as *Salix exigua* Nutt. including *Salix exigua* Nutt. var. *nevadensis* (Wats.) Schneid. and *Salix exigua* Nutt. var. *stenophylla* (Rydb.) Schneid., Page 211), 48 (genus), 52 (color photograph), 53, 63 (041613 - color presentation), **85** (041613 - color presentation), 124 (110810), 127, 140 (Page 304)*

Salix exigua var. *nevadensis* (see SYNONYMY under *Salix exigua*)

Salix exigua var. *stenophylla* (see SYNONYMY under *Salix exigua*)

***Salix gooddingii* C.R. Ball: Goodding's Willow**

SYNONYMY: *Salix gooddingii* C.R. Ball var. *variabilis* C.R. Ball; *Salix nigra* H. Marshall var. *vallicola* W.R. Dudley. COMMON NAMES: Black Willow (a name also applied to other taxa); Dudley Willow; Dudley Willow's; Goodding Black Willow; Goodding Willow; Goodding's Black Willow; Goodding's Willow; Gooding's Willow (error); Goodings Willow (error); Sauce (Spanish); Sauz (Spanish: Mexico, Sonora); Sáuz (Spanish: Mexico, Sonora); Southwestern Willow; Valley Willow (a name also applied to other taxa); Western Black Willow (a name also applied to other taxa). DESCRIPTION: Terrestrial perennial deciduous tree (4 to 98 feet in height with a broad rounded crown); the older bark may be gray or gray & tan and deeply furrowed; the branches are pale gray-brown to yellow-brown; the twigs may be brown, pale gray, gray-tan, yellow or yellow-brown; the leaves (2 to 4 inches in length) may be green, shiny green, yellow or yellowish-green, the leaf color may or may not be the same on both sides; the male flowers (catkins 1½ to 3 inches in length) and female flowers (catkins 1 to 2½ inches in length), usually borne on separate trees, may be cream, green, yellow or yellow-green; the anthers are yellow; flowering generally takes place between mid-December and late June (additional records: one for mid-July and one for early mid-August); the seeds are cottony. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides;

rocky mesas; plateaus; hanging gardens; along rocky canyons; along bedrock, bouldery-gravelly-sandy, rocky, sandy and silty canyon bottoms; meadows; foothills; rocky hillsides; bases of hills; rocky, rocky-sandy, sandy, clayey-loamy and silty slopes; bouldery-stony-gravelly-sandy and rocky-sandy-loamy alluvial fans; rock outcrops; amongst boulders and rocks; bouldery niches; gravelly, sandy, clayey, clayey-loamy and silty flats; uplands; basins; valley floors; along bouldery-sandy valley bottoms; coastal prairies; coastal beaches; along railroad right-of-ways; roadsides; along and in rocky and sandy arroyos; rocky bottoms of arroyos; along and in rocky draws; gullies; within gravelly-clayey-loamy ravines; in sand and silt about seeps; in gravel and sand around springs; in sand along and in streams; sandy streambeds; in sand along and in creeks; along and in bouldery-sandy-silty, rocky, cobbly-gravelly-silty, sandy and silty creekbeds; in gravel and sand along rivers; along and in bouldery, sandy and silty riverbeds; along and in rocky, rocky-sandy, gravelly-sandy and sandy washes; along and in bouldery, rocky, sandy and silty-clayey drainages; along and in rocky, gravelly and silty-clayey drainage ways; along rocky-sandy-clayey-loamy watercourses; sandy-clayey watersheds; around and in pools; boggy areas; ciénegas; freshwater marshes; swamps; depressions; sumps; bottoms of sumps; along (bouldery-stony-gravelly-sandy, bouldery-gravelly-sandy, gravelly-clayey, sandy and loamy) banks of streams, creeks, rivers and washes; borders of washes; along (muddy, sandy and sandy-clayey) edges of gullies, seeps, streams, creeks, rivers, pools, ponds, lakes, playas, freshwater and saltwater marshes and sloughs; (muddy, rocky and sandy) margins of basins, rivers, washes, pools, ponds, lakes, lakebeds and marshes; along shores of rivers, ponds and lakes; mudflats; gravel and sand bars; sandy beaches; sandy and silty benches; sandy terraces; bottomlands; along boulder-stony-gravelly-sandy-silty, bouldery-gravelly-sandy-loamy, rocky, cobbly-gravelly, gravelly, gravelly-sandy, gravelly-silty, sandy and silty floodplains; willow thickets; mesquite woodlands; along fencelines; along dikes; rocky edges and beds of stock tanks; banks, edges and shores of reservoirs; along canals; canal banks; along and in cindery and sandy ditches; along ditch banks; rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy, sandy-clayey and silty riparian areas, and disturbed areas growing in shallow water; muddy, and wet, moist and damp bouldery, bouldery-stony-gravelly-sandy, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-sandy, cobbly-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-gravelly-sandy loam, rocky-sandy loam, rocky-sandy-clayey loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and bouldery-stony-gravelly-sandy silty, cobbly-gravelly-silty, gravelly silty, gravelly-sandy silty and silty ground, occurring from below sea level to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and useful in the re-vegetating of disturbed riparian areas. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop; it was also noted as having been used as a tool and as a drug or medication. This plant is important in stream bank protection and in controlling erosion and provides valuable shade for fish and other wildlife. The Goodding Willow provides cover and browse for wildlife, and the bark is eaten by beavers. This plant is a preferred food plant of the American Beaver (*Castor canadensis*) and is used in the building of their lodges and dens. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Goodding Willow has been EXTIRPATED from this township; however, one tree can be observed growing on the edge of the channalized Santa Cruz River. *Salix gooddingii* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Salix nigra* Marsh. var. *vallicola* Dudley), 15, 18 (genus), 28 (color photograph 62), 43 (042610), 44 (041713), 46 (Page 212), 48 (genus), 52 ("Goodding Willow" listed as a common name under *Salix nigra* Marsh), 53, 58, 63 (041713 - color presentation), 77, **85** (041713 - color presentation), **89** (reported as being a tree located on the Santa Cruz Flood-plain, recorded as *Salix nigra* Marsh), 115 (color presentation), 124 (081411), 127, 140 (Page 304), **WTK***

Salix gooddingii var. *variabilis* (see *Salix gooddingii*)

Salix nigra (see footnote 89 under *Salix gooddingii*)

Salix nigra var. *vallicola* (see *Salix gooddingii*)

Sapindus drummondii (see *Sapindus saponaria* var. *drummondii*)

***Sapindus saponaria* C. Linnaeus var. *drummondii* (W.J. Hooker & G.W. Arnott) L.D. Benson: Western Soapberry**

SYNONYMY: *Sapindus drummondii* W.J. Hooker & G.W. Arnott. COMMON NAMES: Abolillo (Spanish: Mexico, Sonora); Amole (a name also applied to the species and other species); Amole <yamole, yamolli> ("Soap", Spanish)[140]; Amole de Bolita ("Soap Balls", Spanish: Mexico)[140]; Amolillo (a name also applied to the species, Spanish); Amolillo ("Little Soapy One", Spanish: Sonora)[140]; Arbolio ("Little Tree", Spanish: Sonora)[140]; Arbolillo (Spanish); Bibi <pipe, pipal> ("fruit", Oto-Manguean: Zapotec)[140]; Boliche (a name also applied to the species, Spanish); Boliche (Language Family Unknown: Sinaloa)[140]; Cherioni (a name also applied to the species, Spanish); Cherrion; Chinaberry; Chirrión (a name also applied to the species, Spanish: Mexico, Sonora); Cirioni <cherioni> (Spanish: Arizona)[140]; Drummond Soapberry; Guayul (a name also applied to the species, Spanish); Indian Soap Plant; Jaboncillo (a name also applied to the species, Spanish); Jaboncillo ("Little Soap", Spanish: Nuevo León, San Luis Potosí, Sonora, Tamaulipas and south)[140]; Jutuhui (Uto-Aztecan: Guarijío)[140]; Mata Muchacho (a name also applied to the species, Spanish); Matamuchacho ("Boy Killer", Spanish: Sonora)[140]; Mexican Soapberry; Ojo de Loro (a name also applied to the species, Spanish); Palo Blanco (a name also applied to the species, Spanish); Palo Blanco ("White Tree", Spanish: Chihuahua)[140]; Soap Berry (a name also applied to other taxa); Soap-berry (English)[140]; Soapberry (a name also applied to the species, the genus *Sapindus* and the Sapindaceae); Tehistle <tehoitzli, tehuixtle, tehuitle> ("Sharp Rock", Uto-Aztecan: Náhuatl)[140]; Tubchi <tupchi> (Uto-Aztecan: Mayo, Sonora)[140]; Western Soapberry (a name also applied to the species); Wild Chinaberry; Wild China-tree; Wild Chinatree. DESCRIPTION: Terrestrial perennial drought- and cold-deciduous shrub or tree (7 to 50 feet in height with a rounded crown 25 to 30 feet in width); the bark is gray, grayish, grayish-brown, reddish-brown or yellow-gray; the twigs are gray-brown, yellow-green or yellowish-gray; the leaflets (13 to 19) are a light green or dull yellow-green turning to yellow-gold in the fall generally without wings on the compound leaf axis; the flowers (1/8 to 1/4 inch in diameter in clusters 6 to 9 inches in length) are cream, cream-white, cream-yellow, greenish-white, white, yellow or yellowish-white; flowering generally takes place between early May and late July (additional records: one for late March and one for mid-August; flowering as late as August has been reported); the poisonous fruits (3/8 to 1/2 inch in diameter) are amber, golden, orange, orange-brown, yellowish or yellow-amber turning black or reddish-brown when dry. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; along rocky canyons; rocky canyon walls; canyon sides; along rocky, gravelly-clayey, sandy-loamy and loamy canyon bottoms; talus slopes; crevices in rock; meadows; foothills; hilltops; rocky and rocky-clayey hillsides; rocky, rocky-loamy, rocky-clayey, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, clayey and silty slopes; rock outcrops; amongst boulders; sand dunes; sandy-silty berms; plains; bouldery and sandy flats; valley floors; along roadsides; along and in rocky and sandy arroyos; bottoms of arroyos; within draws; gulches; ravines; springs; along rocky streams; along streambeds; along and in creeks; along and in creekbeds; bouldery and sandy riverbeds; along and in bedrock, rocky, rocky-gravelly and sandy washes; along bouldery drainages; along watercourses; along banks of streams, creeks, rivers and drainages; borders of washes; along edges of creekbeds and washes; (sandy) sides of rivers; (sandy) shores of riverbeds; terraces; sandy bottomlands; sandy floodplains; mesquite bosques and woodlands; fencerows; edges of stock tanks; rocky riparian areas; sandy waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy and sandy ground; rocky loam, gravelly-clayey loam, sandy loam and loam ground; rocky clay, gravelly clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 6,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as tools, for making toys and as a drug or medication. Birds and Raccoons eat the fruits. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Western Soapberry has been EXTIRPATED from this township. *Sapindus saponaria* var. *drummondii* is native to south-central and southern North America. *5, 6, 13, 15, 28 (color photograph 103), 42 (041713), 43 (042710), 44 (041713 - no record of species or genus), 46 (Page 528), 52 (recorded as *Sapindus drummondii* Hook. & Arn., color photograph), 53 (recorded as *Sapindus drummondii* Hook. & Arn.),

58, 63 (041713 - color presentation), 80 (*Sapindus saponaria* var. *drummondii* is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This small tree growing along streams is considered poisonous but it is seldom eaten by livestock."), **85** (041713 - color presentation), **89** (reported as being a tree located on the Santa Cruz Flood-plain), 91, 115 (color presentation of the species), 127, 140 (recorded as *Sapindus drummondii* Hooker & Arnott, Pages 110, 255-257 & 305)*

Scrophulariaceae: The Figwort Family

***Castilleja exserta* (A.A. Heller) T.I. Chuang & L.R. Heckard (subsp. *exserta* is the subspecies reported as occurring in Arizona): Exserted Indian Paintbrush**

SYNONYMY: (for subsp. *exserta*: *Orthocarpus purpurascens* G. Bentham; *Orthocarpus purpurascens* G. Bentham var. *palmeri* A. Gray). COMMON NAMES: Banded Owl's Clover (subsp. *latifolia*); Banded Owl's-clover (subsp. *latifolia*); Common Owl's Clover (also applied to other taxa); Deep Pink Owl's Clover (subsp. *venusta*); Deep Pink Owl's-clover (subsp. *venusta*); Escobita ("Little Broom", Spainish); Escobita Owl Clover; Escobita Owlclover; Escobita Owl's Clover; Escobita Owl's-clover; Escobita Owlclover; Exserted Indian Paintbrush (not recommended for usage); Exserted Indian Paintbrush (subspp. *exserta* and *venusta*, not recommended for usage); Exserted Owl Clover; Exserted Owl-clover; Exserted Owl's Clover; Exserted Owl's-clover; Exserted Owls Clover; Exserted Owls-clover; Exserted Owls' Clover; Exserted Owls'-clover; Exserted Paintbrush; Indian Paintbush (not recommended for usage); Mohave Owl Clover; Ornate Owl's Clover; Ornate Owl's-clover; Owl Clover (also applied to other taxa); Owl's Clover (also applied to other taxa); Pale Purple Owlclover (*Orthocarpus purpurascens* var. *pallidus* - Not Accepted, *Castilleja exserta* subsp. *exserta* - Accepted); Purple Owl Clover; Purple Owl-clover; Purple Owlclover; Purple Owl's Clover; Purple Owl's-clover; Purple Owls Clover; Purple Owls-clover; Purple Owlsclover; Purple Owls' Clover; Purple Owls'-clover; Red Owl Clover; Red Owl-clover; Red Owlclover; Red Owls Clover; Red Owl's Clover; Red Owl's-clover; Rose Purple Owl's Clover; Rose-purple Owl's Clover; Rose-purple Owl's-clover; Wideleaf Indian Paitbrush (subsp. *latifolia*, not recommended for usage); Wide-leaf Paitbrush (subsp. *latifolia*); Wideleaf Paitbrush (subsp. *latifolia*). DESCRIPTION: Terrestrial annual forb/herb (erect stems 3 to 16 inches in height); the stems may be green, maroon or purple; the leaves may be green-gray, greenish, purple-green or purplish; the flowers (1 to 1¼ inches in length in broom-like spikes of bracts to 1 inch in length) may be pale lavender & yellow, lavender, lavender & white, lavender-rose, magenta, magenta & white, magenta-pink, magenta-pink-lavender, magenta-rose, pink, pink & purple, pink & yellow, dark pink & white, pink-lavender, pink-magenta, pink-purple, bright pink-purple & yellow, pink-white, pinkish-purple, pinkish-violet, purple, purple & magenta, purple & white, purple & white & yellow, purple-lavender, purple-lavender-pink, purple-pink, purple-red & yellow, purple-white-yellow, purple-yellow, red, deep red, reddish-purple, rose, rose-lavender, rose-lavender-white, rose-pink, rose-purplish, rose-white, rose-yellow, violet, white, white-purple-magenta, white-yellow, yellow or yellow-maroon; the stigmas may be purple; the anthers are yellow; flowering generally takes place between late January and early July (additional records: one for mid-September; heaviest blooming period may occur between March and May). HABITAT: Within the range of this species it has been reported from mountains; rocky and rocky-sandy mesas; plateaus; along rocky cliffs; canyons; sandy-loamy canyon bottoms; bluffs; bedrock and gravelly knolls; rocky, shaley and clayey-loamy ridges; bedrock, rocky and clayey ridgetops; openings in forests, woodlands and scrubs; rocky-sandy and loamy-clayey meadows; foothills; bouldery, rocky, gravelly-loamy and sandy hills; rocky hilltops, rocky and cobbly hillsides; rocky, rocky-cobbly-sandy-clayey, rocky-gravelly, rocky-sandy, rocky-clayey, gravelly, sandy-loamy, clayey, clayey-loamy and silty-clayey-loamy slopes; rocky-sandy alluvial fans; gravelly and sandy bajadas; bouldery and rocky outcrops; sandy-loamy and clayey barrens; gravelly, sandy and sandy-silty plains; gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-silty and clayey flats; basins; valley floors; along coastal bluffs; coastal plains; sandy coastal strands; along railroad right-of-ways; along sandy and sandy-loamy roadsides; along gravelly arroyos; gulches; gullies; ravines; around springs; around seeping streams; creeks; along gravelly-sandy creekbeds; along rivers; sandy riverbeds; along and in rocky-sandy, gravelly and sandy washes; within drainages; vernal pools; swales; (rocky-gravelly) banks of streams, rivers and washes; (sandy) edges of rivers, riverbeds, washes, pools, vernal pools and lakes; (clayey) margins of drainages; shores of lakes; benches; gravelly and sandy terraces; sandy bottomlands; edges of stock tanks; edges of canals; gravelly-sandy and sandy riparian areas, and recently burned areas in scrubs growing in moist and dry bouldery, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, clayey loam, silty-clayey loam and silty loam ground; rocky clay, rocky-cobbly-sandy clay, loamy clay and clay ground, and sandy silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Castilleja exserta* is native to southwest-central and southern North America. *5, 6, 42 (041813), 43 (042710), 44 (041813), 46 (recorded as *Orthocarpus purpurascens* Benth., Page 792 including *Orthocarpus purpurascens* Benth. var. *palmeri* Gray), 48 (genus), 63 (041813 - color presentation), 80 (Species of the genus *Castilleja* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Various species of this genus are secondary or facultative selenium absorbers."), **85** (041913 - color presentation including habitat), 115 (color presentation), 124 (110810 - no record, genus), 140 (recorded as *Castilleja exserta* (Heller) Chuang & Heckard [*Orthocarpus purpurascens* Bentham], Page 305)*

***Castilleja exserta* (A.A. Heller) T.I. Chuang & L.R. Heckard subsp. *exserta*: Exserted Indian Paintbrush**

SYNONYMY: *Orthocarpus purpurascens* G. Bentham; *Orthocarpus purpurascens* G. Bentham var. *palmeri* A. Gray. COMMON NAMES: Common Owl's Clover (a name also applied to the species and other taxa); Escobita ("Little Broom", Spainish); Mohave Owl Clover (a name also applied to the species); Owl Clover (a name also applied to the species and other

taxa); Owl's Clover (a name also applied to the species and other taxa); Texas Cloves; Typical Common Owl's Clover; Typical Escobita Owl Clover; Typical Escobita Owlclover; Typical Escobita Owl's Clover; Typical Escobita Owl's-clover; Typical Escobita Owlclover; Typical Exserted Indian Paintbrush (not recommended for usage); Typical Exserted Owl Clover; Typical Exserted Owl-clover; Typical Exserted Owl's Clover; Typical Exserted Owl's-clover; Typical Exserted Owls Clover; Typical Exserted Owls-clover; Typical Exserted Owls' Clover; Typical Exserted Owls'-clover; Typical Exserted Paintbrush; Typical Ornate Owl's Clover; Typical Ornate Owl's-clover; Typical Purple Owl Clover; Typical Purple Owl-clover; Typical Purple Owlclover; Typical Purple Owl's Clover; Typical Purple Owl's-clover; Typical Purple Owls Clover; Typical Purple Owls-clover; Typical Purple Owlsclover; Typical Purple Owls' Clover; Typical Purple Owls'-clover; Typical Red Owl Clover; Typical Red Owl-clover; Typical Red Owlclover; Typical Red Owls Clover; Typical Red Owl's Clover; Typical Red Owl's-clover; Typical Rose Purple Owl's Clover; Typical Rose-purple Owl's Clover; Typical Rose-purple Owl's-clover. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 to 16 inches in height); the stems may be green or purple; the leaves may be greenish, gray-green or purplish; the flowers (1 to 1¼ inches in length in broom-like spikes of bracts to 1 inch in length) may be lavender, lavender-rose, magenta, magenta & white, magenta-pink, magenta-pink-lavender, magenta-rose, pink, pink & yellow, pink-magenta, pink-purple, purple, purple-lavender-pink, purple-yellow, red, red-purple, rose, rose-lavender, rose-pink, rose-purplish, rose-white, rose-yellow, violet, white or yellow-maroon; flowering generally takes place between late January and mid-May (additional records: one for early June and one for mid-September; heaviest blooming period may occur between March and May). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; plateaus; along rocky cliffs; canyons; sandy-loamy canyon bottoms; bedrock and gravelly knolls; rocky and shaley ridges; openings in forests, woodlands and scrubs; rocky-sandy and loamy-clayey meadows; foothills; rocky and gravelly-loamy hills; rocky hillsides; rocky, rocky-cobbly-sandy-clayey, rocky-gravelly, rocky-sandy, rocky-clayey, gravelly, sandy-loamy, clayey and silty-clayey-loamy slopes; gravelly bajadas; banks; gravelly, sandy and sandy-silty plains; gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and sandy-silty flats; basins; valley floors; along coastal bluffs; sandy coastal strands; along sandy roadsides; along arroyos; gulches; gullies; ravines; around springs; around seeping streams; creeks; along gravelly-sandy creekbeds; along rivers; sandy riverbeds; along and in rocky, gravelly and sandy washes; (rocky-gravelly) banks of streams and rivers; (sandy) edges of rivers, riverbeds and washes; shores of lakes; benches; gravelly terraces; sandy bottomlands; floodplains; edges of stock tanks; edges of canals, and gravelly-sandy and sandy riparian areas growing in dry rocky, rocky-gravelly, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam and silty-clayey loam ground; rocky clay, rocky-cobbly-sandy clay, loamy clay and clay ground, and sandy silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Castilleja exserta* subsp. *exserta* is native to southwest-central and southern North America. *5, 6, 13 (color photograph of *Orthocarpus purpurascens* in habitat: Plate C.2., Page 391), 15 (recorded as *Orthocarpus purpurascens* Benth.), **16** (recorded as *Orthocarpus purpurascens* Benth.), 28 (recorded as *Orthocarpus purpurascens*, color photographs 669 A&B), 42 (041813), 43 (042710), 44 (041813 - color photograph), 46 (recorded as *Orthocarpus purpurascens* Benth., Page 792 including *Orthocarpus purpurascens* Benth. var. *palmeri* Gray), 48 (genus), 58 (recorded as *Orthocarpus purpurascens* Benth.), 63 (041813 - color presentation), **77** (recorded as *Orthocarpus purpurascens*, color photograph #94), 80 (Species of the genus *Castilleja* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Various species of this genus are secondary or facultative selenium absorbers."), **85** (041913 - color presentation), 86 (recorded as *Orthocarpus purpurascens*, color photograph), **89** (reported as being a winter annual herb located on the Mesa-like Mountain Slopes, recorded as *Orthocarpus purpurascens* Benth. var. *palmeri* Gray), 115 (color presentation of the species), 124 (110810 - no record, genus), 140 (recorded as *Castilleja exserta* (Heller) Chuang & Heckard [*Orthocarpus purpurascens* Bentham], Page 305)*

Linaria canadensis var. *texana* (see *Nuttallanthus texanus*)

Linaria texana (see *Nuttallanthus texanus*)

***Maurandella antirrhiniflora* (F.W. von Humboldt & A.J. Bonpland ex C.L. von Willdenow) W.H. Rothmaler: Roving Sailor**

SYNONYMY: *Maurandya antirrhiniflora* F.W. von Humboldt & A.J. Bonpland ex C.L. von Willdenow. COMMON NAMES: Blue Snapdragon Vine; Chicka-biddy (English)[140]; Climbing Snapdragon; Little Snapdragon Vine; Mexican Snapdragon Vine; Mipil (Spanish: Hidalgo)[140]; Roving Sailor (English: Arizona, New Mexico, Texas to Florida)[140]; Shį Násdzid <si nal$_3$idi> (Athapascan: Navajo)[140]; Snapdragon Maurandya; [Blue, Little, Violet, Vine] Snapdragon [Vine] (English)[140]; Snapdragon Vine; Tłonanesdidzi ("Vine", Athapascan: Chiricahua and Mescalero Apache)[140]; Twining Snapdragon (a name also applied to other species); Twining Snapdragon Vine; Violet Twining; Violet Twining Snapdragon. DESCRIPTION: Terrestrial perennial forb/herb or vine (climbing, trailing and/or twining stems 1 to 8 feet in length; one plant was observed and described as being a climbing vine covering an area 3 feet by 2 feet); the arrowhead-shaped leaves are a bright green; the flowers may be blue, blue-lavender, blue-purple, blue-violet, blue & white, lavender, lavender-white, lilac, light magenta, magenta, magenta-lilac, magenta-pink, magenta-purple, maroon-pink, pink, pink-fuchsia, pink-purple, dark pink, light purple, purple, dark purple, purple-blue, purple-lilac, purple-pink, purple-red, purple-rose, purple & white, purple & yellow, pale purplish, bright red, red-purple, red-rose, reddish-lavender, reddish-pink, reddish-purple, rose, rose-pink, rose-purple, rose-red, pale violet or white; flowering generally takes place between late March and early November (additional records: one for late February and one for early March); the fruits are cup-shaped. HABITAT: Within the range of this species it has been reported from mountains;

mountainsides; bouldery and gravelly mesas; plateaus; rims of canyons; amongst rocky cliffs; bases of cliffs; rock walls; bouldery, rocky and gravelly-loamy canyons; along canyon walls; bouldery, rocky and cobbly canyon bottoms; gorges; gravelly talus slopes; crevices in rocks; rocky ledges; rocky-gravelly meadows; cinder cones; foothills; rocky hills; rocky hillsides; bedrock, bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy-loamy, rocky-sandy, stony, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders, rocks and pebbles; rocky alcoves; debris fans; sandy lava flows; sand dunes; flats; basins; valley floors; along gravelly-loamy roadsides; within arroyos; clayey bottoms of arroyos; rocky draws; gulches; seeps; rocky springs; along streams; along and in rocky and gravelly streambeds; along creeks; rocky creekbeds; along rivers; sandy riverbeds; along and in rocky, shaley, gravelly and sandy washes; along drainages; drainage ways; watercourses; along sandy waterfalls; in shallow pools; along (rocky and sandy) banks of arroyos, streams, creeks, rivers and washes; borders of washes; edges of washes and lakes; along margins of arroyos and washes; along sides of washes; (pebbly) shores of lakes; gravel bars; benches; shaley and sandy terraces; sandy bottomlands; floodplains; mesquite bosques, and bouldery riparian areas growing in wet, moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cobbly-gravelly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-gravelly-sandy loam, gravelly loam, sandy loam, sandy-clayey loam and clayey loam ground; clay ground, and silty ground often observed growing in the shade under and in shrubs and trees and amongst rocks, occurring from 1,200 to 8,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The vines will die back to the ground in the winter months. *Maurandella antirrhiniflora* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Maurandya antirrhiniflora*, color photograph 667), 43 (042710), 44 (021611), 46 (recorded as *Maurandya antirrhiniflora* Humb. & Bonpl., Page 767), **56**, **57**, 58, 63 (041913 - color presentation), 77 (recorded as *Maurandya antirrhiniflora*, color photograph #93), **85** (041913 - color presentation), 86 (recorded as *Maurandya antirrhiniflora*, color photograph), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain, recorded as *Maurandya antirrhiniflora* (Poir.), 115 (color presentation), 124 (021611 - no record of species), 140 (Pages 192-193 & 305 - recorded as *Maurandya antirrhiniflora* Humboldt & Bonpland)*

Maurandya antirrhiniflora (see *Maurandella antirrhiniflora*)

Mimulus cordatus (see *Mimulus guttatus*)

***Mimulus guttatus* A.P. de Candolle: Seep Monkeyflower**

SYNONYMY: *Mimulus cordatus* E.L. Greene; *Mimulus guttatus* A.P. de Candolle var. *depauperatus* (A. Gray) A.L. Grant; *Mimulus guttatus* A.P. de Candolle var. *guttatus* A.P. de Candolle; *Mimulus nasutus* E.L. Greene; *Mimulus parishii* M. Gandoger; *Mimulus unimaculatus* F.W. Pennell. COMMON NAMES: Almizcle Amarillo (Spanish: Mexico)[140]; Antapittsehkwana (Uto-Aztecan: Shoshoni)[140]; Baseró (Uto-Aztecan: Tarahumara, Chihuahua)[140]; Berro (Portuguese: Brazil); Berro ("Water Cress", Spanish: Chihuahua, Sonora)[140]; Blunt-calyxed Monkey-flower (*Mimulus guttatus* subsp. *arvensis* - Not Accepted, *Mimulus guttatus* - Accepted); Common Large Monkey-flower; Common Large Monkeyflower; Common Monkey Flower (a name also applied to other species); Common Monkey-flower (a name also applied to other taxa); Common Monkeyflower (a name also applied to other taxa); Common [Round-leaf, Seep, Spring, Spotted, Yellow] Monkey-flower (English)[140]; Common Stream Monkeyflower; Common Streamside Monkeyflower; Common Yellow Monkey Flower; Common Yellow Monkey-flower; Common Yellow Monkeyflower; Creek Monkey Flower; Creek Monkey-flower; Creek Monkeyflower; Creekside Monkeyflower; Golden Monkey Flower; Golden Monkey-flower; Golden Monkeyflower; Gyckelblomma (Swedish); Lama ("Mud", Spanish: Chihuahua, Sonora); Langsdorff's Yellow Monkey Flower; Langsdorff's Yellow Monkey-flower; Large Common Monkey-flower; Large Yellow Monkey-flower; Llantén <lantén> Cimmarón ("Wild *Plantago*", Spanish: Chihuahua)[140]; Mim Gut; Mim-gut; Mimgut; Mimulo (Spanish: Mexico)[140]; Monkey Flower (a name also applied to the genus *Mimulus* and the Phrymaceae); Monkey-flower (a name also applied to the genus *Mimulus* and the Phrymaceae); Monkeyflower (a name also applied to the genus *Mimulus* and the Phrymaceae); Paakor**ɨ**b**ɨ** (Uto-Aztecan: Kawaiisu)[140]; Parish's Monkeyflower (*Mimulus parishii* Gand. - Not Accepted, *Mimulus guttatus* - Accepted; *Mimulus parishii* Greene - Accepted); Seep Monkey-flower (a name also applied to other taxa); Seep Monkeyflower (a name also applied to other taxa); Seep Spring Mimulus; Seep Spring Monkey Flower; Seep-spring Mimulus; Seep-spring Monkey Flower; Seep-spring Monkeyflower; Shieldbract Monkeyflower (*Mimulus guttatus* subsp. *glaucescens* - Not Accepted, *Mimulus glaucescens* - Accepted); Small-flowered Monkey-flower (*Mimulus guttatus* subsp. *micranthus* - Not Accepted, *Mimulus guttatus* - Accepted); Small Leaved Monkey-flower (*Mimulus guttatus* subsp. *microphyllus* - Not Accepted, *Mimulus microphyllus* - Accepted); Small-leaved Monkey-flower (*Mimulus guttatus* subsp. *microphyllus* - Not Accepted, *Mimulus microphyllus* - Accepted); Small-leaved Monkey-flower (*Mimulus guttatus* subsp. *microphyllus* - Not Accepted, *Mimulus microphyllus* - Accepted); Spotted Monkey Flower (a name also applied to other taxa); Spring Seep Mimulus; Spring-seep Monkey-flower; Spring-seep Monkeyflower; Spring-seep Mimulus; Stream Mimulus; Stream Monkey Flower; Stream Monkey-flower; Stream Monkeyflower; Streamside Monkey Flower; Streamside Monkey-flower; Streamside Monkeyflower; Suugádi Mamaradï (Uto-Aztecan: Northern Tepehuan, Chihuahua)[140]; Tocasoiahui (Uto-Aztecan: Guarijío)[140]; Toka**ʂ**oiawi (Uto-Aztecan: Mayo)[140]; Utah Monkeyflower (*Mimulus glabratus* subsp. *utahensis* - Not Accepted, *Mimulus glabratus* - Accepted); Yellow Common Monkeyflower; Yellow Creek Monkeyflower; Yellow Monkey Flower (a name also applied to other taxa); Yellow Monkey-flower (a name also applied to other taxa); Yellow Stream Monkeyflower; Yellow-stream Monkeyflower. DESCRIPTION: Terrestrial (or semi-aquatic) annual or perennial forb/herb (sprawling decumbent and/or erect stems 2 inches to 5 feet in height); the stems are green; the leaves may be green or dark green; the flowers may be bright orange-yellow, pale yellow, yellow, yellow (with brown-red, golden, maroon, orange,

orange-brown, orange-red, orangish-yellow, red, red-brown, reddish, reddish-brown or reddish-orange spots) or bright yellow; flowering generally takes place between mid-February and early October (additional records: one for early January, one for mid-January, one for late January, one for late October, one for early November, one for mid-November and one for early December; infrequent flowering has been reported as taking place in October, November and December). HABITAT: Within the range of this species it has been reported from bouldery mountains; mountaintops; rocky and gravelly-loamy mountainsides; sandy and sandy-clayey mesas; rocky plateaus; rock walls; rocky cliffs; weeping walls; hanging gardens; rocky bases of cliffs; bouldery and rocky canyons; along bedrock, rocky, rocky-sandy, gravelly-loamy, sandy and loamy-clayey canyon bottoms; rocky talus slopes; avalanche chutes; crevices in rocks; bluffs; knolls; rocky ledges; ridges; rocky clearings in forests and woodlands; gravelly-loamy, sandy-loamy, clayey and clayey-loamy meadows; rocky foothills; bouldery and rocky hills; hilltops; bouldery, rocky, rocky-loamy-clayey, rocky-clayey, shaley, shaley-gravelly and clayey hillsides; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-sandy, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, loamy, clayey-loamy and peaty-sandy slopes; alluvial fans; bajadas; bedrock, bouldery, rocky and clayey outcrops; along and amongst boulders and rocks; on boulders and rocks; felsenmeer; alcoves; sand dunes; sand flats; hummock fields; rocky banks; prairies; mucky, muddy, gravelly, sandy and loamy flats; uplands; rocky-gravelly-loamy basins; sandy valley floors; valley bottoms; along coastal beaches; coastal bluffs; coastal terraces; roadcuts; along rocky, gravelly and sandy roadsides; along and in bedrock and sandy-loamy arroyos; rocky bottoms of arroyos; muddy draws; bottoms of draws; gullies; along gulches; ravines; bottoms of ravines; rocky, gravelly-sandy-clayey-loamy and sandy soils along, around and in seeps; mucky, rocky-sandy, gravelly, sandy-silty and loamy soils around and in springs; spring seeps; geysers; around seeping streams; along streamlets; in bouldery-sandy rivulets; bouldery, rocky, gravelly, sandy and silty soils along and in streams; rocky, rocky-sandy, gravelly and sandy streambeds; along brooks; muddy, gravelly, sandy and loamy soils along and in creeks; along and in bouldery, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy creekbeds; along and in rivers; along and in gravelly and sandy riverbeds; along and in bedrock, rocky, rocky-sandy, stony, cobbly-gravelly, gravelly and sandy washes; within bouldery, rocky, cobbly-loamy and loamy drainages; within drainage ways; along rocky and sandy watercourses; within waterfalls; bases of waterfalls; oases; around and in pools; vernal pools; around ponds; gravelly shores of beaver ponds; along lakes; lakebeds; coves; sandy bogs; ciénegas; in freshwater marshes; rocky-sandy marshy areas; gravelly-clayey-loamy swampy areas; bedrock depressions; sinks; swales; along (muddy, rocky, stony, gravelly-sandy-clayey-loamy, sandy, sandy-clayey, clayey-loamy and loamy) banks of arroyos, springs, rivulets, streams, streambeds, brooks, creeks, creekbeds, rivers, pools and lakes; borders of creeks; along and in (muddy, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-silty) edges of springs, rivulets, streams, creeks, rivers, washes, pools, ponds, lakes, bogs and depressions; (gravelly and sandy) margins of springs, streams, creeks and ponds; (muddy and sandy) sides of streams, creeks and rivers; along (muddy and sandy) shores of rivers and lakes; mudflats; draw-down areas; along mud, rocky-sand, gravel, gravelly-sand and sand bars; sandy beaches; cobbly-sandy benches; shelves; sandy and silty-loamy terraces; along bouldery, sandy and loamy bottomlands; gravelly-sandy and sandy floodplains; clayey lowlands; dams; along beaver dams; edges of stock tanks; banks of reservoirs; canals; edges of canals; along and in ditches; rocky ditch banks; rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy and humusy riparian areas, and disturbed areas growing in shallow water; mucky; muddy, and wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, shaley-gravelly, stony, cobbly, cobbly-gravelly, cobbly-sandy, gravelly, gravelly-sandy, sandy and peaty-sandy ground; rocky-gravelly loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam, silty-clayey loam and loam ground; rocky-loamy clay, rocky clay, sandy clay, loamy clay and clay ground; sandy silty and silty ground, and rocky humusy and humusy ground, occurring from sea level to 13,000 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider planting with native mosses, sedges and violets. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Mimulus guttatus* is native to northwestern, northern, west-central and southern North America. *5, 6, 15, 28 (color photograph 516), 42 (042013), 43 (042013 - *Mimulus guttatus* var. *depauperatus* A.L. Grant), 44 (041913), 46 (Page 781), 48 (genus), 58, 63 (041913 - color presentation including habitat), 77 (color photograph #52), **85** (042013 - color presentation), 86 (color photograph), 115 (color presentation), 124 (081411), 127, 140 (placed in the Phrymaceae, Pages 261-262 & 298)*

Mimulus guttatus var. *depauperatus* (see *Mimulus guttatus*)

Mimulus guttatus var. *guttatus* (see *Mimulus guttatus*)

Mimulus nasutus (see *Mimulus guttatus*)

Mimulus parishii M. Gandoger (see *Mimulus guttatus*)

Mimulus unimaculatus (see *Mimulus guttatus*)

***Nuttallanthus texanus* (G.H. Scheele) D.A. Sutton: Texas Toadflax**

SYNONYMY: *Linaria canadensis* (C. Linnaeus) G.L. Dumont de Courset var. *texana* (G.H. Scheele) F.W. Pennell; *Linaria texana* G.H. Scheele. COMMON NAMES: Blue Toad Flax (a name also applied to other species and the the genus *Nuttallanthus*); Blue Toadflax (a name also applied to other species and the genus *Nuttallanthus*); Large Blue Toad Flax; Large

Blue Toad-flax; Large Blue Toadflax; Larger Blue Toad Flax; Larger Blue Toad-flax; Larger Blue Toadflax; Linaria (Spanish: Mexico)[140]; Old Field Toad Flax (a name also applied to other taxa); Old-field Toadflax (a name also applied to other taxa); Rough Seeded Blue Toadflax; Rough-seeded Blue Toad Flax; Rough-seeded Blue Toad-flax; Texas Blue Toad Flax; Texas Toad Flax; Texas Toad-flax; Texas Toadflax; Toadflax (a name also applied to other taxa); [Texas] Toadflax (English)[140]. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 8 to 32 inches in height); the basal rosette of leaves are dark green; the flowers may be light blue, pale blue-violet, blue, blue-purple, blue-violet, dark blue-lavender, lavender, lavender-blue, light purple, purple, dark purple, purple-blue, purple & white & yellow, purplish, purplish-blue or violet; flowering generally takes place between late January and early August (additional records: one for mid-September and one for mid-October). HABITAT: Within range reported from mountains; mountaintops; bases of mountains; sandy mesas; canyons; gravelly canyon bottoms; talus; crevices in rocks; clayey pockets of soil; shaley ridges; ridgetops; rocky meadows; foothills; rocky hills; rocky and rocky-gravelly hillsides; bouldery, bouldery-sandy, rocky, rocky-gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy and clayey slopes; rocky-sandy alluvial fans; bajadas; rocky outcrops; amongst boulders; bases of boulders; along volcanic dikes; sandy lava flows, banks; plains; bouldery-sandy, gravelly, gravelly-clayey-loamy and sandy flats; uplands; coastal prairies; railroad right-of-ways; along sandy roadsides; along sandy arroyos; rocky draws; ravines; along seeps; springs; along streams; along and in rocky, rocky-sandy and sandy streambeds; along sandy creeks; rocky-sandy, cobbly and gravelly creekbeds; along rivers; along riverbeds; along and in gravelly-sandy and sandy washes; sandy drainages; within clayey depressions; swales; (loamy) banks of rivers and washes; (gravelly-sandy) edges of arroyos; gravelly, gravelly-sandy and sandy oxbows; terraces; gravelly, gravelly-sandy and sandy bottomlands; sandy floodplains; along sandy ditches; ditch banks; around stock tanks; rocky, gravelly-sandy and sandy riparian areas; recently burned areas of woodlands and scrubs, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam and loam ground, and clay ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Nuttallanthus texanus* is native to west-central and southern North America. *5, 6, 15, 28 (recorded as *Linaria texana*, color photograph), 42 (042013), 43 (072510), 44 (042013), 46 (recorded as *Linaria texana* Scheele, Page 765), 58, 63 (042013 - color presentation), 77 (color photograph #92 labeled *Linaria texana*), **85** (042013 - color presentation), 86 (note under *L. canadensis*), 115 (color presentation), 140 (Pages 262-263 & 305), **WTK** (May 8, 2011)*

Orthocarpus purpurascens (see *Castilleja exserta* var. *exserta*)

Orthocarpus purpurascens var. *palmeri* (see *Castilleja exserta* var. *exserta*)

***Penstemon parryi* (A. Gray) A. Gray: Parry's Beardtongue**

COMMON NAMES: Alhelias del Campo (Spanish); Desert Penstemon; Jarritos (Spanish); Parry Beardtongue; Parry's Beardtongue; Parry Penstemon; Parry's Penstemon; Pichelitos (Spanish); San José de la Sierra (Spanish); Varita de San Jose (Spanish); Wind's Flower. DESCRIPTION: Terrestrial perennial forb/herb (2 to 5 feet in height and 1 to 3 feet in width); the foliage may be blue-green or gray-green; the flowers may be lavender, magenta, pink, pinkish-lavender, pinkish-purple, purple, purple-magenta, pink, red, rose-magenta, rose-pink or scarlet; flowering generally takes place between mid-February and late June (additional records: one for mid-July, one for late July and one for early August). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; bases of cliffs; rocky canyons; rocky canyon bottoms; bedrock ridges; rocky ridgetops; meadows; foothills; rocky hills; rocky, rocky-gravelly and gravelly hillsides; rocky slopes; bajadas; rocky outcrops; amongst rocks; alpine fell fields; plains; gravelly flats; basins; railroad right-of-ways; along rocky, gravelly, gravelly-sandy, sandy and clayey roadsides; rocky and sandy arroyos; gullies; seeps; around streams; streambeds; sandy creekbeds; along and in rocky and sandy washes; within drainages; along (rocky) banks of creeks, rivers and washes; borders of washes; edges of washes; margins of rivers; benches; floodplains; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and clayey loam ground, and clay ground, occurring from 900 to 11,500 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Broad-billed Hummingbird (*Cynanthus latirostris*) and Costa's Hummingbird (*Calypte costae*) have been observed visiting the flowers. *Penstemon parryi* is native to southwest-central and southern North America. *5, 6, 10, 15, **16**, 18, 28 (color photograph 673), 43 (072909), 44 (081811 - no record of species; genus record), 46 (Page 773), 48 (genus), **57**, 58, 63 (042013 - color presentation), 77 (color photograph #95), 80 (Species of the genus *Penstemon* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Species of Penstemon are facultative or secondary selenium absorbers."), **85** (042013 - color presentation including habitat), 86 (color photograph), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Penstemon wrightii* Hook.), 115 (color presentation), 124 (081811 - no record of species; genus record), 140 (placed in the Plantaginaceae, Page 298)*

Penstemon wrightii (see footnote 89 under *Penstemon parryi*)

***Veronica peregrina* C. Linnaeus (subsp. *xalapensis* (K.S. Kunth) F.W. Pennell is the subspecies reported as occurring in Arizona): Neckweed**

SYNONYMY: (for subsp. *xalapensis*: *Veronica peregrina* C. Linnaeus var. *xalapensis* (K.S. Kunth) F.W. Pennell). COMMON NAMES: American Speedwell; Annual Smooth Speedwell; Glandular Purslane Speedwell (subsp. *xalapensis*); Hairy Purslane Speedwell (subsp. *xalapensis*); Hairy Purslane-speedwell (subsp. *xalapensis*); Jalapa Speedwell; Mushikusa (Japanese Rōmaji); Necklace Speedwell; Necklace Weed (a name also applied to other taxa); Necklaceweed (a name also applied to other taxa); Neckweed a name also applied to other taxa; Neckweed (subsp. *peregrina*); Peregrine Veronica; Pilgrimsveronika (Swedish); Purselane Speedwell; Pursland Speedwell; Purslane Speedwell; Purslane-speedwell; Speedwell (a name also applied to the genus *Veronica*); Vernal Pool Speedwell (subsp. *xalapensis*); Vernal Pool Veronica (subsp. *xalapensis*); Vernal-pool Veronica (subsp. *xalapensis*); Verónica (Spanish); Veronica-de-xalapa (subsp. *xalapensis*, Portuguese); Wandering Speedwell (a name also applied to other taxa); Wandering Veronica; Wen Mu Cao (transcribed Chinese); Western Purslane Speedwell. DESCRIPTION: Aquatic or terrestrial annual forb/herb (ascending and/or erect stems 4 to 14 inches in height); the leaves are yellow-green; the tiny flowers may be blue, pale lavender, pink-white, purple, purple-blue, white, white-blue, white-cream or white-light pink; flowering generally takes place between early February and mid-October (additional record: one for early November); the heart-shaped fruits are reddish. HABITAT: Within the range of this species it has been reported from mountains; grassy mesas; plateaus; bases of cliffs; along bouldery and rocky canyons; bedrock and bouldery canyon bottoms; bluffs; buttes; ledges; ridges; rocky ridgetops; openings in forests; clayey, clayey-loamy and silty meadows; gravelly bases of foothills; bouldery hills; sandy hilltops; bouldery and rocky hillsides; bouldery, rocky-gravelly, shaley, gravelly-sandy, gravelly-clayey, gravelly-silty-loamy, sandy and silty slopes; rocky-sandy-loamy and gravelly-sandy alluvial fans; bouldery and rocky outcrops; amongst rocks; sand dunes; clayey hummocks; clayey-loamy prairies; plains; gravelly-clayey and loamy flats; uplands; sandy hollows; valley floors; muddy valley bottoms; coastal plains; roadcuts; along gravelly and gravelly-sandy roadsides; within bedrock arroyos; draws; bottoms of draws; gulches; grassy ravines; within muddy seeps; in gravelly-sandy-humusy soil around springs; in muddy and clayey soils along streams; along and in bouldery-sandy and sandy streambeds; along creeks; along rocky-sandy, cobbly, gravelly-sandy and sandy creekbeds; along rivers; sandy riverbeds; along and in muddy, rocky, rocky-clayey, rocky-silty, gravelly and sandy washes; along rocky, rocky-sandy and rocky-silty drainages; within drainage ways; along waterways; waterholes; around and in clayey and clayey-loamy pools; vernal pools; silty-clayey poolbeds; in rocks around silty ponds; pondbeds; in lakes; lakebeds; playas; around and in lagoons; boggy areas; ciénegas; silty marshes; mud holes; loamy-clayey depressions; sumps; along and in clayey swales; along (muddy, rocky, sandy, sandy-loamy, sandy-silty and loamy) banks of streams, creeks, rivers, pools, ponds and lakes; along (muddy and sandy) edges of streams, rivers, washes, pools, ponds, lakes and swamps; along (muddy, gravelly and clayey) margins of streamlets, streams, creeks, rivers, pools, ponds and lakes; (sandy) sides of rivers; along (mucky, muddy, rocky-gravelly and sandy) shorelines of ponds and lakes; muddy draw-down areas; gravelly-silty-loamy mudflats; rocky-sand, gravel, gravelly-sand and sand bars; rocky-sandy and sandy beaches; benches; sandy terraces; bottomlands; silty-clayey floodplains; lowlands; dams; below dikes; in silty-clayey stock tanks; sandy, muddy and silty soils around and in stock tanks (charcos, represos); muddy-rocky edges and shorelines of reservoirs; along ditches; ruts; tire-tracks; silty trenches; rocky, cobbly, gravelly-sandy, sandy and sandy-clayey riparian areas; waste places, and disturbed areas growing in shallow water; mucky; muddy, and wet, soggy, moist, damp and dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; rocky clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground; rocky silty, sandy silty and silty ground, and gravelly-sandy humusy ground, occurring from 100 to 10,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Veronica peregrina* is native to northwestern, northern, central and southern North America; Central America and coastal Islands in the Caribbean Sea, and eastern, western and southern South America. *5, 6, 18 (genus), 43 (042810 - *Veronica peregrina* var. *xalapensis* Kunth), 44 (042013 - color photograph of ssp. *xalapensis*), 46 (Page 785), **56**, **57**, 63 (042810 - color presentation), **85** (042113 - color presentation including habitat), **89** (reported as being a winter annual herb located on the Santa Cruz Flood-plain), 101 (color photograph), 124 (081811)*

Veronica peregrina var. *xalapensis* (see *Veronica peregrina* subsp. *xalapensis*)

Simmondsiaceae: The Jojoba Family

Simmondsia californica (see *Simmondsia chinensis*)

***Simmondsia chinensis* (J.H. Link) C.K. Schneider: Jojoba**

SYNONYMY: *Simmondsia californica* T. Nuttall. COMMON NAMES: California Coffee Berry; California Jojoba; Coffee Berry (a name also applied to other species); Coffeeberry (a name also applied to other species); Coffee Bush (a name also applied to other species); Coffee Bush (English)[140]; Coffee-bush (a name also applied to other species); Deer-nut; Deer [Goat, Pig, Sheep]-nut (English)[140]; Deernut; Goat Nut; Goat-nut (a name also given to the genus *Simmondsia*); Goatnut (a name also given to the genus *Simmondsia*); Gray Box Bush; Ho:hovai (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Ho:howai; Hohoova (Uto-Aztecan: Yaqui)[140]; Hohowai [Ho:howai, pl.; Hohwi, sing.] (Uto-Aztecan: Tohono O'odham)[140]; Ioligam (Tohono O'odham); Jojo Beans (a name given to the plant by seed collectors, Arizona); Jojoba (a name also applied to the genus *Simmondsia* and the Simmondsiaceae, Spanish); Jojoba (English and Spanish)[140]; Jojoba (Swedish), Jojoba Bean; Jojoba Bush; Jojobe; Pig-nut (a name also applied to other species); Pignut (a name also applied to other species); Pnaacöl (Hokan: Seri)[140]; Pnaokt (Seri); Qawnaxal <kowanukal> (Uto-Aztecan: Cahuilla)[140]; Quinine Plant (a name also applied to other species); Quinine Plant

(English)[140]; Quinine-plant; Sheep-nut; Sheepnut; Wild Hazel (English)[140]; Wild-hazel. DESCRIPTION: Terrestrial perennial, drought-resistant evergreen shrub (8 inches to 13 feet in height; one plant was observed and described as being 2 feet in height and 6½ feet in width, plants were observed and described as being 4 feet in height and 6 feet in width, plants were observed and described as being 5¼ feet in height and 5 feet in width); the stems are greenish-tan aging to reddish-brown and gray; the leaves may be blue-gray, gray-green or green; the flowers (male and female flowers are borne on separate plants) may be green, greenish-yellow, greenish-white, yellow or yellow-green; flowering may vary considerably from year to year but generally takes place between late December and mid-August (additional records: one for late September, two for early October, three for mid-October, five for late October, two for early November, four for mid-November, two for late November and two for early December; peak blooms reportedly occur February through April); the ripe fruits are tan. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; plateaus; cliffs; rocky cliff faces; bouldery and rocky canyons; along rocky and gravelly canyon bottoms; rocky crevices; gravelly knolls; bouldery and rocky ridges; rocky ridgetops; rocky foothills; rocky and gravelly hills; hilltops; rocky, rocky-clayey and gravelly hillsides; bouldery, rocky, gravelly, gravelly-sandy, sandy, sandy-loamy and clayey slopes; alluvial fans; bajadas; piedmonts; rocky outcrops; amongst boulders and rocks; rocky coves; dunes; terraces; plains; sandy flats; basins; valley floors; coastal mesas; coastal terraces; coastal beach dunes; coastal plains; coastal beaches; along rocky, rocky-sandy, gravelly-sandy and clayey roadsides; along rocky arroyos; along rocky bottoms of arroyos; draws; along sandy gullies; rocky ravines; seeps; around springs; around seeping streams; along runnels; along streams; along and in streambeds; along creeks; creekbeds; along and in rocky, rocky-sandy, stony, gravelly-sandy and sandy washes; rocky-clayey drainages; along and in drainage ways; bouldery watersheds; (gravelly, gravelly-sandy and sandy) banks of creeks and washes; borders of washes; along edges of arroyos and washes; (rocky) margins of arroyos; rocky and gravelly terraces; loamy bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; sandy loam and loam ground, and rocky clay and clay ground, occurring from sea level to 5,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and may live to be from 100 to over 200 years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a drug or medication. Jojoba is an important browse plant for wildlife and is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*), Jackrabbits (*Lepus* sp.) and Mule Deer (*Odocoileus hemionus*) and desert chipmunks, and Desert Mule Deer, gophers, mice (including the Bailey's Pocket Mouse (*Chaetodipus baileyi* subsp. *baileyi*), pack rats, Collard Peccary (*Peccari tajacu* subsp. *sonoriensis*), rabbits, ground squirrels including the Harris' Antelope Squirrel (*Ammospermophilus harrisii*) and other mammals and birds feed on the seeds. The Jojoba provides cover for many birds and small mammals, the Gambel's Quail (*Callipepla gambelii* subsp. *gambelii*) may use the Jojoba as a nesting site. The Jojoba has also been included as a member of both the Box Family (Buxaceae) and the Spurge Family (Euphorbiaceace). *Simmondsia chinensis* is native to southwest-central and southern North America and coastal islands in the Gulf of Californica. *5, 6, 13 (Pages 117-118), **16**, 18, 26 (color photograph), 28 (color photographs 836 A&B), 43 (042910 - *Simmondsia chinensis* C.K. Schneid.), 44 (082011), 46 (included as a member of the Box Family (Buxaceae), Page 521), 48, 58, 63 (042113 - color presentation), 77, **85** (042113 - color presentation), **89** (reported as being a shrub located on Tumamoc Hill, recorded as *Simmondsia californica* Nutt.), 91 (Pages 369-372), 115 (color presentation), 124 (082011 - no record of species or genus), 127, 134, 140 (Pages 263-265 & 305), **WTK** (May 27, 2005)*

Solanaceae: The Potato Family

Calibrachoa parviflora (A.H. Laurent de Jussieu) W.G. D'Arcy: Seaside Petunia

SYNONYMY: *Petunia parviflora* A.H. Laurent de Jussieu. COMMON NAMES: Few-flower Petunia; Fewflower Petunia; Midget Petunia; Seaside Petunia; Seaside-petunia; Small Flower Petunia; Small Flowered Petunia; Small-flower Petunia; Small-flowered Petunia; Smallflower Petunia; Streamside Petunia; Wild Petunia (a name also applied to other species). DESCRIPTION: Terrestrial (or semi-aquatic) annual forb/herb (spreading prostrate, procumbent and/or decumbent stems 3 inches to 2 feet in length); the leaves may be light green (tinged with red or yellow-green) or dark green; the tiny flowers may be blue, blue-yellow, dark blue with a yellow throat, bluish-purple, pale lavender, lavender, deep lavender, lavender-pink, magenta, magenta with white throats, pink, pink-lavender, pink-purple, dark pink, purple, purplish, reddish-purple, rose, violet or white; flowering generally takes place between early February and early November (additional records: one for early December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy bases of cliffs; rocky canyons; gravelly and sandy canyon bottoms; meadows; foothills; rocky hillsides; rocky, rocky-sandy and silty-loamy slopes; rocky outcrops; sandy and silty-loamy flats; basins; valley floors; valley bottoms; coastal plains; along rocky roadsides; along stony, gravelly and sandy arroyos; sandy gulches; sandy seeps; springs; in bouldery, muddy and sandy soil along and in streams; bouldery-cobbly-sandy, gravelly-sandy and sandy streambeds; along sandy creeks; gravelly and sandy soils along and in rivers; bouldery-cobbly-sandy, rocky-cobbly-sandy, rocky-sandy, sandy and silty-clayey riverbeds; along and in bouldery, bouldery-sandy, rocky, gravelly, gravelly-sandy and sandy washes; poolbeds; vernal poolbeds; lakes; clayey lakebeds; silty playas; cienegas; freshwater marshes; swampy areas; depressions; swales; (gravelly-sandy and sandy) banks of creeks and rivers; (bouldery-sandy and sandy) edges of streams, rivers, riverbeds, pools, vernal pools, ponds and swamps; (sandy) margins of streambeds, pools, ponds, mudflats and floodplains; (sandy) sides of rivers; (muddy, rocky-sandy and clayey) shores of ponds and lakes; areas of drawdown; mudflats; sand bars; benches; sandy terraces; bottomlands; cobbly and sandy floodplains;

lowlands; mesquite bosques; stock tanks; reservoir beds; canals; within ditches; sandy bottoms of ditches; along ditches banks; bouldery-cobbly-sandy, rocky, gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in muddy and wet, moist, damp and dry (rarely reported) bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam, silty loam and loam ground; silty clay and clay ground, and silty ground, occurring from sea level to 5,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Calibrachoa parviflora* is native to southwest-central and southern North America and eastern and southern South America. *5, 6, 18 (genus), 43 (042910 - *Calibrachoa parviflora* (Jussieu) D'Arcy), 44 (082011), 46 (recorded as *Petunia parviflora* Juss., Page 761), 58 (recorded as *Petunia parviflora* Juss.), 63 (042113 - color presentation of seeds), **77** (recorded as *Petunia parviflora* Juss.), **85** (042113 - color presentation), **89** (reported as being a long-lived annual herb located on the Santa Cruz Flood-plain, recorded as *Petunia parviflora* Juss.), 115 (color presentation), 124 (082011 - no record of species or genus)*

Chamaesaracha coronopus (M.F. Dunal) A. Gray: Greenleaf Five Eyes

COMMON NAMES: Five Eye Chamaesaracha; Five-eye Chamaesaracha; Green False Nightshade; Green-false Nightshade; Green Leaf Five Eyes; Green-leaf Five-eyes; Greenleaf Fire Eyes; Greenleaf Five Eyes; Greenleaf Five-eyes; Greenleaf Fiveeyes; Small Groundcherry; Smoothish Chamaesaracha. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (spreading stems 4 to 18 inches in length; plants were observed and described as being 5½ inches in height and 2½ inches in width); the leaves are dark green; the flowers (1/3 to 1/2 inch in diameter) may be cream, cream-light green, cream-yellow, grayish-white, pale green, greenish-white sometimes tinged with purple, greenish-cream, greenish-yellow, lime green, purplish, white, whitish, light yellow, light yellow-cream, pale yellow-pale purple, yellow, yellow & green, yellowish or yellowish-white; flowering generally takes place between early March and mid-October (additional records: one for early November and two for late November); the fruit is a globose berry. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky-gravelly and gravelly-loamy mesas; cliffs; hanging gardens; bouldery-sandy, gravelly and sandy canyons; gravelly and clayey canyon bottoms; rincons; rocky and sandy ridges; ridgetops; openings in woodlands; clayey meadows; foothills; rocky, shaley and clayey hills; hilltops; rocky and chalky hillsides; along sandy escarpments; along rocky, cindery, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-clayey-loamy, loamy and clayey slopes; rocky bajadas; rocky outcrops; sandy lava flows; sand dunes; gravelly banks; prairies; sandy plains; gravelly, sandy, sandy-clayey-loamy and clayey flats; rocky uplands; clayey basins; sandy valley floors; valley bottoms; along railroad right-of-ways; sandy roadbeds; along rocky, rocky-sandy, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, loamy and clayey roadsides; sandy arroyos; bottoms of arroyos; within draws; springs; sandy streambeds; along creeks; along rivers; sandy riverbeds; gravelly, gravelly-sandy-silty, sandy and sandy-loamy washes; rocky-sandy drainages; silty playas; sumps; sandy-silty swales; banks of washes and drainages; sandy edges of washes and drainages; sandy benches; sandy terraces; sandy and clayey bottomlands; floodplains; silty lowlands; edges of ditches; riparian areas; waste places, and disturbed areas growing in dry bouldery-sandy, rocky, rocky-sandy, shaley, shaley-sandy, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-gravelly-sandy-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam and loam ground; sandy clay, sandy-silty clay and clay ground; gravelly-sandy silty, sandy-silty and silty ground, and chalky ground, occurring from 800 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Chamaesaracha coronopus* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 207), 43 (042910 - *Chamaesaracha coronopus* A. Gray), 44 (082111), 46 ("The berries are eaten by the Navajo and Hopi Indians.", Pages 752-753), 63 (042213 - color presentation of seeds), 68, 85 (042213 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 115 (color presentation), 124 (082111), 127*

Datura discolor J.J. Bernhardi: Desert Thorn-apple

COMMON NAMES: Desert Datura; Desert Devil's Apple; Desert Thorn Apple; Desert Thorn-apple; Desert Thornapple; Kotadopi (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Kododop (Pima: Arizona, Maricopa, Wetcamp Sacaton Reservation); Ökenspikklubba (Swedish); Poisonous Nightshade; Small Datura; Small Thorn-apple; Tehui (Mayo); Thorn Apple (a name also applied to other taxa and the genus *Datura*); Tolache; Toloache (a name also applied to the genus *Datura*, Spanish: Mexico, Sonora); Tolvache (Mexico, Sonora). DESCRIPTION: Terrestrial annual forb/herb (spreading ascending and/or erect stems 10 inches to 5 feet in height); the foliage is green or yellow-green; the trumpet-shaped flowers (2 to 6 inches in length and to 2 inches in diameter) are brownish-white, light pink, white, white with purple markings in the throat or white tinged with purple or violet; flowering generally takes place between late July and late December (additional records: one for mid-January, three for late January, two for early February, three for late February four for early March, three for mid-March, six for late March, one for early April, two for mid-April, two for early May, two for mid-May, one for late May, one for mid-June and one for late June; flowering beginning in March and ending in October has also been reported); the fruits are round (1 to 1½ inches in diameter) and thorny. HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; rocky and stony canyons; rocky canyon bottoms; rocky gorges; crater floors; foothills; rocky and gravelly hills; rocky hilltops; rocky hillsides; rocky bases of hillsides; rocky, rocky-sandy and gravelly slopes; alluvial fans; rocky and gravelly-sandy bajadas; amongst rocks; lava flows; sand dunes; blow-sand deposits; rocky-sandy and sandy plains; rocky, rocky-sandy and sandy flats; basins; sandy valley floors; valley bottoms; coastal dunes; coastlines; along roadsides; within rocky, gravelly and sandy arroyos; along sandy bottoms of arroyos; sandy-loamy gulches; along streambeds; in sand along rivers; along and in sandy riverbeds; along and in rocky, rocky-sandy, sandy and silty washes; along drainages; gravelly-sandy-silty poolbeds; playas; depressions;

silty swales; (sandy-silty) banks of arroyos and washes; (sandy-clayey) edges of swales; along margins of arroyos and washes; sand bars; rocky-cobbly-shelly and sandy beaches; sandy shelves; terraces; sandy bottomlands; sandy floodplains; mesquite bosques and woodlands; canal banks; sandy riparian areas; waste places, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-cobbly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; sandy clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 5,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is poisonous. Hornworms feed on the leaves. *Datura discolor* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (043010 - *Datura discolor* Bernh.), 44 (042213 - color photograph), 46 (Page 760), 63 (042213 - color presentation of seeds), 68, 77, **85** (042213 - color presentation), 101 (note under *Datura inoxia* Mill.), 115 (color presentation), 124 (112010 - no record of species; genus record), 127, 140 (Page 306)*

Datura meteloides (see *Datura wrightii*)

***Datura wrightii* E.A. von Regel: Sacred Thorn-apple**

SYNONYMY: *Datura meteloides* auct. non M.F. Dunal p.p. COMMON NAMES: A'neglakya (Language Isolate: Zuni)[140]; Angel's Trumpet (a name also applied to other species); Angel's-trumpet (a name also applied to other species); Angel's-trumpet (English)[140]; Belladona (Spanish); Ch'óhojilyéél <č'óxoɜ^{v}ilɣêi, c'oxojiléi> ("Madness Producing", Athapascan: Navajo)[140]; Chamico (Spanish: Yucatán)[140]; Cmalgapít ("Ear Deaf", Yuman: Maricopa)[140]; Dekúba <deku-ba, reku-ba> (Uto-Aztecan: Tarahumara)[140]; Devil's Weed; Estramonio (Spanish)[140]; Gegeda A'gama <gugudua'gcama, gugurha agama> ("The One With Big Horns" or "Big Horned One", Uto-Aztecan: Nevome, Sonora)[140]; Giant Jimson; Hairy Thorn-apple; Hakatdam <hakandam> (Uto-Aztecan: Onavas Pima)[140]; Hoary Thorn-apple; Indian Apple (not recommended for use); Indian Apple (English)[140]; Indian-apple (not recommended for use); Indianspikklubba (Swedish); Itanasbase ("Round Leaf", Athapascan: Chiricahua and Mescalero Apache)[140]; <jaa ilgodó> ("Forget Yourself", Athapascan: Western Apache)[140]; Jimson Weed (a name also applied to other species and the genus *Datura*); Jimson Weed (English)[140]; Jimson-weed (a name also applied to other species and the genus *Datura*), Jimsonweed (a name also applied to other species and the genus *Datura*), Kiksawva'al <kikisowil> (Uto-Aztecan: Cahuilla)[140]; Kookivuri <kokovuri> (Uto-Aztecan: Mountain Pima)[140]; Kotaḍopi <kotata'p> (Uto-Aztecan: Tohono O'odham)[140]; Kotḍopi <kotodopi, kodop, kododophi, kotobi, kotdobi> (Uto-Aztecan: Akimel O'odham)[140]; Máanet (Uto-Aztecan: Luiseño)[140]; Main-oph-weep (Uto-Aztecan: Paiute)[140]; Malyakatu' (Yuman: Mohave)[140]; Mïmïp [Manopweep, Manop^{h}weep] (Uto-Aztecan: Southern Paiute)[140]; Mo'moy (Chumash: Barbareño Chumash)[140]; Momoht (Uto-Aztecan: Tübatulabal)[140]; Momoy (Chumash: Ineseño and Ventureño Chumash)[140]; Moon Flower; Moon Lily; Moopɨ (Uto-Aztecan: Kawaiisu)[140]; Muipə <muipe> (Uto-Aztecan: Northern Paiute)[140]; Muippüh (Uto-Aztecan: Panamint)[140]; Navamutuda <nabamutuda> (Uto-Aztecan: Nevome, Sonora)[140]; Ndíyíliitsoh <ntíGíliitshoh> (Athapascan: Navajo)[140]; Pricklyburr; Recurved Thorn-apple; Sacred Datura (a name also applied to other species); Sacred Datura (English)[140]; Sacred Thorn Apple; Sacred Thorn-apple; Sacred Thornapple; Saemp'e (Kiowa Tanoan: Tewa)[140]; Selguacha; Shmalk Tuch (Yuman: Paipai)[140]; Ṣmal Ka:pí:ṭ (Yuman: Cocopa)[140]; Smalgatú' ("Ear-something Inside", Yuman: Havasupai)[140]; Smalk^{a}tû' (Yuman: Walapai)[140]; Southwestern Thorn Apple; Sweet Scented Datura (a name also applied to other species); Sweet-scented Datura (a name also applied to other species); Táguaro (Uto-Aztecan: Sonora)[140]; Taŋaniva (Uto-Aztecan: Northern Paiute)[140]; Tebwi (Uto-Aztecan: Yaqui)[140]; Tecuyani (Uto-Aztecan: Náhuatl)[140]; Tecuyaui (Spanish); Tecuyaui (Uto-Aztecan: Guarijío)[140]; Thorn Apple (a name also applied to other species and the genus *Datura*); [Sacred] Thorn Apple (English)[140]; Thorn-apple (a name also applied to other species and the genus *Datura*); Thornapple (a name also applied to other species and the genus *Datura*); Tikúwari (Uto-Aztecan: Tarahumara)[140]; Tlapa (Spanish)[140]; Tókocovi <tokorhobi> (Uto-Aztecan: Nevome, Sonora)[140]; Tokorakai (Uto-Aztecan: Northern Tepehuan)[140]; Tokorep <tókorew> (Uto-Aztecan: Mountain Pima)[140]; Tolache; Tolguacha; Toloache (a name also applied to the genus *Datura*, Spanish: Mexico, Sonora); Toloache <toluache, tolguacha> (Spanish)[140]; Toloache Grande (Spanish); Tolohua-xíhuitl <tologuaxíhuitl> (Uto-Aztecan: Náhuatl)[140]; Tsimona <tcimóna> (Uto-Aztecan: Hopi)[140]; ʔUnúpụvụ (Uto-Aztecan: Ute)[140]; Western Jimson; Western Jimson Weed; Western Jimson-weed; Western Jimsonweed; Wright Datura; Wright Jimson Weed; Wright Jimson-weed; Wright Jimsonweed; Wright's Datura; Wright's Jimson Weed; Wright's Jimson-weed; Wright's Jimsonweed. DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (spreading or sprawling erect stems 1 to 5 feet in height sometimes spreading to 6 feet in width; one plant was observed and described as being 16 inches in height and 20 inches in width, one plant was observed and described as being 18 inches in height and 2 feet in width, two plants were observed and described as being 20 inches in height and 20 inches in width, one plant was observed and described as being 20 inches in height and 4 feet in width); the leaves may be dark green, gray-green or purplish; the trumpet-shaped flowers (2½ to 5½ inches in length and 6 to 10 inches in diameter) may be creamy-white, greenish-white, pale ivory, pale lavender, light purple, purple, white or white tinged with lavender, pink-lavender, purple, rose-purple or violet; flowering generally takes place between mid-March and early December (additional record: one for mid-February); the round and thorny fruits (1¼ to 2 inches in diameter) are green or whitish-green drying to brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mountainsides; sandy mesas; bases of cliffs; rocky and sandy canyons; canyon walls; sandy-silty canyon sides; sandy canyon bottoms; chasms; gorges; talus slopes; crevices in boulders and rocks; bluffs; rocky ridges; foothills; rolling hills; rocky and sandy hillsides; bouldery, rocky, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and sandy-silty slopes; rocky-sandy-loamy alluvial fans; alluvial fans; bajadas; bouldery and rocky outcrops; amongst rocks; sandy alcoves; plains; sandy fields; bouldery, rocky-sandy, gravelly and sandy flats; sandy valley floors; sandy coastal beaches; coastal strands; along rocky, gravelly-sandy and sandy roadsides; along and in bedrock, rocky and sandy arroyos; along sandy draws; gulches;

muddy springs; along clayey streams; bouldery-loamy, gravelly-sandy and sandy streambeds; rocky-sandy and gravelly-sandy soils along and in creeks; sandy creekbeds; along rivers; rocky-sandy and sandy riverbeds; along and in gravelly and sandy washes; within sandy drainage ways; silty lakebeds; freshwater and saltwater marshes; clayey-loamy swales; (sandy) banks of arroyos, streams, rivers and washes; borders of washes; (gravelly) edges of rivers; along margins of arroyos, rivers and riverbeds; (gravelly) shorelines of lakes; gravel bars; sandy benches; gravelly and sandy shelves; sandy terraces; rocky-sandy and sandy bottomlands; along sandy floodplains; fencelines; along and in ditches; canal banks; sandy riparian areas; sandy waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; bouldery loam, rocky-sandy loam, gravelly loam, sandy loam and clayey loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug, medication or narcotic. This plant is extremely poisonous and just simply touching the plant may be dangerous. Sphinx Moths have been observed visiting the flowers. *Datura wrightii* is native to southwest-central and southern North America. *5, 6, 28 (recorded as *Datura meteloides*, "All parts of the plant extremely poisonous if ingested"), color photograph 208), 43 (072909), 44 (031611), 46 (recorded as *Datura meteloides* DC., Page 760), 58, 63 (042213 - color presentation), 77, 80 (This plant is listed as a Secondary Poisonous Range Plant. "Toxicity results from the high content of several solanaceous alkaloids. Poisoning of both livestock and humans can occur from the ingestion of any part of the plant, including the seeds. ... It is rare when any livestock purposely consume any of the daturas. The ill-scented herbage makes the plants highly distasteful, and livestock literally have to be forced to eat it because of the lack of other forage."), **85** (042313 - color presentation), 86 (color photograph), **89** (reported as being a perennial herb located on Santa Cruz Flood-plain, recroded as *Datura meteloides* DC.), 115 (color presentation), 124 (031611), 127, 140 (Page 265-266 & 306)*

Lycium andersonii A. Gray: Water Jacket

COMMON NAMES: Anderson Box Thorn; Anderson Box-thorn; Anderson Boxthorn; Anderson Desert Thorn; Anderson Desert-thorn; Anderson Lycium; Anderson Thorn Bush; Anderson Thorn-bush; Anderson Thornbush; Anderson Wolf Berry; Anderson Wolf-berry; Anderson Wolfberry; Anderson's Box Thorn; Anderson's Box-thorn; Anderson's Boxthorn; Anderson's Desert-thorn; Anderson's Lycium; Anderson's Thorn Bush; Anderson's Thorn-bush; Anderson's Thornbush; Anderson's Wolf-berry; Anderson's Wolfberry; Barchata (name also applied to other taxa); Boxthorn (a name also applied to other taxa and the genus *Lycium*); Cacaculo (Spanish); Chilisieso (Mexico, Sonora); Desert-thorn (a name also applied to other taxa and the genus *Lycium*); Desert Wolfberry (a name also applied to other taxa); Frutilla (a name also applied to other species, Spanish); Hahöj-enej (empty *Lycium*, Seri)[140]; Hahöj Ináil Coopol (Black-barked *Lycium*, Seri)[140]; Hupui (Uto-Aztecan: Northern Paiute)[140]; Huʾupiv+ (Uto-Aztecan: Kawaiisu)[140]; Manzanita (a name also applied to other taxa, Spanish); Narrowleaf Wolfberry (a name also applied to other taxa); Pico Culo (var. *wrightii*, Mexico, Sinaloa); Red-berried Desert-thorn; Red Berry Desert Thorn; Red-berry Desert-thorn; Redberry Desert-thorn; S-toa Kuavulĭ <kuavuli> (white wolfberry, Hiá Ceḍ O'odham)[140]; S-toha Koawul <kuawur> (white wolfberry, Tohono O'odham)[140]; Salicieso (a name also applied to other taxa and the genus *Lycium*); Salicieso [Saliciesa] (Sonora)[140]; Sigreropo (Mayo)[140]; Squawberry (a name also applied to other taxa and the genus *Lycium*, not recommended for usage); Tomatillo (a name also applied to other taxa); Water Jacket; Water-jacket; Waterjacket; Wolfberry (a name also applied to other taxa and the genus *Lycium*); Wright Desert Thorn (var. *wrightii*); Wright Lycium (var. *wrightii*). DESCRIPTION: Terrestrial perennial drought-deciduous shrub (1 to 10 feet in height with a rounded crown about the same in width; one plant was observed and described as being 2 feet in height with a crown 2 feet in width and a trunk diameter of 1 inch, one plant was observed and described as being 3 feet in height with a crown 3 feet in width and a trunk diameter of 1½ inches, one plant was observed and described as being 4 feet in height with a crown 6½ feet in width); the thorn-tipped older branches are grayish; the newer growth is brownish; the spatula-shaped leaves are dark green; the flowers (to ½ inch in length) may be light blue, pale blue-lavender, blue, blue-lavender, pale bluish-cream, cream, cream-white, pale lavender, lavender, pink, light purple, purple, dark purple, pale violet, white, whitish or whitish with a pink tinge; flowering generally takes place between late August and late May (additional records: two for mid-June, four for late June, one for early July, one for mid-July, two for late July and one for early August); the showy, fleshy, juicy fruits (to 3/8 inch in length) are orange, orange-red, bright red, reddish-orange or salmon. HABITAT: Within the range of this species it has been reported from mountains; shaley mountainsides; gravelly and sandy mesas; plateaus; cliffs; rocky, rocky-gravelly, gravelly, sandy and sandy-loamy canyons; along canyon walls; rocky and sandy canyon bottoms; gorges; along bases of cliffs; rocky talus; crevices in rocks; pockets of wind-blown silt-like soils; bluffs; buttes; knolls; rocky ledges; rocky ridges; gravelly ridgetops; foothills; rocky and gravelly hills; rocky hillsides; bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, rocky-clayey, shaley, cindery, gravelly and sandy slopes; rocky-sandy, rocky-sandy-loamy and loamy bases of slopes; alluvial fans; gravelly bajadas; amongst boulders and rocks; rocky alcoves; lava flows; sand dunes; rocky shelves; cobbly, gravelly and sandy plains; rocky, cindery, gravelly, gravelly-sandy, sandy, sandy-silty and clayey flats; loamy basins; cindery valley floors; loamy and silty valley bottoms; along railroad right-of-ways; along sandy roadsides; along rocky, gravelly and sandy arroyos; sandy bottoms of arroyos; rocky draws; gullies; seeps; in shale and clay around springs; creekbeds; along rocky-sandy rivers; rocky and sandy riverbeds; along and in muddy and rocky, rocky-gravelly, rocky-sandy, rocky-clayey, gravelly, gravelly-sandy, sandy, sandy-silty washes; drainages; within drainage ways; playas; boggy areas; swales; along (rocky, shaley, gravelly and sandy) banks of arroyos and washes; borders of washes; along (sandy) edges of streambeds and washes; along (sandy-loamy) margins of washes, ponds and dry lakes; shores of rivers; gravel bars; rocky benches; shaley and sandy terraces; sandy and loamy bottomlands; floodplains; lowlands; mesquite bosques; fencelines; canals, and shaley and gravelly-sandy riparian areas growing in muddy ground and dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly, cindery, cindery-sandy, gravelly, gravelly-sandy and

sandy ground; rocky-sandy loam, sandy loam, silty loam and loam ground; rocky clay, sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 5,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop. The Black-chinned Hummingbird (*Archilochus alexandri*) and Broad-billed Hummingbird (*Cynanthus latirostris*) have been observed visiting the flowers and birds and mammals feed on the berries. The Anderson Lycium provides resting and feeding cover for birds, including the Masked Bobwhite Quail (*Colinus virginianus* subsp. *ridgwayi*), and other small wildlife. *Lycium andersonii* is native to southwest-central and southern North America. *5, 6, 10, 13, 15, 18, 28 (color photograph 699 A&B), 43 (043010), 44 (120910), 46 (Pages 751-752), **56**, **57**, 58, 63 (042413 - color presentation), 77, **85** (042413 - color presentation), 124 (120910 - no record of species; genus record), 127, 140 (Pages 242, 266, 267 & 268)*

Lycium andersonii A. Gray var. *wrightii* A. Gray: Water Jacket

COMMON NAMES: Pico Culo (Mexico, Sinaloa); Water Jacket (a name also applied to the species); Wright Desert Thorn; Wright Lycium. DESCRIPTION: Terrestrial perennial drought-deciduous shrub (1 to 10 feet in height); the thorn-tipped older branches are grayish; the newer growth is brownish; the spatula-shaped leaves are dark green; the flowers (to ½ inch in length) may be light blue, blue, blue-lavender, pale bluish-cream, cream, cream-white, pale lavender, lavender, pink, light purple, purple, dark purple, pale violet, white, whitish or whitish with a pink tinge; flowering for the species generally takes place between late September and late May (additional records: two for late June, one for late July and one for late August); the juicy fruits (to 3/8 inch in length) are orange, orange-red, red, bright red, reddish-orange or salmon. HABITAT: Within the range of this species it has been reported from mountains; shaley mountainsides; mesas; canyon bottoms; foothills; rocky slopes; flats; roadsides; creekbeds; riverbeds; along washes; bottomlands; mesquite bosques; riparian areas, and waste places growing in dry rocky and shaley ground, occurring from sea level to 2,700 feet in elevation in the grassland, desertscrub and riparian ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Lycium andersonii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop. The Black-chinned Hummingbird (*Archilochus alexandri*) and Broad-billed Hummingbird (*Cynanthus latirostris*) have been observed visiting the flowers, and birds and mammals feed on the berries. The Anderson Lycium provides resting and feeding cover for birds, including the Masked Bobwhite Quail (*Colinus virginianus* subsp. *ridgwayi*), and other small wildlife. *Lycium andersonii* var. *wrightii* is native to southwest-central and southern North America. *5, 6, 10, 13, 18 (species), 28 (species, color photograph of species), 43 (043010), 46 (Pages 751-752), 63 (041413), **85** (042413 - color presentation of dried material), **89** (reported as being a Shrub located on the Santa Cruz Flood-plain), 124 (120910 - no record of variety or species; genus record), 127 (species)*

Lycium berlandieri M.F. Dunal: Berlandier's Wolfberry

COMMON NAMES: Bachata (Arizona, Sonora)[140]; Barchata (var. *longistylum*, a name also applied to other species); Berlandier Lycium; Berlandier Wolfberry; Berlandier's Wolfberry; Boxthorn (a name also applied to other species and the genus *Lycium*); Cilindrillo (var. *longistylum*, Spanish); Desert Thorn (a name also applied to other taxa); Frutilla (var. *longistylum*, a name also applied to other species, Spanish); Hosó (var. *longistylum*, Spanish); Huichutilla (Spanish); Josó (var. *longistylum*, Spanish); Salicieso (a name also applied to other species and the genus *Lycium*, Arizona and Mexico including Sonora); Silver Wolfberry; Squawberry (var. *parviflorum*, a name also applied to other taxa and the genus *Lycium*, not recommended for usage); Terrac Wolfberry; Wolfberry (a name also applied to other taxa and the genus *Lycium*). DESCRIPTION: Terrestrial perennial drought-deciduous shrub (20 inches to 10 feet in height; one plant was observed and described as being 3 feet in height with a crown 3 feet in width); the bark on the stems and branches may be almost black, brown, dark brown, gray, gray-brown, purple-brown, dark red, reddish or dark reddish-brown (noted for older stems); the leaves are dark green; the bell-shaped flowers may be bluish, cream, cream-white, cream-yellow, pale green, lavender, purple, tan, white, whitish or pale yellow; flowering generally takes place between early February and early September (additional records: two for early January, one for mid-January, two for late September, three for early October, one for mid-October, two for late November, one for early December, three for mid-December and one for late December; a main flowering period occurring between July and September with occasional flowering at other times has been reported); the mature fruits are orange, red or red-orange (reportedly tasting of tomato but more bitter-sweet). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; rocky cliffs; bases of cliffs; rocky canyons; bouldery and rocky canyon bottoms; rocky talus slopes; crevices; buttes; ledges; rocky ridges; rocky and gravelly ridgetops; rocky foothills; rocky, gravelly, gravelly-sandy and sandy hills; rocky hillsides; bedrock and rocky slopes; gravelly alluvial fans; rocky, rocky-cobbly-gravelly, gravelly, gravelly-sandy and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; boulder fields; sand dunes; prairies; cobbly plains; rocky and gravelly, gravelly-sandy and sandy flats; rocky-gravelly basins; valley floors; valley bottoms; coastal plains; coastal beaches; along gravelly-sandy-clayey-loamy roadsides; along rocky, rocky-cobbly-gravelly, gravelly and sandy arroyos; gravelly bottoms of arroyos; ravines; streambeds; along and in sandy washes; playas; borders of washes; (rocky and sandy) edges of rivers; (sandy) sides of rivers; clayey-loamy terraces; bottomlands; floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, sandy loam and clayey loam ground, and gravelly clay and loamy clay ground, occurring from sea level to 8,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This spiny shrub may be an attractive component of a restored native habitat where it might live to be over 72 years of age. The

Berlandier Lycium may live to be more than 90 years of age. The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers and Gambel's Quail (*Callipepla gambelii* subsp. *gambelii*) uses the plant for cover, roosting and as a feeding site. *Lycium berlandieri* is native to southwest-central and southern North America. *5, 6, 10, 13 (Page 200), **16**, 18 (genus), 28 (color photograph 700), 43 (043010), 44 (042513 - no record of species; genus record), 46 (Page 752), 63 (042513), **85** (042613 - color presentation), **89** (reported as being a shrub located on Tumamoc Hill), 115 (color presentation), 124 (082111), 140 (Pages 268 & 306)*

Lycium berlandieri M.F. Dunal var. *longistylum* C.L. Hitchcock: Berlandier's Wolfberry

COMMON NAMES: Bachata (a name also applied to the species); Barchata (a name also applied to other species); Berlandier Lycium (a name also applied to the species); Berlandier Wolfberry (a name also applied to the species); Berlandier's Wolfberry (a name also applied to the species); Boxthorn (a name also applied to the species, other species and the genus *Lycium*); Cilindrillo (Spanish); Frutilla (a name also applied to other species, Spanish); Hosó (Spanish); Huichutilla (a name also applied to the species, Spanish); Josó (Spanish); Salicieso (a name also applied to the species, other species and to the genus *Lycium*); Wolfberry (a name also applied to other taxa and the genus *Lycium*). DESCRIPTION: Terrestrial perennial drought-deciduous shrub (20 inches to 10 feet in height); the stems are almost black; the flowers are white or pale yellow; flowering generally takes place between early February and early September (additional record: one for early January, one for late September, one for late November and one for early December); the mature fruits are red. HABITAT: Within the range of this species it has been reported from mountains; canyons; rocky foothills; hills; rocky hillsides; rocky slopes; plains; valley floors; along roadsides; around streams; washes; mesquite bosques, and riparian areas growing in dry rocky and sandy ground, occurring from 900 to 3,200 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This spiny shrub may be an attractive component of a restored native habitat. The Berlandier Lycium may live to be more than 90 years of age. The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers and Gambel's Quail (*Callipepla gambelii* subsp. *gambelii*) uses the plant for cover, roosting and as a feeding site. *Lycium berlandieri* var. *longistylum* is native to southwest-central and southern North America. *5, 6, 10, 13 (species), 18 (genus), 28 (color photograph of the species), 43 (043010 - *Lycium berlandieri* var. *longistylum* C.L. Hitchc.), 44 (042513 - no record of variety or species; genus record), 46 (Page 752), 63 (042513), 77 (color photograph of the species #97 labeled *Lycium berlandieri*), **85** (042613 - color presentation of dried material), 115 (color presentation of the species)*

Lycium exsertum A. Gray: Arizona Desert-thorn

COMMON NAMES: Arizona Desert-thorn; Axtó (Yuman: Maricopa, Yuma)[140]; Axto't <a tu't> (Yuman: Maricopa)[140]; Box [Desert] Thorn (English: Arizona)[140]; At Wusha'i (Uto-Aztecan: Onavas Pima)[140]; Boxthorn (a name also applied to other taxa and the genus *Lycium*); Desert Thorn (a name also applied to other taxa and the genus *Lycium*); Desert-thorn (a name also applied to other taxa and the genus *Lycium*); Frutilla (a name also applied to other species); ʔIci-s (Uto-Aztecan: Luiseño)[140]; Kuávul <kuáwul> (Uto-Aztecan: Akimel O'odham; see also *Celtis*)[140]; Kuavulĭ <kuavuli> (Uto-Aztecan: Hiá Ceḍ O'odham; for other species)[140]; Kuawul <kuawur> (Uto-Aztecan: Tohono O'odham)[140]; Kyeeva <ké:ve>, Kyeptsoki (Uto-Aztecan: Hopi)[140]; Littleleaf Wolfberry; Manzanita ("Little Apple" usually used for *Archtostaphylos*, Spanish: Mexico)[140]; Narrow-leaf Thorn-bush (English)[140]; Squaw-berry (English: Arizona)[140]; Tomatillo ("Little Tomato", Spanish: Arizona, Mexico)[140]; Tomato Berry (English)[140]; Wolf-berry (English)[140]; Wolfberry (a name also applied to other taxa and the genus *Lycium*); Xcuc (Yuman: Cocopa)[140]. DESCRIPTION: Terrestrial perennial drought-deciduous shrub (20 inches to 13 feet in height; one plant was described as being 5 feet in height with a crown 6 feet in width, one plant was described as being 5 feet in height with a crown 6½ feet in width); the branches may be brown, brownish-gray, dark gray, gray, gray-brown or reddish-brown; the leaves are green; the pendular flowers may be blue-cream, bluish, cream-lavender, greenish, pale lavender, lavender, lavender-white, mauve, pink, pale purple, purple, blushed violet, white, white-pink, white-purple; whitish or whitish-lavender and sometimes tinged with brown or purple; flowering generally takes place between mid-January and early May (additional records: one for late July, two for mid-October, one for late October, two for early November, one for late November, one for mid-December and two for late December); the mature fruits are orange-red, orange-bright red, reddish or red-orange. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bases of cliffs; rocky canyons; rocky canyon bottoms; talus slopes; bases of cliffs; buttes; ridges; rocky ridgetops; foothills; rocky hills; bases of hills; hilltops; rocky and gravelly hillsides; bouldery, rocky, rocky-sandy-loamy and gravelly-loamy slopes; rocky bajadas; bouldery and rocky outcrops; amongst boulders; plains; sandy flats; basins; along roadsides; along and in sandy arroyos; gravelly gullies; seeps; shaley springs; along and in creekbeds; along and in sandy and silty washes; gravelly drainages; drainage ways; along ponds; swales; (sandy) banks of rivers and washes; borders of washes; edges of streambeds, washes, drainage ways and lakes; margins of washes; benches; gravelly terraces; loamy bottomlands; floodplains, and riparian areas growing in dry bouldery, rocky, shaley, gravelly and sandy ground; rocky-sandy loam, gravelly loam and loam ground, and silty ground, occurring from sea level to 4,600 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, and/or beverage dye crop. Bombyliid Flies have been observed visiting the flowers and birds feed on the fruits. The Arizona Desert-thorn is a host plant of the Texas Root Rot Fungus, *Phymatotrichum omnivorum*. *Lycium exsertum* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 18 (genus), 43 (043010), 44 (042613 - no record of species; genus record), 46 (Page 751), 58, 63 (042613), **77**, **85** (042613 - color presentation), 127, 140 (Pages 266-268 & 306)*

***Lycium fremontii* A. Gray: Frémont's Desert-thorn**

COMMON NAMES: Boxthorn (a name also applied to other taxa and the genus *Lycium*); Desert-thorn (a name also applied to other taxa and the genus *Lycium*); Fremont Box Thorn; Fremont Box-thorn; Fremont Boxthorn; Fremont Desert Thorn; Fremont Desert-thorn; Fremont Desertthorn; Fremont Lycium; Fremont Thorn Bush; Fremont Thorn-bush; Fremont Thornbush; Fremont Wolfberry; Frémont Box Thorn; Frémont Box-thorn; Frémont Boxthorn; Frémont Desert Thorn; Frémont Desert-thorn; Frémont Desertthorn; Frémont Lycium; Frémont Thorn Bush; Frémont Thorn-bush; Frémont Thornbush; Frémont Wolfberry; Fremont's Box Thorn; Fremont's Box-thorn; Fremont's Boxthorn; Fremont's Desert Thorn; Fremont's Desert-thorn; Fremont's Desertthorn; Fremont's Lycium; Fremont's Thorn Bush; Fremont's Thorn-bush; Fremont's Thornbush; Fremont's Wolfberry; Frémont's Box Thorn; Frémont's Box-thorn; Frémont's Boxthorn; Frémont's Desert Thorn; Frémont's Desert-thorn; Frémont's Desertthorn; Frémont's Lycium; Frémont's Thorn Bush; Frémont's Thorn-bush; Frémont's Thornbush; Frémont's Wolfberry; Frutilla (a name also applied to other species, Spanish); Kwavul (Pima); Wolfberry (a name also applied to other taxa and the genus *Lycium*). DESCRIPTION: Terrestrial perennial drought-deciduous shrub (20 inches to 13 feet in height with a rounded crown; one plant was described as being 20 inches in height with a crown 40 inches in width, one plant was described as being 5 feet in height with a crown 5 feet in width, one plant was described as being 7 feet in height with a crown 13 feet in width); the arching branches and stems are dark gray; the leaves may be grayish-green or light green; the small flowers may be brown-yellow-purple, pale lavender, lavender, dark lavender, pink, light purple, purple, purple-white, rose, white or whitish-purple; flowering generally takes place between early January and early May and between late September and mid-December (additional record: flowering from January through April and occasionally at other times has also been reported); the mature fruits may be brownish, orange, orange-red, red, red-orange, or red-orange-brown. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rock cliffs; shaded walls of cliffs; bases of cliffs; rocky canyons; canyon sides; rocky canyon bottoms; talus slopes; rocky chutes; bases of bluffs; buttes; ridges; rocky-sandy foothills; cobbly-clayey hills; hillsides; bouldery, rocky, rocky-clayey, gravelly, gravelly-sandy and clayey-loamy slopes; bajadas; amongst boulders; sand dunes; bajadas; terraces; sandy plains; sandy and sandy-silty plains; rocky-sandy and sandy flats; basins; gravelly-sandy valley floors; valley bottoms; coastal dunes; coastal plains; along railroad right-of-ways; along rocky and sandy-clayey roadsides; along and in arroyos; rocky walls of arroyos; springs; streams; rivers; riverbeds; along and in bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy washes; around pools; cienegas; depressions; along (silty) banks of arroyos, streams and rivers; borders of washes; (rocky-gravelly) edges of washes and lakes; margins of washes; shores of lakes; gravel bars; terraces; bottomlands; sandy floodplains; mesquite bosques; along canal banks; ditches; along ditch banks; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, shaley, gravelly, gravelly-sandy and sandy ground; clayey loam ground; rocky clay, cobbly clay and sandy clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 4,300 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This thorny and much-branched shrub may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used to make bows. The Frémont Lycium is a host plant of the Texas Root Rot Fungus, *Phymatotrichum omnivorum*. *Lycium fremontii* is native to southwest-central and southern North America. *5, 6, 13, 18, 28 (color photographs 701 A&B), 43 (043010 - *Lycium fremonti* A. Gray), 44 (042613), 46 ("The abundant, juicy berries produced by this and the preceding species [*Lycium exsertum*] were gathered by the desert Indians for food. Both species are hosts of the destructive root-rot fungus, *Phymatotrichium omnivorum*.", Page 751), 48, **56**, **57**, 63 (042613), **77**, **85** (042613 - color presentation, also recorded as *Lycium fremontii* A. Gray var. *fremontii*), **89** (reported as being a shrub located on Tumamoc Hill (*Lycium fremontii*) and the Santa Cruz Flood-plain (*Lycium fremontii* var. *gracilipes*), recorded as both *Lycium fremontii* Gray and as *Lycium fremontii* var. *gracilipes* Gray), 127*

Lycium fremontii var. *fremontii* (see footnote 85 under *Lycium fremontii*)

Lycium fremontii var. *gracilipes* (see footnote 89 under *Lycium fremontii*)

***Lycium torreyi* A. Gray: Torrey Wolfberry**

COMMON NAMES: Boxthorn (a name also applied to other taxa and the genus *Lycium*); Desert Thorn (a name also applied to other taxa and the genus *Lycium*); E-thál-ta (Supai), Pi'ict <pi'is-t> (Uto-Aztecan: Tübatulabal)[140]; Squaw Thorn (a name not recommended for usage); Squawberry (a name not recommended for usage); Squawthorn (a name not recommended for usage); Torrey Box Thorn; Torrey Box-thorn; Torrey Boxthorn; Torrey Desert Thorn; Torrey Desert-thorn; Torrey Lycium; Torrey Thornbush; Torrey Wolfberry; Torrey Wolf-berry; Torrey's Box Thorn; Torrey's Box-thorn; Torrey's Boxthorn; Torrey's Desert Thorn; Torrey's Desert-thorn; Torrey's Lycium; Torrey's Wolfberry; Torrey's Wolf-berry. DESCRIPTION: Terrestrial perennial drought-deciduous shrub (3 to 10 feet in height); the bark may be brownish or yellowish-tan with the older bark being light gray; the leaves are pale green; the flowers may be blue, greenish-lavender, lavender, deep lavender, lavender-rose, pink or whitish; based on a very limited number of records flowering generally takes place between early March and mid-June (additional record: one for mid-November); the mature fruits are bright red. HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; canyons; rocky talus slopes; gypsum hills; hillsides; loamy and clayey-loamy slopes; gravelly bajadas; terraces; flats; basins; valley floors; along sandy roadsides; within rocky arroyos; springs; along streams; along creeks; along rivers; riverbeds; along and in gravelly-sandy washes; within drainages; (sandy) banks of rivers and riverbeds; edges of washes; (sandy) margins of ponds; terraces; bottomlands; sandy floodplains; lowlands; along fencerows; sandy dikes; along canals; along loamy ditches; along sandy ditch banks; sandy and clayey-loamy riparian areas, and waste

places growing in dry rocky, gravelly, gravelly-sandy and sandy ground; clayey loam and loam ground; gravelly-sandy clay, sandy clay and clay ground, and silty ground, occurring from 100 to 7,400 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: This thicket-forming shrub may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a tool and as a drug or medication. The dense thickets formed by the Torrey Lycium may provide cover for birds and small mammals; fruits are reportedly eaten by flickers, mockingbirds and quail. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Torrey Lycium has most likey been EXTIRPATED from this township. *Lycium torreyi* is native to southwest-central and southern North America. *5, 6, 13, 18 (genus), 43 (050110), 44 (042713), 46 (Page 751), 63 (042713), 85 (042713 - color presentation including habitat), **89** (reported as being a shrub located on the Santa Cruz Flood-plain), 127, 140 (Page 267)*

Nicotiana glauca R. Graham: Tree Tobacco

COMMON NAMES: Álamo Loco (Spanish); Blåtobak (Swedish); Blaugrüner Tabak (German); Brazilian Tree Tobacco; Buena Mosa; Buena Moza (Spanish); Cornetón (Spanish); Don Juan (Yaqui); Gigante; Glaucous Tobacco; Glaucous-leaf Tobacco; Juan Loco (Spanish); Juanloco (Spanish); Maraguana (Spanish); Maraquiana (Spanish); Mexican Tobacco; Mustard Tree (a name also applied to other taxa); Palo Loco (Spanish); Rape; San Juan Tree; Shrub Tobacco; Tobacco-bush; Tabaco Amarillo; Tabaco Cimarrón (Spanish); Tabaco Moro; Tree Tobacco (a name also applied to other taxa); Tronadora; Wild Tobacco (a name also applied to other taxa); Wildetabak (Afrikaans); Yellow Tree Tobacco. DESCRIPTION: Terrestrial perennial evergreen shrub or tree (1 to 26 feet in height with a crown to 10 feet in width); the bark is yellow-brown; the leaves are blue-green, bluish-green or dull green; the tubular flowers (1¼ to 2 inches in length) are pale yellow, yellow or yellow-greenish; flowering generally takes place between mid-January to late December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; plateaus; rocky canyons; along rocky canyon bottoms; sandy ledges; foothills; rocky hills; rocky hilltops; bouldery and rocky hillsides; rocky and sandy-loamy slopes; amongst rocks; plains; sandy and silty flats; gravelly basins; valley floors; rocky coastal beaches; coastal marshes; sandy-clayey roadcuts; along rocky and sandy roadsides; rocky and sandy arroyos; gravelly bottoms of arroyos; springs; along streams; along and in streambeds; along and in creeks; along rivers; along and in rocky-sandy and sandy riverbeds; along and in sandy washes; within drainages; along and in watercourses; oases; boggy areas; (gravelly-sandy and sandy) banks of creeks, rivers and washes; borders of washes; along (sandy and sandy-silty) edges of rivers and lakes; along margins of washes; (rocky) sides of rivers; shores of creeks and lakes; terraces; bottomlands; floodplains; mesquite woodlands; fencerows; along banks of canals; along ditches; along ditch banks; along sandy riparian areas; rocky waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam ground; sandy clay ground, and sandy silty and silty ground, occurring from near sea level to 5,600 (one record at 8,200 feet) feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and beverage and as a drug or medication. *Nicotiana glauca* is native to western and southern South America. *5, 6, 13, **16**, 18, 28 (color photograph 385), 43 (050210), 44(042713), 46 (Page 761), 63 (042713 - color presentation), 68, **77**, 80 (This species is listed as a Secondary Poisonous Range Plant. "The poisonous principle is the highly toxic nicotine and other alkaloids which are poisonous to all classes of livestock and to humans. The plants are generally unpalatable to range livestock but frequent losses have been reported. ... Since wild tobaccos are generally unpalatable and grow predominantly in waste places, range improvement to reduce waste areas and to provide ample forage is the best means of preventing losses."), **85** (042713 - color presentation), 86 (color photograph), **89** (reported under Miscellaneous Introduced Species as being a shrub), 97, 115 (color presentation), 124 (082111 - no record of genus or species), 127, **WTK** (July 11, 2010)*

Nicotiana obtusifolia M. Martens & H.G. Galeotti: Desert Tobacco

COMMON NAMES: Ban Vivga <ban vi:v> ("Coyote Tobacco", Uto-Aztecan: Akimel O'odham)[140]; Ban Wiwga (Uto-Aztecan: Tohono O'odham)[140]; Biy, Biba-ta (Uto-Aztecan: Ópata)[140]; Coyote Tobacco (a name also applied to other taxa);

Coyote [Desert] Tobacco (English)[140]; Desert Coyote Tobacco; Desert Tobacco (a name also applied to other taxa); Goy Biba (Uto-Aztecan: Mayo)[140]; Ha Wiwga ("Their Tobacco", Uto-Aztecan: Tohono O'odham)[140]; Hapis Casa ("Putrid Tobacco", Hokan: Seri)[140]; Hatalewah Ū'v <a'uv, aúva> ("Coyote Tobacco", Yuman: Mohave)[140]; Intelwayok ("Old Time Tobacco", Yuki: Yuki)[140]; Isily Piv'a <pivat-isil> ("Coyote's Tobacco", Uto-Aztecan: Coahuilla)[140]; KaƟódn$_y$iúva (Yuman: Havasupai)[140]; Mela' Ū'v ("Coyote Tobacco", Yuman: Yuma)[140]; Nát'oh (Athapascan: Navajo)[140]; Nátotē (Athapascan: Jicarilla Apache)[140]; O'odham Ha Vivka ("People's Tobacco", Uto-Aztecan: Hiá Ceḍ O'odham, Arizona Sonora)[140]; Pahompin <pāmüpi> (Uto-Aztecan: Panamint)[140]; Pahmóbi (Uto-Aztecan: Mono)[140]; Pahmú (Uto-Aztecan: Western Paiute)[140]; Pamu (Uto-Aztecan: Mono)[140]; Pí:va-t [Píivat] (Uto-Aztecan: Luiseño)[140]; Piiva <piva, pi'va, pí:wa> (Uto-Aztecan: Hopi)[140]; Punche (a Punch); QɔʼapI (Uto-Aztecan: Southern Paiute)[140]; Qoʾápų (Uto-Aztecan: Ute)[140]; Soʾo(n)dɨ <soódá> (Uto-Aztecan: Kawaiisu)[140]; Tabaquillo; Tabaquillo de Coyote; Tobacco Plant; Tobaco Cimarrón ("Wild Tobacco", Spanish: Sonora)[140]; Tobaco [de] Coyote [Loco] ("Coyote [Crazy] Tobacco", Spanish: Chihuahua, San Luis Potosí, Sonora)[140]; Tobaquillo (Little Tobacco) ; Tobaquillo [de Coyote] ("Little [Coyote] Tobacco", Spanish: Texas to Arizona, Sonora)[140]; Tsawawap (Uto-Aztecan: Southern Paiute)[140]; ʾU:p <op> (Yuman: Cocopa)[140]; 'Úva <u:v> (Yuman: Walapai)[140]; Uvaanál$_y$a (Yuman: Maricopa)[140]; Viv (Uto-Aztecan: Onavas Pima)[140]; Vivá-t (Uto-Aztecan: Eudeve)[140]; Vivai (Uto-Aztecan: Northern Tephuan)[140]; Vivam (Uto-Aztecan: Yaqui)[140]; Wiopuli <wiopulĭ, wiupuri, víopoli> (Uto-Aztecan: Tohono O'odham)[140]; Wipá (Uto-Aztecan: Guarijío)[140]; Wipáka <aura-ka, bawa-ra-ka, huipá, pawa-ra-ka> (Uto-Aztecan: Tarahumara)[140]; Wiw <viva> (Uto-Aztecan: Mountain Pima)[140]. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb or subshrub (erect stems 1 to 3½ feet in height; one plant was described as being 12 inches in height and 20 inches in width); the leaves may be gray-green or dark green; the flowers may be cream, cream & pale green, cream-green, cream-white, cream-pale yellow, cream-yellow, green, greenish, greenish-cream, greenish-white, greenish-yellow, lemon-yellow, deep purple, dull white, pale white, white, white tinged with green, white-yellow, whitish-cream, pale yellow, yellow, yellow-cream, yellow-green, yellow-white or yellowish-greenish; flowering generally takes place throughout the year between early January and late December. HABITAT: Within the range of this species it has been reported from mountains; bouldery and rocky-gravelly mountaintops; rocky mountainsides; rocky mesas; plateaus; along rims; rocky cliffs; rocky bases of cliffs; along bouldery, rocky, rocky-sandy-loamy, gravelly-loamy and sandy canyons; canyon walls; along rocky and sandy canyon bottoms; gorges; bouldery-gravelly-silty and silty-clayey talus slopes; rocky chutes; along crevices in bedrock, boulders and rocks; rocky bluffs; rocky buttes; knolls; rocky ledges; bouldery and rocky ridges; bouldery, rocky and gravelly ridgetops; edges of meadows; craters; cinder cones; foothills; rocky hills; rocky bases of hills; bouldery hilltops; bouldery-rocky and rocky hillsides; bouldery escarpments; bedrock, bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-gravelly-sandy-clayey, stony, cobbly-gravelly, cindery, gravelly, gravelly-sandy, sandy, sandy-loamy and sandy-clayey slopes; gravelly-sandy bajadas; bedrock and rocky outcrops; amongst boulders, rocks and stones; in sand at the bases of boulders and rocks; sandy lava flows; sandy lava beds; sand dunes; debris fans; terraces; rocky and sandy plains; sandy and sandy-loamy flats; basins; valley floors; valley bottoms; sea ledges; coastal plains; rocky-sandy coastal shores; coastal beaches; along railroad right-of-ways; along rocky, rocky-gravelly-sandy-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, sandy and clayey roadsides; along gravelly, sandy and sandy-loamy arroyos; arroyo walls; rocky, gravelly and sandy bottoms of arroyos; gulches; in sand and loam around springs; loamy soil along streams; along gravelly-sandy and sandy streambeds; rocky creeks; sandy creekbeds; along rivers; bouldery-sandy and sandy riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in rocky drainages; bouldery drainage ways; sandy waterholes; silty lakebeds; marshy areas; sinks; along)rocky, cobbly, gravelly-sandy, sandy and silty) banks of creeks, rivers and washes; borders of washes; along (sandy and silty) edges of washes, lakes, lakebeds and lagoons; (sandy) margins of playas; (sandy) sides of rivers; (rocky-sandy) shores of lakes; mudflats; gravelly shelves; gravelly and sandy terraces; sandy bottomlands; floodplains; mesquite bosques; along ditches; ditch banks; sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry desert pavement; bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, cobbly-gravelly, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravely-sandy-clayey loam, rocky-sandy loam, gravelly loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; rocky, gravelly-sandy clay sandy clay, silty clay and clay soils, and bouldery-gravelly silty and silty ground, occurring from sea level to 6,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant tends to be weedy; however, consideration could be given to using some plants in your project because the flowers are used by hummingbirds when other nectar-rich sources are not available. *Nicotiana obtusifolia* variety *obtusifolia* was reported to have been utilized by native peoples of North America; it was noted as having been used for food, beverage and/as a as a drug or medication. *Nicotiana obtusifolia* is native to southwest-central and southern North America. *5, 6, 28 (record of *Nicotiana obtusifolia* var. *obtusifolia* (*Nicotiana trigonophylla*), color photograph 209), 43 (050310), 44 (042713), 46 (recorded as *Nicotiana trigonophylla* Dunal, Page 761), **56**, **57**, 63 (042713 - color presentation), 68, 80 (This species is listed as a Secondary Poisonous Range Plant. "The poisonous principle is the highly toxic nicotine and other alkaloids which are poisonous to all classes of livestock and to humans. The plants are generally unpalatable to range livestock but frequent losses have been reported. ... Since wild tobaccos are generally unpalatable and grow predominantly in waste places, range improvement to reduce waste areas and to provide ample forage is the best means of preventing losses."), **85** (050310 - color presentation), 86, 115 (color presentation), 127 (*Nicotiana obtusifolia* var. *obtusifolia*), 140 (recorded as *Nicotiana obtusifolia* Martens & Galeotti [*N. trigonophylla* Dunal], Pages 268-269 & 306)*

Nicotiana obtusifolia M. Martens & H.G. Galeotti var. *obtusifolia*: Desert Tobacco

SYNONYMY: *Nicotiana trigonophylla* M.F. Dunal. COMMON NAMES: Ban Vivga <ban vi:v> ("Coyote Tobacco", Uto-Aztecan: Akimel O'odham)[140]; Ban Wiwga (Uto-Aztecan: Tohono O'odham)[140]; Biy, Biba-ta (Uto-Aztecan: Ópata)[140];

Coyote Tobacco (a name also applied to the species and other taxa); Coyote [Desert] Tobacco (English)[140]; Desert Tobacco (a name also applied to the species and other taxa); Goy Biba (Uto-Aztecan: Mayo)[140]; Ha Wiwga ("Their Tobacco", Uto-Aztecan: Tohono O'odham)[140]; Hapis Casa ("Putrid Tobacco", Hokan: Seri)[140]; Hatalewah Ū'v <a'uv, aúva> ("Coyote Tobacco", Yuman: Mohave)[140]; Intelwayok ("Old Time Tobacco", Yuki: Yuki)[140]; Isily Piv'a <pivat-isil> ("Coyote's Tobacco", Uto-Aztecan: Coahuilla)[140]; KaӨódnˌiúva (Yuman: Havasupai)[140]; Mela' Ū'v ("Coyote Tobacco", Yuman: Yuma)[140]; Nát'oh (Athapascan: Navajo)[140]; Nátotē (Athapascan: Jicarilla Apache)[140]; O'odham Ha Vivka ("People's Tobacco", Uto-Aztecan: Hiá Ceḍ O'odham, Arizona Sonora)[140]; Pahompin <pāmüpi> (Uto-Aztecan: Panamint)[140]; Pahmóbi (Uto-Aztecan: Mono)[140]; Pahmú (Uto-Aztecan: Western Paiute)[140]; Pamu (Uto-Aztecan: Mono)[140]; Pí:va-t [Píivat] (Uto-Aztecan: Luiseño)[140]; Piiva <piva, pi'va, pí:wa> (Uto-Aztecan: Hopi)[140]; Punche ("a Punch" a name also applied to the species); QɔʼapI (Uto-Aztecan: Southern Paiute)[140]; Qoʼápų (Uto-Aztecan: Ute)[140]; Soʼo(n)dɨ <soódá> (Uto-Aztecan: Kawaiisu)[140]; Tabaquillo ("Little Tobacco" a name also applied to the species); Tabaquillo de Coyote (a name also applied to the species); Tobaco Cimarrón ("Wild Tobacco", Spanish: Sonora)[140]; Tobaco [de] Coyote [Loco] ("Coyote [Crazy] Tobacco", Spanish: Chihuahua, San Luis Potosí, Sonora)[140]; Tobaquillo [de Coyote] ("Little [Coyote] Tobacco", Spanish: Texas to Arizona, Sonora)[140]; Tsawawap (Uto-Aztecan: Southern Paiute)[140]; ʾU:p <op> (Yuman: Cocopa)[140]; 'Úva <u:v> (Yuman: Walapai)[140]; Uvaanálˌya (Yuman: Maricopa)[140]; Viv (Uto-Aztecan: Onavas Pima)[140]; Vivá-t (Uto-Aztecan: Eudeve)[140]; Vivai (Uto-Aztecan: Northern Tephuan)[140]; Vivam (Uto-Aztecan: Yaqui)[140]; Wiopuli <wiopulĭ, wiupuri, víopoli> (Uto-Aztecan: Tohono O'odham)[140]; Wipá (Uto-Aztecan: Guarijío)[140]; Wipáka <aura-ka, bawa-ra-ka, huipá, pawa-ra-ka> (Uto-Aztecan: Tarahumara)[140]; Wiw <viva> (Uto-Aztecan: Mountain Pima)[140]; Wo'i Viva (Yaqui). DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb or subshrub (erect stems 1 to 3½ feet in height); the leaves may be gray-green or dark green; the flowers may be cream, cream & pale green, cream-green, cream-white, cream-yellow, greenish, greenish-white, greenish-yellow, deep purple, lemon-yellow, pale white, white, yellow, yellow-cream, yellow-green, yellow-white or yellowish-greenish; flowering generally takes place between late February and early November (additional records: one for mid-January, one for late November, one for early December, two for mid-December and one for late December, flowering probably takes place throughout the rest of the year). HABITAT: Within the range of this species it has been reported from mountains; bouldery and rocky-gravelly mountaintops; plateaus; along rims; cliffs; bases of cliffs; rocky and gravelly-loamy canyons; canyon walls; along canyon bottoms; gorges; bouldery-gravelly-silty and silty-clayey talus slopes; along crevices in boulders and rocks; rocky bluffs; rocky buttes; rocky ledges; bouldery ridges; bouldery and rocky ridgetops; edges of meadows; craters; cinder cones; foothills; rocky hills; bouldery hilltops; bouldery-rocky and rocky hillsides; bouldery escarpments; bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-gravelly-sandy-clayey, stony, cindery, gravelly, gravelly-sandy, sandy, sandy-loam and sandy-clayey slopes; bajadas; rocky outcrops; amongst boulders, rocks and stones; bases of boulders and rocks; sandy lava flows; dunes; debris fans; rocky plains; sandy and sandy-loamy flats; basins; valley floors; valley bottoms; rocky-sandy coastal shores; along railroad right-of-ways; along rocky, rocky-gravelly-sandy-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy and sandy roadsides; along sandy-loamy arroyos; arroyo walls; arroyo bottoms; gulches; in sand and loam around springs; loamy soil along streams; along gravelly-sandy and sandy streambeds; rocky creeks; sandy creekbeds; bouldery-sandy and sandy riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly-sandy and sandy washes; drainages; bouldery drainage ways; sandy waterholes; marshy areas; sinks; (rocky, cobbly, sandy and silty) banks of creeks, rivers and washes; edges of lakes; (rocky-sandy) shores of lakes; mudflats; gravelly and sandy terraces; bottomlands; floodplains; ditches; ditch banks; sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravely-sandy-clayey loam, gravelly loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; rocky-gravelly-sandy clay, sandy clay, silty clay and clay ground, and bouldery-gravelly silty and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant tends to be weedy; however, consideration could be given to using some plants in your project because the flowers are used by hummingbirds when other nectar-rich sources are not available. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, beverage and/as a as a drug or medication. *Nicotiana obtusifolia* var. *obtusifolia* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Nicotiana trigonophylla* Dunal), **16** (recorded as *Nicotiana trigonophylla* Dunal), 28 (recorded as *Nicotiana trigonophylla*, color photograph 209), 43 (050310), 44 (082211 - no listings under Common Names for variety *obtusifolia*; species and genus records), 46 (recorded as *Nicotiana trigonophylla* Dunal, Page 761), 58 (recorded as *Nicotiana trigonophylla* Dunal), 63 (042713 - color presentation), 68, 77 (recorded as *Nicotiana trigonophylla* Dunal), 80 (This species is listed as a Secondary Poisonous Range Plant. "The poisonous principle is the highly toxic nicotine and other alkaloids which are poisonous to all classes of livestock and to humans. The plants are generally unpalatable to range livestock but frequent losses have been reported. ... Since wild tobaccos are generally unpalatable and grow predominantly in waste places, range improvement to reduce waste areas and to provide ample forage is the best means of preventing losses."), **85** (082211 - color presentation), 86 (recorded as *Nicotiana trigonophylla*, color photograph), **89** (reported as being a perennial herb located on Tumamoc Hill,recorded as *Nicotiana trigonophylla* Dunal), 115 (color presentation of the species), 124 (082111 - no record of genus, species or variety), 127, 140 (recorded as *Nicotiana obtusifolia* Martens & Galeotti [*N. trigonophylla* Dunal], Pages 268-269 & 306), **WTK** (August 2, 2010)*

Nicotiana trigonophylla (see *Nicotiana obtusifolia* var. *obtusifolia*)

Petunia parviflora (see *Calibrachoa parviflora*)

***Physalis acutifolia* (J. Miers) N.Y. Sandwith: Sharpleaf Groundcherry**

SYNONYMY: *Physalis wrightii* A. Gray. COMMON NAMES: Groundcherry (a name also applied to the genus *Physalis*); Irrigation Groundcherry; Pointed-leaved Ground-cherry; Sharp Leaf Ground Cherry; Sharp Leaved Ground Cherry; Sharp-leaf Ground-cherry; Sharp-leaf Groundcherry; Sharpleaf Ground Cherry; Sharpleaf Groundcherry; Sharpleaved Ground-cherry; Tomate (Mexico, Sonora); Tomatillo (a name also applied to other taxa and the genus *Physalis*, Spanish: Mexico, Sonora); Wright Ground Cherry; Wright Ground-cherry; Wright Groundcherry; Wright's Ground Cherry; Wright's Ground-cherry; Wright's Groundcherry. DESCRIPTION: Terrestrial annual forb/herb (leafy branched stems 2 to 42 inches in height, one plant was described as being 20 inches in height and 40 inches in width); the foliage is bluish-green or gray-green; the wheel-shaped flowers (½ to ¾ inch in diameter) are cream, greenish-yellow, white or whitish (with a greenish, orange-yellow, yellow, yellowish or yellow-green center), pale yellow or yellow; the anthers are purplish; flowering generally takes place between mid-August and late November (additional records: two for mid- January, one for mid-May, one for early June, one for late June, two for early July, one for mid-July, one for late July, one for mid-December and one for late December, flowering possibly starting as early as April and ending in late December has been reported); the berry-like seed-pods (¾ to 1¼ inches in length) are covered with a green, papery "Chinese lantern". HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky canyons; canyon bottoms; foothills; hills; rocky hillsides; rocky slopes; alluvial fans; cobbly plains; fields; clayey flats; valley floors; coastal plains; along railroad right-of-ways; roadbeds; along gravelly and gravelly-sandy-clayey-loamy roadsides; sandy arroyos; bottoms of arroyos; draws; gullies; rocky ravines; springs; along streams; in streambeds; creekbeds; along rivers; rocky-sandy and sandy riverbeds; along and in rocky and clayey washes; drainages; around ponds; pondbeds; playas; marshlands; muddy-silty swampy areas; depressions; sloughs; banks of rivers; (sandy-clayey) edges of ponds and swales; sand bars; benches; sandy bottomlands; sandy floodplains; lowlands; mesquite bosques; dikes; canals; canal banks; along ditches; ditch banks; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-sandy, cobbly, gravelly and sandy soils; gravelly-sandy-clayey loam sandy loam ground; sandy clay, humusy clay and clay ground, and silty ground, occurring from sea level to 5,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Quail, White-tailed Deer (*Ovis canadensis*) and Bighorn Sheep (*Ovis canadensis*) browse this plant. *Physalis acutifolia* is native to southwest-central and southern North America. *5, 6, **16**, 43 (050310), 44 (040211), 46 (recorded as *Physalis wrightii* Gray, Page 754), **56**, **57**, 58, 63 (042713 - color presentation of seed-pod), 68 (recorded as *Physalis wrightii* Gray), **77**, 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs."), **85** (082211 - color presentation), 101 (recorded as *Physalis wrightii* Gray, color photograph), 124 (040211 - no record of species; genus record), 127, 140 (Pages 270 & 306)*

***Physalis angulata* C. Linnaeus: Cutleaf Groundcherry**

SYNONYMY: *Physalis angulata* C. Linnaeus var. *lanceifolia* (C.G. Nees von Esenbeck) U.T. Waterfall; *Physalis lanceifolia* C.G. Nees von Esenbeck; *Physalis linkiana* C.G. Nees von Esenbeck. COMMON NAMES: Angular Winter-cherry; Balloon Cherry; Balloon-cherry; Camapu; Coqueret (French); Coqueret Anguleux (French); Cut Leaf Ground Cherry; Cut-leaf Ground-cherry; Cut-leaved Ground Cherry; Cut-leaved Ground-cherry; Cutleaf Ground Cherry; Cutleaf Ground-cherry; Cutleaf Groundcherry; Cutleaved Ground Cherry; Gooseberry (a name also applied to other taxa); Ground Cherry (a name also applied to the genus *Physalis*); Ground-cherry (a name also applied to the genus *Physalis*); Hogweed (a name also applied to other species); Kantig Lyktört (Swedish); Ku Zhi (transcribed Chinese); Lance-leaf Ground-cherry; Lance-leaved Ground-cherry; Lanceleaf Ground Cherry; Lanceleaf Groundcherry; Pops; Purplevein Groundcherry; Southwest Groundcherry; Wild Tomato; Winter Cherry (a name also applied to the genus *Physalis*). DESCRIPTION: Terrestrial annual forb/herb (leafy branched stems 1 to 5 feet in height); the leaves may be green or dark green; the flowers are cream, white (with a yellow center), whitish (often with a large yellow eye), pale yellow or yellow; the anthers are purplish; based on few flowering records flowering generally takes place between mid-July and mid-January (flowering records: one for mid-January, one for mid-July, one for mid-August, two for late August, one for early September, one for mid-September, one for late September, one for early October, three for mid-October, one for mid-November, one for late November and one for late December); the mature, nodding fruits are orange or yellow-orange and are covered by a papery balloon-like inflated calyx. HABITAT: Within the range of this species it has been reported from canyons; canyon bottoms; hills; rocky and gravelly-loamy slopes; flats; valley floors; railroad right-of-ways; along silty roadsides; creeks; rocky-cobbly and sandy riverbeds; along washes; playas; marshlands; banks of rivers; margins of creeks; edges of lagoons; along shores of lakes; mudflats; sand bars; rocky-cobbly bottomlands; gravelly floodbeds; gravelly and sandy floodplains; dikes; along ditches; riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry rocky, gravelly and sandy ground; gravelly loam and sandy loam ground; clay ground, and silty ground, occurring from sea level to 7,100 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Physalis angulata* is native to tropic, sub-tropic and warm-temperate regions of south-central and southern North America and coastal islands in the North Atlantic Ocean; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 43 (050310), 44 (082211 - no listings recorded under Common Names; genus record), 46 (*Physalis lanceifolia* Nees, Page 754), 63 (042713 - color presentation), 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs."), **85** (042713 - color presentation), **89** (reported as being a summer annual herb located on the Santa Cruz Flood-plain, recorded as *Physalis angulata* L. var. *linkiana* (Nees.) Gray), 101 (note for *Physalis lanceifolia* Nees under *Physalis wrightii* Gray), 106 (031509), 124 (082211)*

Physalis angulata var. *lanceifolia* (see *Physalis angulata*)

Physalis angulata var. *linkiana* (see footnote 89 under *Physalis angulata*)

***Physalis crassifolia* G. Bentham: Yellow Nightshade Groundcherry**

COMMON NAMES: Desert Ground Cherry (*Physalis versicolor* - Not Accepted, - *Physalis crassifolia* var. *versicolor* Accepted); Desert Groundcherry (*Physalis versicolor* - Not Accepted, - *Physalis crassifolia* var. *versicolor* Accepted); Greene Ground-cherry (*Physalis greenei* - not Accepted, *Physalis crassifolia* var. *crassifolia* - Accepted); Greene's Ground Cherry (*Physalis greenei* - not Accepted, *Physalis crassifolia* var. *crassifolia* - Accepted); Greene's Ground-cherry (*Physalis greenei* - not Accepted, *Physalis crassifolia* var. *crassifolia* - Accepted); Heart-leafed Groundcherry (*Physalis crassifolia* var. *cardiophylla* - not Accepted, *Physalis crassifolia* var. *crassifolia* - Accepted); Thick Leaved Ground Cherry; Thick-leaf Ground Cherry; Thick-leaf Ground-cherry; Thick-leafed Groundcherry; Thick-leaved Ground Cherry; Thick-leaved Ground-cherry; Thickleaf Ground-cherry; Thickleaf Groundcherry; Tomate de Culebra (Spanish); Tomatillo (a name also applied to other taxa and the genus *Physalis*, Spanish); Tomatillo del Desierto (Spanish); Yellow Nightshade Ground Cherry; Yellow Nightshade Ground-cherry; Yellow Nightshade Groundcherry. DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (leafy branched sprawling and/or spreading decumbent stems 4 to 40 inches in height); the base is suffrutescent (slightly woody toward the base, barely shrubby); the leaves may be gray-green or dark green; the flowers may be pale green-yellow, greenish-yellow, dull yellow, pale yellow, yellow, yellow-green, yellowish, yellowish-whitish, white or pale white-yellowish, with a brown, green, purplish or yellow-bronze center; the anthers are yellow; flowering may take place throughout the year between early January and late December. HABITAT: Within the range of this species it has been reported from rocky mountains; bouldery and rocky mountaintops; rocky mountainsides; sandy mesas; rocky cliffs; bases of cliffs; bouldery, rocky and shaley canyons; rocky canyon walls; rocky, gravelly and sandy canyon bottoms; gorges; scree; talus slopes; crevices in rocks; buttes; sandy bases of buttes; knolls; rocky-sandy-loamy flanks of knolls; ledges; rocky ridges; ridgetops; along rocky ridgelines; cinder cones; rocky foothills; rocky and sandy hills; along bouldery, bouldery-rocky, bouldery-sandy, rocky and loamy hillsides; bouldery, bouldery-rocky-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, sandy and loamy slopes; rocky alluvial fans; gravelly-sandy and sandy bajadas; rocky outcrops; bases of outcrops; amongst boulders and rocks; lava flows; sand dunes; benches; plains; gravelly and sandy flats; valley floors; along rocky-gravelly, gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey roadsides; rocky and sandy arroyos; along rocky bottoms of arroyos; along rocky draws; gullies; rocky ravines; seeps; springs; around seeping streams; along streams; in sand along creeks; along stony and sandy creekbeds; along rivers; sandy riverbeds; along and in bouldery-gravelly, bouldery-sandy, rocky, rocky-pebbly, rocky-sandy, gravelly, gravelly-sandy and sandy washes, within bouldery and rocky drainages; within rocky and gravelly-sandy drainage ways; around poolbeds; marshes; sandy-silty and silty depressions; (bouldery, rocky and sandy) banks of creeks, washes and lakes; borders of washes; edges of arroyos and pondbeds; (gravelly) margins of washes; sandy beaches; rocky terraces; shores of reservoirs; canal walls; rocky ditch banks; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, bouldery-rocky-gravelly-sandy, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-pebbly, rocky-sandy, shaley, stony, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, clayey loam and loam ground; clay ground, and sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Physalis crassifolia* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph 368), 42 (042813), 43 (050410), 44 (011111), 46 (Page 755), 63 (042813 - color presentation), 77, 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs."), **85** (042813 - color presentation of dried material), 140 (Page 306)*

Physalis fendleri (see *Physalis hederifolia* var. *fendleri*)

Physalis hederifolia var. *cordifolia* (see *Physalis hederifolia* var. *fendleri*)

***Physalis hederifolia* A. Gray var. *fendleri* (A. Gray) A.J. Cronquist: Fendler's Groundcherry**

SYNONYMY: *Physalis fendleri* A. Gray; *Physalis hederifolia* A. Gray var. *cordifolia* (A. Gray) U.T. Waterfall. COMMON NAMES: Ground Cherry (a name also applied to other taxa and the genus *Physalis*); Fendler Ground Cherry; Fendler Ground-cherry; Fendler Groundcherry; Fendler Ivy Leaf Tomatillo; Fendler Ivy-leaf Tomatillo; Fendler's Ground Cherry; Fendler's Ground-cherry; Fendler's Groundcherry; Fendler's Ivy Leaf Tomatillo; Fendler's Ivy-leaf Tomatillo; Ivyleaf Ground Cherry (a name also applied to the species); Ivyleaf Groundcherry (a name also applied to the species). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (leafy branched stems 10 inches to 2 feet in height); the stems may be greenish-yellow; the leaves may be gray-green, green or dark green; the flowers may be brownish-yellow, pale green-yellow, greenish-yellow, pale yellow, yellow, yellow-cream, yellow-green or yellow-green with a dark brown center; flowering generally takes place between late April and late September. HABITAT: Within the range of this species it has been reported from mountains; rocky peaks; mesas; bases of cliffs; rocky canyons; along canyon walls; canyon sides; sandy and sandy-loamy canyon bottoms; rocky talus slopes; pockets of soil in rocks; sandy bluffs; knolls; bedrock ledges; ridges; openings in woodlands; meadows; foothills; rocky, shaley, gravelly-clayey and sandy hills; rocky and sandy-loamy hillsides; rocky, rocky-sandy, rocky-loamy, shaley, cindery, gravelly, gravelly-sandy, gravelly-loamy, loamy, clayey and clayey-loamy slopes; rocky outcrops; amongst

rocks; bedrock bottoms of caves; clayey breaks; sandy plains; sandy fields; cindery and sandy flats; basins; valley floors; along railroad right-of-ways; railroad beds; roadcuts; along rocky and cindery roadsides; along and in sandy arroyos; rocky bottoms of arroyos; silty bottoms of draws; springs; along streams; streambeds; along creeks; sandy creekbeds; along rivers; along and in rocky and gravelly-sandy-silty washes; in drainages; cienegas; sandy-loamy swales; along (gravelly-sandy) banks of arroyos, streams and creeks; (sandy) edges of washes; margins of streams; terraces; floodplains; riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam and loam ground; gravelly clay and clay ground, and rocky-silty, gravelly-sandy silty, sandy silty and silty ground, occurring from 1,600 to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Physalis hederifolia* var. *fendleri* is native to southwest-central and southern North America. *5, 6, 15 (*Physalis hederifolia* Gray var. *cordifolia* (Gray) Waterfall), 42 (042813), 43 (073009), 44 (042813), 46 (*Physalis fendleri* Gray, Page 754), 63 (042813), 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs."), 85 (042813 - color presentation), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded as *Physalis fendleri* Gray), 115 (color presentation of the species), 140 (Page 306)*

Physalis lanceifolia (see *Physalis angulata*)

Physalis linkiana (see *Physalis angulata*)

Physalis lobata (see *Quincula lobata*)

Physalis lobata var. *albiflora* (see *Quincula lobata*)

***Physalis longifolia* T. Nuttall (var. *longifolia* is the variety reported as occurring in Arizona): Longleaf Groundcherry**

SYNONYMY: (for var. *longifolia*: *Physalis virginiana* P. Miller var. *sonorae* (J. Torrey) U.T. Waterfall). COMMON NAME: Common Ground Cherry (a name also applied to other taxa); Common Ground-cherry (a name also applied to other taxa); Common Groundcherry (a name also applied to other taxa); Husk Tomato (var. *subglabrata*); Long-leaf Ground Cherry; Long-leaf Ground-cherry; Long-leaf Ground-cherry (var. *longifolia*); Long-leaf Groundcherry; Long-leaved Ground Cherry; Long-leaved Ground-cherry; Longleaf Groundcherry; Longleaf Groundcherry (var. *longifolia*, var. *subglabrata*); Physalis (a name also applied to other taxa and the genus *Physalis*); Prairie Groundcherry (*Physalis longifolia* var. *hispida* - Not Accepted, *Physalis hispida* - Accepted); Smooth Groundcherry (var. *subglabrata*); Smooth Long-leaved Ground-cherry (var. *subglabrata*); Smoothed Groundcherry (var. *subglabrata*); Tall Ground-cherry (a name also applied to other taxa); Virginia Ground Cherry (var. *longifolia*); Virginia Groundcherry (var. *longifolia*). DESCRIPTION: Terrestrial perennial forb/herb (erect stems 4 to 32 inches in height); the leaves are green; the flowers may be cream-greenish, greenish-yellow, pale yellow (with a dark eye), pale yellow-white, yellow or yellowish-green with a dark center; flowering generally takes place between mid-May and mid-October (flowering starting as early as April has been reported). HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; canyons; crevices in rocks; clayey buttes; rocky-sandy ridges; ridgetops; meadows; foothills; clayey hills; bedrock, rocky, rocky-gravelly, rocky-clayey, gravelly, sandy, clayey-loamy and silty-loamy slopes; rocky outcrops; sandy breaks; silty-loamy prairies; plains; sandy and sandy-loamy flats; clayey-loamy uplands; valley floors; roadcuts; along rocky-clayey, sandy and sandy-clayey roadsides; loamy and loamy-clayey draws; sandy ravines; seeps; springs; along streams; in stony and sandy streambeds; along and in creeks; grassy creekbeds; along rivers; along gravelly-sandy washes; within rocky-clayey-silty and gravelly-sandy drainages; boggy areas; swampy areas; swales; along (sandy) banks of streams, creeks, rivers and sloughs; edges of streams, rivers and ciénegas; along margins of creeks and rivers; along (gravelly-clayey, clayey and clayey-loamy) shores of creeks and lakes; gravel bars; benches; bottomlands; along cobbly and sandy floodplains; sandy lowlands; along sandy fencelines; in mucky-loamy, mucky-clayey-loamy and loamy-clayey soils around and in reservoirs; along canals; along ditches; along ditch banks; sandy, sandy-silty-loamy, clayey-loamy and silty-loamy riparian areas, and disturbed areas growing in mucky and moist, damp and dry rocky, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, sandy loam, sandy-silty loam, clayey loam, silty loam and loam ground; rocky clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground, and rocky-clayey silty and silty ground, occurring from 1,600 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Possibly exotic. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Physalis longifolia* is native to central and southern North America. *5, 6, 42 (042913), 43 (050410 - *Physalis virginiana* var. *sonorae* (Torr.) Waterf.), 44 (042913), 46 (Page 755), 58, 63 (042913 - color presentation), 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs."), **85** (042913 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 124 (082311), 127*

Physalis virginiana var. *sonorae* (see *Physalis longifolia* var. *longifolia*)

Physalis wrightii (see *Physalis acutifolia*)

***Quincula lobata* (J. Torrey) C.S. Rafinesque-Schmaltz: Chinese Lantern**

SYNONYMY: *Physalis lobata* J. Torrey; *Physalis lobata* J. Torrey var. *albiflora* U.T. Waterfall. COMMON NAMES: Chinese Lantern (a name also applied to other taxa and the genus *Quincula*); Chinese-lantern (a name also applied to other taxa and the genus *Quincula*); Ground Cherry (a name also applied to other taxa and the genus *Physalis*); Lobed Ground Cherry; Lobed Ground-cherry; Lobed Groundcherry; Physalis (a name also applied to other species and the genus *Physalis*, Portuguese: Brazil); Plains Chinese-lantern; Plains Chineselantern; Prostrate Purple Physalis; Purple Flower Groundcherry; Purple Flowered Groundcherry; Purple Ground Cherry (a name also applied to other taxa); Purple Ground-cherry (a name also applied to other taxa); Purple Groundcherry (a name also applied to other species); Purple Quincula; Purple-flower Ground-cherry; Purple-flower Groundcherry; Purple-flowered Ground Cherry; Purple-flowered Ground-cherry; Purple-flowered Groundcherry; Purple-ground-cherry; Purpleflower Groundcherry; Purpleflowered Groundcherry; Quincula (a name also applied to the genus *Quincula*). DESCRIPTION: Terrestrial perennial forb/herb (spreading prostrate and/or decumbent stems 6 to 16 inches in height); the leaves are green or dark green; the flowers may be blue, blue-violet, dark lavender, magenta, pink-white, pale purple, purple, purple with a white center, dark purple, rose-pink, light violet or violet; the anthers are yellow; flowering generally takes place between mid-February and late November (additional record: one for mid-January). HABITAT: Within the range of this species it has been reported from mountains; mesas; shaley rim rock; gravelly cliffs; sandy canyons; rocky canyon walls; gravelly-silty and sandy-silty bluffs; rocky ridges; silty meadows; foothills; rocky and clayey hills; hilltops; rocky hillsides; rocky, shaley, sandy-clayey-loamy and clayey slopes; alluvial fans; sandy bajadas; clayey banks; breaks; prairies; sandy plains; cobbly-silty, gravelly, sandy, sandy-clayey, sandy-silty, clayey and silty flats; rocky uplands; grassy valley floors; railroad right-of-ways; railroad beds; roadcuts; along rocky, gravelly, gravelly-loamy, sandy, sandy-loamy and clayey roadsides; arroyos; clayey bottoms of draws; springs; along rocky streambeds; along creeks; along rivers; riverbeds; along and in gravelly, gravelly-sandy-silty and sandy washes; gravelly-sandy drainages; clayey lakebeds; sandy, clayey and silty playas; silty depressions; edges of playas; along shores of lakes; mudflats; bottomlands; sandy-clayey floodplains; lowlands; mesquite bosques; stock tanks; along ditches; riparian areas; waste places, and disturbed areas growing in moist and dry desert pavement; rocky, shaley, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam and clayey loam ground; sandy clay and clay ground, and rocky silty, cobbly silty, gravelly silty, gravelly-sandy silty, sandy silty and silty ground, occurring from 300 to 7,500 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a toy, in games and as a drug or medication. *Quincula lobata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Physalis lobata*, color photograph 702), 43 (050510 - *Quincula lobata* Raf., *Physalis lobata* f. var. *albiflora* Waterf.), 44 (082311 - recorded as *Physalis lobata*), 46 (recorded as *Physalis lobata* Torr., Page 754), 63 (042913 - color presentation), **77** (recorded as *Physalis lobata* Torr.), 80 (Species of the genus *Physalis* are listed as being Rarely Poisonous and Suspected Poisonous Range Plants. “It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs.”), **85** (042913 - color presentation), 86 (color photograph, *Physalis lobata*), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes, recorded as *Physalis lobata* Torr.), 115 (color presentation), 124 (082311), 127*

***Solanum douglasii* M.F. Dunal: Greenspot Nightshade**

SYNONYMY: *Solanum nigrum* C. Linnaeus var. *douglasii* (M.F. Dunal) A. Gray. COMMON NAMES: Douglas Horse-nettle; Douglas Night Shade; Douglas Night-shade; Douglas Nightshade; Douglas’ Horse-nettle; Douglas’ Night Shade; Douglas’ Night-shade; Douglas’ Nightshade; Douglas’s Horse-nettle; Douglas’s Night Shade; Douglas’s Night-shade; Douglas’s Nightshade; Green-spot Nightshade; Greenspot Nightshade. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (trailing, ascending and/or erect stems 1 to 6½ feet in height; one plant was observed and described as being 32 inches in height and 5 feet in width); the flowers may be blue-violet, blue-white, cream, pale lavender, lavender, pale purple, purple, purple-white, white, white with a green or greenish throat, white tinged with purple, white-pale lavender, white-lavender or whitish; the anthers are yellow; flowering generally takes place between early February and early December (additional records: three for early January, two for mid-January and three for late December); the mature fruits may be black, blue-black, green or orange-brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; plateaus; bases of cliffs; rocky and gravelly-loamy canyons; rocky canyon bottoms; chasms; talus slopes; crevices in cliffs and rocks; bluffs; wet meadows; foothills; bouldery and rocky hills; hilltops; bouldery and rocky hillsides; bases of hillsides; bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, rocky-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy-loamy, sandy-clayey-loamy, loamy, clayey and clayey-loamy slopes; rocky-sandy-loamy alluvial fans; rocky outcrops; amongst boulders and rocks; banks; bouldery-sandy, sandy, clayey and clayey-loamy flats; uplands; basins; valley floors; coastal bluffs; coastal dunes; coastal marshes; sandy coastal beaches; along rocky, rocky-gravelly, gravelly, gravelly-sandy and clayey roadsides; draws; gulches; gullies; ravines; seeps; springs; in rock along streams; along rocky streambeds; along rocky creeks; along sandy creekbeds; sandy-loamy and silty-clayey riverbeds; within rocky-sandy, gravelly and sandy washes; drainages; within rocky drainage ways; oases; freshwater marshes; sumps; along (sandy-loamy) banks of streambeds, creeks, rivers and washes; (sandy) edges of washes and marshes; margins of riparian areas; shores of lakes; gravelly and sandy terraces; sandy-loamy bottomlands; floodplains; lowlands; margins of charcos (stock tanks); ditches; sandy riparian areas; waste places; recently burned areas of chaparral and coastal sage scrub, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-clayey loam, rocky-sandy loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky-clayey, silty clay and clay ground, and silty ground, occurring from sea level to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations.

NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or dye crop; it was also noted as having been considered to be poisonous, used as a drug or medication and for body art (tattooing). A bee (*Ptiloglossa* sp.) was observed and reported as gathering nectar from the flowers in early September. *Solanum douglasii* is native to south-central and southern North America. *5, 6, 15, 18 (genus), 43 (050610 - no record for *Solanum nigrum* var. *douglasii*), 44 (082411 - color photograph), 46 (Page 758), 58, 63 (043013 - color presentation), 77 (color photograph #98), 85 (043013 - color presentation), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 124 (082411 - no record of species; genus record), 127, 140 (Pages 272 & 306)*

***Solanum elaeagnifolium* A.J. Cavanilles: Silverleaf Nightshade**

COMMON NAMES: Arrebenta-cavalo (Portuguese: Brazil); Ashika (Keres: Cochiti)[140]; Buena [Mala] Mujer ("Good [Bad] Woman", Spanish: Sonora)[140]; Bull Nettle (a name also applied to other species, New Mexico); Bull-nettle (a name also applied to other species, New Mexico); Bull-nettle (English)[140]; Bullnettle (a name also applied to other species); Desert Nightshade (a name also applied to other species); Gáán Bidáá <bináá> (Athapascan: Western Apache)[140]; Ha'watapa (Language Isolate: Zuni); Horse Nettle (a name also applied to other species and the genus *Solanum*, Nebraska, New Mexico); Horse-nettle (a name also applied to other species and the genus *Solanum*, Nebraska, New Mexico); Iron-weed (English: Texas)[140]; Melãozinho-do-campo (Portuguese: Brazil); Nááłtsoí <náałshoih, ʾanatco-i> (Athapascan: Navajo)[140]; Pera ("Pear", (Spanish: Coahuila)[140]; Prairie-berry; Prickly Nightshade (Kansas); Purple Nightshade (a name also applied to other species); Rosillo (Spanish: Sonora)[140]; Saca Manteca ("Butter Puller", Spanish: Arizona, Sonora)[140]; Satansbos (Afrikaans); Silver Horse Nettle; Silver Horse-nettle; Silver Horsenettle; Silver Leaf Horse Nettle; Silver Leaf Horse-nettle; Silver Leaf Night Shade; Silver Leaf Nightshade; Silver Leafed Night Shade; Silver Leaved Horsenettle; Silver Leaved Nightshade; Silver Night Shade; Silver Night-shade; Silver Nightshade; Silver [-leaf] Nightshade (English)[140]; Silver-leaf Horse Nettle; Silver-leaf Horse-nettle; Silver-leaf Night-shade; Silver-leaf Nightshade; Silver-leafed Night-shade; Silver-leafed Nightshade; Silver-leaved Bull Nettle; Silver-leaved Horse Nettle; Silver-leaved Horse-nettle; Silver-leaved Horsenettle; Silver-leaved Nettle; Silver-leaved Nightshade; Silverleaf Bitter-apple; Silverleaf Horsenettle; Silverleaf Nightshade; Silverleaf-nettle; Silverskatta (Swedish); Tomato Weed (a name also applied to other species); Tomatillo de Buena Mujer ("Good Woman's Little Tomato", Spanish: Sonora)[140]; Trompillo ("Little Top", Spanish: New Mexico, Texas, Chihuahua, San Luis Potosí, Sonora)[140]; Trompillos (Mexico); Vakoa Hahaiñig ("Cracked Gourd", Uto-Aztecan: Akimel O'odham)[140]; Vakoa Hahaisig ("Gourd Broken Into Pieces", Uto-Aztecan: Akimel O'odham)[140]; Vakoa Hai ("Broken Gourd", Uto-Aztecan: Akimel O'odham)[140]; Vi'ul (Uto-Aztecan: Hiá Ceḍ O'odham; fruits)[140]; Wako Hahaisa (Uto-Aztecan: Tohono O'odham)[140]; White Horse Nettle; White Horse-nettle (English: New Mexico, Texas)[140]; White Horsenettle; White Weed (Texas), White-weed (English: Texas)[140]; Yellow Seed Night Shade. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (spreading erect stems 8 inches to 2 feet, or possibly to 40 inches, in height; plants were observed and described as being 8 inches in height with a crown 2 to 4 inches in width, plants were observed and described as being 10 to 12 inches in height and width, plants were observed and described as being 16 inches in height with a crown 8 inches in width); the leaves may be bluish-gray, gray, gray-green, grayish-green, greenish-gray or silvery; the star-like flowers (¾ to 1½ inch in diameter) may be light blue, blue, blue-lavender, blue-purple, dark blue, deep blue-violet, bluish-purple, bluish-violet, lavender, lavender-purple, light purple, purple, dark purple, violet, deep violet, violet-purple or white; the anthers are yellow; flowering generally takes place between late March and late November (additional record: one for mid-February); the mature fruits (1/3 to 1/2 inch in diameter) are a golden, golden-brown, orange, orange-yellow or yellow berry. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mesas; sandy plateaus; tablelands; bases of cliffs; rocky canyons; canyonsides; along bouldery-sandy, rocky and sandy canyon bottoms; chasms; bedrock, rocky-sandy and sandy ridges; sandy-loamy bosques; sandy meadows; rocky-sandy rims of craters; rocky foothills; clayey hills; hilltops; rocky and gravelly hillsides; along rocky, rocky-gravelly, stony, cobbly-sandy-loamy, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; sandy-clayey-loamy bajadas; clayey outcrops; sandy lava flows; sand dunes; banks; prairies; sandy plains; rocky-sandy, gravelly, gravelly-loamy, sandy, loamy, clayey, silty and silty-clayey flats; gravelly-sandy uplands; basins; shaley-silty and sandy valley floors; coastal bluffs; coastal plains; coastal beaches; along railroad right-of-ways; in roadways; along rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, gravelly-loamy, sandy and clayey roadsides; arroyos; clayey bottoms of arroyos; draws; silty bottoms of draws; springs; sandy streambeds; along creeks; rocky-gravelly-sandy and sandy creekbeds; along rivers; bouldery-cobbly-sandy and rocky-sandy riverbeds; along and in rocky, gravelly, gravelly-loamy and sandy washes; along rocky-sandy, pebbly-sandy, sandy and clayey-loamy drainages; along drainage ways; ciénegas; swampy areas; depressions; swales; (sandy and clayey) banks of arroyos and rivers; (clayey) edges of playas and ciénegas; margins of rivers and washes; sides of lakes; (rocky-sandy, gravelly and sandy-loamy) shores of ponds, lakes and playas; sandy beaches; benches; sandy terraces; sandy bottomlands; sandy and silty floodplains; mesquite bosques; fencelines; along stony and gravelly-sandy fencelines; around stock tanks; clayey levees; along ditches; along stony ditch banks; bouldery-cobbly-sandy and sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; cobbly-sandy loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; sandy clay, silty clay and clay ground, and rocky silty, shaley silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub; grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted that the berries are used as rennet in curdling milk; as a drug or medication, and the dried berries were worn as jewelry. The green fruits may be poisonous. *Solanum elaeagnifolium* is native to south-central (records exist reporting that this plant occurred in the

southwestern part of Pima County, Arizona from 9,570 to 20,490 years ago) and southern North America and southern South America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph 703), 43 (073009), 44 (031611), 46 (Page 758), **56**, **57**, 58, 63 (043013 - color presentation), 68, 77, 80 (This species is listed as a Secondary Poisonous Range Plant. "The toxic principle in these species is a glycoalkaloid to which the name solanine is applied. The toxicity of a given species may vary considerably. ... Poisoning by *Solanum* species does not always terminate in death. In the acute poisoning, nervous symptoms rapidly build to a maximum, and death or recovery occurs within a few hours to one or two days. Death is the result of paralysis. ... Where the plants are known to exist, animals should be watched closely for symptoms. The best control is to grub out the plants and remove them from the area. This should be done prior to seed development to prevent additional seeding."), **85** (043013 - color presentation), 86 (color photograph), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain), 97, 101 (color photograph), 115 (color presentation), 124 (031611), 127, 140 (Page 271-272 & 306), **WTK** (July 2008)*

Solanum nigrum var. *douglasii* (see *Solanum douglasii*)

***Solanum rostratum* M.F. Dunal: Buffalobur Nightshade**

COMMON NAMES: Beaked Nightshade; Beaked-sandbur; Buffalo Bur (a name also applied to other taxa and the genus *Solanum*); Buffalo Bur Nightshade; Buffalo Burr (a name also applied to other taxa); Buffalo Burr Nightshade; Buffalo-berry (a name also applied to other taxa); Buffalo-bur (a name also applied to other taxa); Buffalo-bur Nightshade; Buffalo-burr (a name also applied to other taxa); Buffalo-burr Nightshade; Buffalobur (a name also applied to other taxa); Buffalobur Nightshade; Buffaloburr Nightshade; Colorado Bur; Duraznillo (Hispanic); Horned Nightshade (a name also applied to other taxa); Horse-nettle (a name also applied to other taxa); Kansas Thistle; Kansas-thistle; Mala Mujer (Hispanic); Manca Mula (Hispanic); Mexican Thistle (a name also applied to other taxa); Ojo de Toro (Hispanic); Pincushion Nightshade; Potato Bug Plant; Potato-bug Plant; Prickly Nightshade (a name also applied to other taxa); Prickly Potato (a name also applied to other taxa); Sand Bur (a name also applied to other taxa); Sand-bur (a name also applied to other taxa); Santa Fe Bur; Santa Fé Bur; Santa Fe Burr; Santa Fé Burr; Soíwari (Tarahumara); Spiny Nightshade (a name also applied to other taxa); Stachel-Nachtschatten (German); Taggborre (Swedish); Texas Nettle; Texas Thistle (a name also applied to other taxa, South Dakota); Toru Esku (Purépecha); Yellow Nightshade (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb (spreading diffusely branching erect stems 6 to 40 inches in height); the plant is armed with golden-yellow spines; the spiny leaves may be dark green or yellow-green; the star-like flowers (1 to 1½ inches in diameter) may be orange-yellow or bright yellow; the anthers are yellow; flowering generally takes place between late May and mid-November (additional record: one for April); the seedpod (to 1 inch in diameter) is enclosed within a spiny bur. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy-clayey mesas; canyon sides; canyon bottoms; sandy pockets of soil in rocks; ridgetops; meadows; foothills; hilltops; rocky hillsides; rocky, shaley, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy and silty slopes; amongst rocks; rock beds; sand dunes; sand bluffs; clay hardpans; clayey and clayey-loamy prairies; sandy and sandy-loamy plains; sandy, sandy-clayey and clayey-loamy flats; loamy, clayey and clayey-loamy uplands; basins; sandy valley floors; valley bottoms; along railroad right-of-ways; wet spots in roadbeds; sandy roadcuts; along rocky-cobbly-gravelly, rocky-gravelly, gravelly, gravelly-loamy, sandy, sandy-clayey and clayey roadsides; along rocky and sandy arroyos; bottoms of arroyos; within sandy-loamy draws; bottoms of gullies; ravines; rocky, gravelly-clayey and sandy streambeds; along and in creeks; gravelly-sandy creekbeds; along rivers; within sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and clayey washes; within gravelly-sandy and clayey drainages; clayey-loamy waterholes; sandy-loamy lakebeds; cienegas; along (sandy) banks of arroyos, draws, creeks, rivers and washes; edges of gullies; margins of creeks, pools, ponds and lakes; sides of lakes; along (gravelly, sandy, sandy-clayey and clayey-loamy) shorelines of creeks, lakes; mudflats; terraces; sandy and sandy-loamy bottomlands; floodplains; along fencelines; stock tanks; dry beds of stocks tanks; shores of reservoirs; dry bottoms of reservoirs; along canals; along sandy ditches; ditch banks; bouldery-cobbly-sandy, sandy and clayey riparian areas; clayey-loamy waste places, and disturbed areas growing in shallow water; mucky, and wet, moist and dry bouldery-cobbly-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, shaley, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, loamy clay and clay ground, and silty ground, occurring from 100 to 7,600 feet in elevation in the forest; woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may have been introduced into Arizona from further east. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The leaves and seed pods of this plant have been reported to be poisonous. Large bumblebees have been observed visiting the flowers. This species is believed to be the original host plant for the Colorado Potato Beetle (*Leptinotarsa decimlineata*). *Solanum rostratum* is native to south-central and southern North America. *5, 6, 18 (genus), 28 (color photograph 369), 30, 43 (073009), 44 (043013), 46 (Page 757), 60 (color photograph of the Colorado Potato Beetle), 63 (043013 - color presentation), 68, 77, 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This spiny annual forb is poisonous but is not eaten by any livestock except hogs." Figure 69), **85** (043013 - color presentation), 86 (color photograph), 101 (color photograph), 115 (color presentation), 124 (031611), 127, 130*

Sterculiaceae: The Cacao Family

Ayenia californica (see *Ayenia compacta*)

***Ayenia compacta* J.N. Rose: California Ayenia**

SYNONYMY: *Ayenia californica* W.L. Jepson. COMMON NAMES: California Ayenia; Compact Ayenia; Desert Ayenia. DESCRIPTION: Terrestrial perennial shrub (ascending stems 4 to 16 inches in height); the branching stems are green; the oval leaves are green; the inconspicuous flowers may be brownish, cream, light pink, pink, dark pink, pinkish-white or white; based on few flowering records available, flowering generally takes place between mid-January and late October (flowering records: one for mid-January, one for mid-March, two for mid-April, one for early May, one for late May, one for early August, one for late August, one for early September, one for mid-September, one for early October, one for mid-October and one for late October); the spherical fruits (¼ inch in diameter) are golden or yellow with a red or purple tint. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky cliffs; canyons; gravelly canyon bottoms; crevices in rocks; bouldery ridges; foothills; bouldery hills; bouldery-rocky hillsides; rocky, rocky-gravelly-clayey and gravelly slopes; amongst rocks; flats; uplands; rocky gullies; gravelly and sandy washes; drainages; rocky-gravelly-clayey banks of gullies, and along riparian areas growing in dry bouldery, bouldery-rocky, rocky, gravelly and sandy ground and rocky-gravelly clay ground, occurring from sea level to 4,800 feet in elevation in the woodland, scrub and desertscrub ecological formation. NOTE: *Ayenia compacta* is native to southwest-central and southern North America. *5, 6, **16**, 43 (050610), 44 (043013 - color photograph), 46 (no record of species), 63 (043013), 85 (043013 - color presentation of dried material), 106 (color presentation), 140 (placed in the Malvaceae: *Ayenia filiformis* S. Watson [*Ayenia compacta* Linnaeus, *Ayenia insulicola* Linnaeus], Page 296)*

***Ayenia filiformis* S. Watson: Trans-Pecos Ayenia**

COMMON NAMES: Desert Ayenia; Trans-Pecos Ayenia; TransPecos Ayenia. DESCRIPTION: Terrestrial perennial subshrub (stems 4 inches to 4 feet in height); the leaves may be bronze, dark green or red; the tiny flowers may be brownish, maroon, purple, red, red-cream, white or white with purple tips; flowering generally takes place between late February and early November (additional records: one for mid-January, two for late January, one for late November, two for mid-December and three for late December); the fruits are bur-like round balls with red tipped spines. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; cliffs; rocky canyons; along canyon walls; rocky canyon bottoms; talus slopes; crevices in boulders and rocks; rocky ridges; rocky ridgetops; foothills; rocky hills, rocky hilltops; rocky hillsides; bouldery-gravelly, rocky and gravelly slopes; bajadas; rocky outcrops; amongst boulders and rocks; flats; basins; coastal plains; coastal beaches; along roadsides; sandy arroyos; rocky bottoms of arroyos; gulches; seeps; springs; along streams; rocky streambeds; riverbeds; along and in rocky and sandy washes; within rocky and gravelly drainages; along (rocky) banks of ravines, creeks and washes; borders of washes; along (bouldery) edges of washes; bottomlands; sandy floodplains; mesquite woodlands; riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, gravelly and sandy ground and rocky silty ground, occurring from 100 to 5,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Ayenia filiformis* is native to southwest-central and southern North America. *5, 6, 43 (073009), 44 (043013 - no record of species; genus record), 46 (no record of species), 63 (043013), 77 (color photograph #99), **85** (050113 - color presentation), 140 (placed in the Malvaceae: *Ayenia filiformis* S. Watson [*Ayenia compacta* Linnaeus, *Ayenia insulicola* Linnaeus], Page 296)*

***Ayenia microphylla* A. Gray: Dense Ayenia**

COMMON NAMES: Ayenia (a name also applied to the genus *Ayenia*); Dense Ayenia; Littleleaf Ayenia; Shrubby Ayenia. DESCRIPTION: Terrestrial perennial subshrub or shrub (stems 8 inches to 5 feet in height); flowering generally takes place between mid-July and mid-September (additional records: one for mid-April, two for late April, two for early May and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; canyons; bases of cliffs; sandy ledges; bedrock ridges; foothills; rocky hills; hilltops; rocky hillsides; bedrock and rocky slopes; bajadas; amongst boulders and rocks; plains; gravelly flats; basins; along roadsides; arroyos, and washes growing in dry bouldery, rocky and gravelly ground, occurring from 500 to 5,100 feet in elevation in the desertscrub ecological formation in the scrub, grassland and desertscrub ecological formation. NOTE: *Ayenia microphylla* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (050710), 44 (050113), 46 (Page 555), 63 (050113), 77, **85** (050113 - color presentation), **89** (reported as being a dwarf shrub located on Tumamoc Hill)*

***Hermannia pauciflora* S. Watson: Santa Catalina Burstwort**

COMMON NAMES: Burstwort; Few-flowered Hermannia; Hierba del Soldado (Spanish); Santa Catalina Burstwort; Sparseleaf Hermannia. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (trailing to erect stems 8 to 16 inches in height); the small flowers are orange, orange-yellow or yellow; based on few available records, flowering generally takes place between early January and mid-November (flowering records: one for early January, three for early mid-January, one for early February, three for mid-February, one for early March, two mid-March, two for late March, three for mid-April, one for late May, one for mid-July, three for late August, two for early September, one for late October and one for mid-November. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; along canyon bottoms; rocky gorges; talus slopes; crevices in rocks; soil pockets in rocky slopes; foothills; rocky hills; rocky hillsides; bedrock, bouldery and rocky slopes; rocky outcrops; amongst rocks; alluvial fans; basins; valley bottoms; rocky arroyos; along and in rocky washes; floodplains; mesquite bosques, and riparian areas growing in dry bouldery and rocky ground, occurring from sea level to 4,300 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTE: *Hermannia pauciflora* is native to southwest-central and southern North America. *5, 6, 8, 13, **16**, 43 (050710), 44 (050113 - no record of species or genus), 46

(Page 555), 63 (050113), 77, 85 (050113 - color presentation), **89** (reported as being a dwarf shrub located on Tumamoc Hill), 124 (082711 - no record of species or genus)*

Tamaricaceae: The Tamarix Family

Tamarix aphylla (C. Linnaeus) G.K. Karsten: Athel Tamarisk

COMMON NAMES: Athel (a biblical name); Athel Salt Cedar; Athel Salt-cedar; Athel Saltcedar; Athel Tamarisk; Athel Tamarix; Athel Pine; Athel Tree; Athel-pine; Athel-tree; Atheltree; Desert Athel; Desert Tamarisk; Desert Tamarix; Evergreen Tamarisk; Farash (India); Leafless Tamarisk; Pino (Spanish); Pino Salado (Spanish); Salt Cedar (a name also applied to other taxa); Salt-cedar (a name also applied to other taxa); Saltcedar (a name also applied to other taxa); Tamaris (French); Támaris (Spanish); Tamarisk (a name also applied to other taxa, the genus *Tamarix* and to the Tamaricaceae); Tamariske (German); Tamarix (a name also applied to other taxa, the genus *Tamarix* and to the Tamaricaceae); Taray (Spanish); Woestyntamarisk (Afrikaans). DESCRIPTION: Terrestrial perennial deciduous (appearing to be evergreen) shrub or tree (20 to 60 feet in height with a rounded or irregular spreading crown 25 to 50 or more feet in width); the bark may be brown, gray, gray-brown, reddish-brown or reddish-tan; the branches are purplish-brown; the jointed branchlets may be blue-green, gray-green, greenish or greenish-brown or greenish-brown; the scale leaves encircle the branchlets; the minute flowers may be pinkish, pinkish-white, white or whitish-pink and located in clusters at the end of twigs; flowering generally takes place between early August and late October (additional record: one for early May, flowering beginning as early as March has been reported). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; rocky hills; rocky slopes; gravelly-sandy alluvial fans; sand dunes; sand hummocks; sandy flats; basins; coastal dunes; coastal plains; roadsides; sandy arroyos; springs; along streams; along rivers; sandy riverbeds; along and in sandy washes; oases; ponds; along lakes; playas; depressions; along banks of rivers and lakes; along margins of rivers and washes; mudflats; sandy bottomlands; floodplains; mesquite woodlands; sandy-silty stock tanks; canal banks; along ditches; riparian areas, and disturbed areas growing in moist and dry gravelly-sandy and sandy ground and sandy silty ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that once established poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as fuel. *Tamarix aphylla* is native to western and southern Asia and northern, western and eastern Africa. *5, 6, 13, 18, 26 (color photograph), 43 (050710), 44 (050113 - color photograph), 46 (note under *Tamarix pentandra*, Page 557), 52 (color photograph), 53, **56**, **57**, 63 (050113 - color presentation), **85** (050113 - color presentation), 109 (color photograph of a *Tamarix* sp.), 127*

Tamarix pentandra (see *Tamarix ramosissima*)

Tamarix ramosissima C.F. von Ledebour: Saltcedar

SYNONYMY: *Tamarix pentandra* P. Simon von Pallas. COMMON NAMES: Atarfe (a name also applied to other species, Spanish); Common Salt Cedar; Common Salt-cedar; Common Saltcedar; Five Stamen Tamarisk (a name also applied to other taxa); Five Stamen Tamarix (a name also applied to other taxa); Five-stamen Tamarisk (a name also applied to other taxa); Five-stamen Tamarix (a name also applied to other taxa); Five-stamened Tamarisk (a name also applied to other taxa); Fivestamen Tamarisk (a name also applied to other taxa); Fivestamen Tamarix (a name also applied to other taxa); Höst-tamarisk (Swedish); Odessa Tamarix; Perstamarisk (Afrikaans); Pink Salt Cedar; Pink Salt-cedar; Pink Tamarisk; Pink Tamarix; Pino Salado (a name also applied to other species, Spanish); Salado; Salt Cedar (a name also applied to other taxa and the genus *Tamarix*); Salt-cedar (a name also applied to other taxa and the genus *Tamarix*); Saltcedar (a name also applied to other taxa and the genus *Tamarix*); Talaya (a name also applied to other species, Spanish); Tamarisco (a name also applied to other species, Spanish); Tamarisk (a name also applied to other taxa, the genus *Tamarix* and to the Tamaricaceae); Tamarix (a name also applied to other taxa, the genus *Tamarix* and to the Tamaricaceae); Tamariz (a name also applied to other species, Spanish); Taray (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial perennial winter deciduous or evergreen shrub or tree (2 to 33 feet in height; one shrubby tree was observed and described as being 20 feet in height with a crown 20 feet in width); the bark is red or reddish-brown; the scale-like leaves are grayish-green; the flowers may be pale lavender, lavender-pink, pale pink, pale pink-purple, pink, dark pink, deep pink, pink-lavender, pink-pale purple, pink-white, pinkish-purple, purple, purple-pink, red, deep rose, white, white-pink or whitish; flowering generally takes place between early March and late November (additional records: one for early January, two for early February and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; plateaus; hanging gardens; bouldery, rocky and stony canyons; bouldery-gravelly-sandy and sandy canyon bottoms; meadows; bluffs; ledges; foothills; rocky and cindery slopes; rocky outcrops; sand dunes; hummocks; prairies; plains; sandy and sandy-silty flats; uplands; sandy basins; bottoms of basins; valley floors; along sandy and clayey roadsides; along and in sandy arroyos; along bottoms of arroyos; within shaley-silty draws; seeps; around springs; along streams; streambeds; along creeks; along and in bouldery-cobbly-sandy, rocky, rocky-sandy and sandy creekbeds; in clayey-loams along rivers; sandy and sandy-loamy riverbeds; along and in bouldery-sandy, stony-sandy-silty, gravelly and sandy washes; along rocky-loamy drainages; around waterholes; lakebeds; playas; lagoons; silty marshy areas; saltwater marshes; potholes at bases of boulders; clayey depressions; along sloughs; (clayey) banks of streambeds, rivers and ponds; (rocky-sandy, gravelly and sandy) edges of arroyos, streams, rivers, washes, pools, vernal pools, ponds, lakes and bogs; along (muddy, rocky, sandy and clayey) margins of creeks, rivers, pools, ponds, lakes and playas; sides of streams; (clayey)

shores of lakes; mudflats; sand bars; sandy-clayey beaches; sandy benches; sandy terraces; rocky bottomlands; sandy floodplains; margins of stock tanks (charcos); reservoirs; sandy soils along canals; canal banks; along edges of canals; along sandy ditches; ditch banks; rocky-gravelly-sandy, rocky-sandy and sandy riparian areas, and disturbed areas growing in mucky; muddy, and wet and moist bouldery, bouldery-cobbly-sandy, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, cindery, gravelly, pebbly-sandy and sandy ground; rocky loam, sandy loam and clayey loam ground; rocky clay, sandy clay and clay ground, and shaley silty, stony-sandy silty, sandy silty and silty ground, occurring from sea level to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. Saltcedar is similar to and may be confused with Smallflower Tamarisk (*Tamarisk parviflora* DC.), Tamarisk flowers are 5-petaled and Smallflower Tamarisk flowers are 4-petaled, and the bark on the stems of Saltcedar is reddish-brown whereas on Smallflower Tamarisk it is brown to deep purple. Some Arizona populations of *Tamarix ramosissima* may have historically been referred to as *Tamarix pentandra*. Some botanists consider *Tamarix ramosissima* to be a synonymous with *Tamarix chinensis*. *Tamarix ramosissima* is native to eastern Europe and western and central Asia (Ukraine and Iraq east through China and Tibet to the Korean Peninsula). *5, 6, 13 (Pages 97 & 98), **16** (recorded as *Tamarix pentandra* Pall.), 18 (note under *Tamarix chinensis*), 22 (color photograph), 26 (note), 28 (recorded as *Tamarix pentandra*, color photograph 35), 42 (050113), 43 (050810), 44 (050113 - color photograph), 46 (recorded as *Tamarix pentandra* Pall., Page 557), 58, 63 (050810 - color presentation), **77**, **85** (050113 - included under *Tamarix chinensis*), 91 (*Tamarix chinensis* Lour. / *Tamarix ramosissima* Ledeb., Pages 384-386), 101 (color photograph), 109 (color photograph of a Tamarix), 124 (040211), 140 (Page 306), **WTK** (October 29, 2009)*

Ulmaceae: The Elm Family

Celtis pallida J. Torrey: Spiny Hackberry

SYNONYMY: *Celtis ehrenbergiana* (J.F. Klotzsch) F.M. Liebmann; *Celtis tala* J. Gillies ex J. É. Planchon var. *pallida* (J. Torrey) J. É. Planchon. COMMON NAMES: Acebuche (Spanish: Coahuila, Sonora)[140]; Bainora <vainora> (Uto-Aztecan: Cahita, Sonora)[140]; Bainoro; Capul <capui> ("Cherry or Capulí", Spanish: Sonora, Durango, Texas)[140]; Cumbro (Spanish); Desert Hackberry; Garabato ("Iron Hook", Spanish: Sinaloa)[140]; Garambullo ("Spiny Plant", Spanish: Mayo, Sonora)[140]; Gec Cehd (Oto-Manguean: Zapotec)[140]; Granejo [Amarillo] ("[Yellow] Little Seed", Spanish: Chihuahua, Durango, Nuevo León, Sonora, Tamaulipas, Texas)[140]; Granjeno (Spanish); Guichi-bezia (Oto-Manguean: Zapotec)[140]; Gumbro <cumbro, cúmero> (Uto-Aztecan: Cahita, Mayo, Onavas Pima)[140]; [Desert, Spiny] Hackberry [Hagberry, Hegeberry] (English)[140]; Huasteco; [Granejo] Huasteco ("Huastec [Seeds]", Spanish: Tamaulipas)[140]; Jiłhazhí <jiłhazhi> (Jiłhazí is a name that is also applied to *Celtis reticulata* and *Sambucus nigra*, Athapascan: Navajo)[140], K:om (Uto-Aztecan: Onavas Pima), Ko:m <kohm> (Uto-Aztecan: Akimel O'odham, Tohono O'odham)[140]; Kuavulĭ <kókauli> (Uto-Aztecan: Akimel O'odham, Hiá Ceḍ O'odham)[140]; Kunwo (Uto-Aztecan: Yaqui)[140]; Kuwavul <ku'avor> (Uto-Aztecan: Tohono O'odham, Onavas Pima)[140]; Palo de Águila ("Eagle's Tree", Spanish: Sonora)[140]; Palo de Guila (Spanish); Ptaacal (Hokan: Seri)[140]; Rompecapa ("Cape Tearer", Spanish: Oaxaca, Sonora)[140]; Spiny Desert Hackberry; Spiny Hackberry; Spiny [Shiny] Hackberry (English)[140]; Suhtú (Uto-Aztecan: Guarijío)[140]; Vaino Blanco (Spanish); Wusha'i (Uto-Aztecan: Onavas Pima)[140]. DESCRIPTION: Terrestrial perennial (drought-deciduous) evergreen shrub or tree (3 to 20 feet in height with a rounded crown; one plant was observed and described as being 7 feet in height with a crown 7 feet in width); one plant was observed and described as being 7 feet in height with a crown 13 feet in width); the bark is gray; the thorny branches are whitish-gray; the leaves are green or dark green; the inconspicuous flowers may be green, greenish-yellow, white-green or yellow, flowering generally takes place between early March and late October (flowering has also been reported as ending in November with the heaviest flowering period occurring between April and June, flowering has also been reported as occurring year-round); the ripe fruits are orange, bright red, reddish-orange or yellow. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; rocky and rocky-gravelly canyons; rocky canyon bottoms; rocky bases of cliffs; ridges; gravelly ridgetops; rocky ridgetops; foothills; rocky and gravelly hills; rocky hillsides; bedrock, bouldery, rocky, rocky-cobbly-gravelly, gravelly, gravelly-loamy and gravelly-sandy slopes; bajadas; rocky outcrops; amongst boulders; coves; terraces; cobbly plains; fields; gravelly-sandy and sandy flats; rocky-gravelly basins; valley floors; valley bottoms; along roadsides; along rocky, gravelly and sandy arroyos; rocky, gravelly and sandy bottoms of arroyos; draws; gullies; seeps; springs; along seeping streams; along streams; along and in streambeds; in sand along creeks; along rivers; bouldery-cobbly-sandy riverbeds; along and in gravelly and sandy washes; within drainages; around ponds; banks of arroyos, rivers, washes and drainages; borders of washes; (sandy) edges of rivers; along margins of arroyos and washes; (sandy) sides of rivers; benches; gravelly terraces; bottomlands; gravelly-clayey and sandy floodplains; mesquite bosques; around stock tanks (represos); riparian areas, and disturbed areas growing in muddy (rarely reported) and dry desert pavement; bouldery, bouldery-rocky, bouldery-cobbly-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam ground, and gravelly clay ground, occurring from sea level to 6,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The small fruits are reportedly juicy and sweet. The Desert Hackberry may live to be more than 88 years of age and may be useful in controlling erosion. The Desert Hackberry is a larval food plant for the American Snout (*Libytheana carinenta*) and Empress Leilia (*Asterocampa leilia*) and is browsed by deer; the fruits are eaten by Northern Mockingbirds (*Mimus polyglottos*), Thrashers and other species of birds, small desert mammals, White-nosed Coati (*Nasua narica*), Coyotes (*Canis latrans*), foxes and Javelinas (*Peccari tajacu*). It provides a nesting site for the White-wing Dove (*Zenaida asiatica*) and cover for Gambel's Quail (*Callipepla gambelii gambelii*) as well as other birds and

mammals. *Celtis pallida* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and western, eastern and southern South America. *5, 6, 13 (recorded as *Celtis tala* Gillies var. *pallida* (Torrey) Planch., Pages 155-156), 15 (recorded as *Celtis pallida* Torr.), **16** (recorded as *Celtis pallida* Torr.), 18, 26 (recorded as *Celtis pallida*, color photograph), 28 (recorded as *Celtis pallida*, color photograph 69), 42 (050613), 43 (050810), 44 (120310 - no record of species; genus record), 46 (recorded as *Celtis pallida* Torr., Page 220), 48, 58 (recorded as *Celtis pallida* Torr.), 63 (050613 - recorded as *Celtis ehrenbergiana*), 77 (recorded as *Celtis pallida* Torr.), **85** (050213 - also recorded as *Celtis pallida* var. *pallida* Torrey, color presentation), **89** (reported as being a shrub located on Tumamoc Hill, recorded as *Celtis pallida* Torr.), 91 (recorded as *Celtis pallida* Torr., Pages 154-156), 115 (color presentation), 124 (031611 - no record of species; genus record), 140 (recorded as *Celtis pallida* Torrey, placed in the Cannabaceae, Pages 272-273, 274 & 288), **WTK** (October 28, 2009)*

Celtis laevigata C.L. von Wildenow var. *reticulata* (J. Torrey) L.D. Benson: Netleaf Hackberry

SYNONYMY: *Celtis douglasii* J.É. Planchon; *Celtis reticulata* J. Torrey. COMMON NAMES: [a]'qwá' <aqwa'> (Yuman: Walapai)[140]; Acibuche <acebuche> (Spanish: Chihuahua)[140]; Aceituna ("Olive", Spanish)[140]; Bainoro <vainora> (Spanish: Sonora)[140]; Canyon Hackberry; Cúmaro (Mexico, Sonora); [Palo] Cumbro (Spanish: Sinaloa)[140]; Cúmero <combro, cumaro, cumbro> (Uto-Aztecan: Cahita, Mayo, Sonora, Sinaloa)[140]; Didzé Bik'ǫǫdlizí <diʒé bekǫɬizí> (Athapascan: Navajo)[140]; Douglas Hackberry; Douglas's Hackberry; False Elm; Garabato Blanco ("White Iron Hook", Spanish: Baja California)[140]; Gumbro (Uto-Aztecan: Onavas Pima)[140]; Hack Berry; Hackberry (a name also applied to the genus *Celtis*); [Net-leaf] Hackberry (English)[140]; I*Y*ntłidz ("Hard Seed", Athapascan: Chiricahua and Mescalero Apache)[140]; Jiłhááze (Athapascan: Western Apache)[140]; Jiłhazí <jilxazi, tjiłxájih> ("Chewing Plant" Jiłhazí is a name that is also applied to *Celtis palida* and *Sambucus nigra*, Athapascan: Navajo)[140]; Keʔmoci (Uto-Aztecan: Guarijío)[140]; Ko:m <kom> (Uto-Aztecan: Tohono O'odham)[140]; Kumar (Uto-Aztecan: Onavas Pima)[140]; Machaquí <uchieá> (Uto-Aztecan: Guarijío, Sonora)[140]; Membrillo (Spanish: San Luis Potosí)[140]; Net Leaf Hackberry; Net-leaf Hackberry; Net-leaf Sugar Hackberry; Net-leafed Hackberry; Net Leaved Hackberry; Net-leaved Hackberry; Netleaf Hackberry; Oklahoma Hackberry; Palo Blanco (a name also applied to other taxa, Spanish); Palo Blanco ("White Tree", Spanish: Arizona, Texas, Coahuila, Durango, Tamaulipas)[140]; Palo Duro ("Hard Tree", Spanish: New Mexico)[140]; Palo Mulato ("Mulato Tree", Spanish: Durango)[140]; Shikai-shikai-ka (Keres: Acoma, Laguna)[140]; Small-leaf Nettle Tree; Small-leaved Nettle Tree; Sugar-berry (a name also applied to the genus *Celtis*); Sugar-berry (English)[140]; Sugarberry (a name also applied to the genus *Celtis*); Thick-leaf Hackberry; Thick-leaved Hackberry; Uchic (Spanish); Vaior (Spanish: Mexico)[140]; Western Hackberry (a name also applied to other taxa); Western Hackberry (English)[140]. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (40 inches to 60 feet in height with a rounded and spreading crown; stunted shrubs or trees up to 2 feet in height were observed and reported from forests at higher elevations, one tree was observed and described as being 13 feet in height and 16 feet in width, one tree was observed and described as being 30 feet in height and width); the bark may be gray, dark gray or reddish-brown becoming "warty" with age; the twigs are reddish-brown; the upper surface of the leaves may be dark green or yellow-green and the lower surface is gray-green appearing in early April to late May developing fully in June, they turn yellow in the fall; the inconspicuous flowers are green or yellow-green; the anthers are green; the stigmas are whitish-green; flowering generally takes place between mid-March and mid-September; the fruits may be black, purplish, pale orange, orange, orange-red-brown, dark red, reddish or reddish-black. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; plateaus; rocky cliffs; hanging gardens; bases of cliffs; along bouldery, rocky, rocky-gravelly and gravelly-loamy canyons; canyon sides; bouldery, rocky, gravelly and gravelly-sandy-clayey canyon bottoms; chasms; gorges; bouldery talus; crevices in rocks; bluffs; ledges; rocky ridges; rocky and gravelly ridgetops; foothills; sandy and clayey hills; rocky hillsides; bouldery, bouldery-sandy, rocky, rocky-sandy-clayey-loamy, rocky-loamy, shaley, shaley-gravelly, gravelly-loamy, sandy-loamy and loamy slopes; alluvial fans; rocky and gypsum outcrops; amongst boulders and rocks; bases of rock slides; rocky and sandy alcoves; sandy lava flows; lava beds; sand dunes; shell banks; breaks; prairies; plains; sandy flats; basins; sandy valley floors; valley bottoms; along gravelly-loamy roadsides; along and in rocky, gravelly and sandy arroyos; gravelly and sandy bottoms of arroyos; bottoms of draws; gulches; rocky gullies; ravines; sandy seeps; springs; along streams; along and in bouldery, gravelly-sandy and sandy streambeds; in sand along creeks; along and in bouldery and sandy creekbeds; along rivers; riverbeds; along and in rocky, rocky-gravelly, gravelly, gravelly-sandy, sandy and sandy-clayey-loamy washes; rocky-sandy drainages; loamy drainage ways; along watercourses; oases; among and in pools; ponds; lakes; tanks; ciénegas; along (rocky) banks of arroyos, ravines, streams, streambeds, creeks, rivers, washes and drainages; borders of washes; (sandy) edges of arroyos, springs, streams and washes; along margins of rivers and ponds; shores of lakes; rocky-sandy and gravelly-sandy benches; gravelly, sandy and silty-loamy terraces; rocky and silty bottomlands; along floodplains; mesquite bosques; fencerows; gravelly canal banks; along ditches; rocky-gravelly and sandy riparian areas, and disturbed areas growing in wet, moist, damp and dry (seasonally wet) bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy-clayey loam, gravelly loam, sandy loam, sandy-clayey loam, silty loam and loam ground; gravelly-sandy clay and clay ground, and silty ground, occurring from 300 to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fiber and/or dye crop; it was also noted as having been used for tools, as a drug or medication or as a fuel. The Netleaf Hackberry may be useful in the rehabilitation of disturbed sites and suitable for planting in patios, yards and along streets in urban areas and may live to be 100 to 200 years in age. The Netleaf Hackberry provides cover and food for many species of birds and mammals; the American Beaver (*Castor canadensis*) feeds on the wood; the plant is browsed by Pronghorn (*Antilocapra americana*), Mule Deer (*Odocoileus hemionus*) and White-tailed Deer (*Odocoileus virginianus*); the fruit is eaten by wildlife; and Scrub Jays

(*Aphelocoma californica*) feed on the leaf galls that form on the foliage. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Netleaf Hackberry has been EXTIRPATED from this township. *Celtis laevigata* var. *reticulata* is native to south-central and southern North America. *5, 6, 13 (Pages 154-155), 15 (recorded as *Celtis reticulata* Torr.), 18, 26 (recorded as *Celtis reticulata*, color photograph), 28 (recorded as *Celtis reticulata*, color photograph 70), 43 (120410 - *Celtis laevigata* var. *reticulata* (Torr.) L.D. Benson), 44 (050213 - Common Names listings recorded under *Celtis reticulata*), 46 (Page 220), 48, 52 (recorded as *Celtis reticulata*, color photograph), 53, 58 (recorded as *Celtis reticulata* Torr.), 63 (050213 - color presentation), **85** (050213 - color presentation), **89** (reported as being a tree located on the Santa Cruz Flood-plain, recorded as *Celtis mississippiensis* Bosc var. *reticulata* (Torr.) Sargent), 115 (color presentation), 124 (031611), 127, 140 (recorded as *Celtis reticulata* Torrey, placed in the Cannabaceae, Pages 108, 272, 273-274 & 288), **WTK** (June 2, 2005)*

Celtis douglasii (see *Celtis laevigata* var. *reticulata*)

Celtis ehrenbergiana (see *Celtis pallida*)

Celtis mississippiensis var. *reticulata* (see footnote 89 under *Celtis laevigata* var. *reticulata*)

Celtis pallida var. *pallida* (see footnote 85 under *Celtis pallida*)

Celtis reticulata (see *Celtis laevigata* var. *reticulata*)

Celtis tala var. *pallida* (see *Celtis pallida*)

Urticaceae: The Nettle Family

Parietaria debilis (see footnote 89 under *Parietaria hespera*)

***Parietaria hespera* B.D. Hinton: Rillita Pellitory**

COMMON NAME: California Pellitory (var. *californica*); Pellitory (a name also applied to the genus *Parietaria*); Rillita Pellitory; Rillita Pellitory (var. *hespera*); Southwest Pellitory; Southwestern Pellitory; Western Pellitory. DESCRIPTION: Terrestrial annual or perennial forb/herb (spreading, sprawling branched prostrate, decumbent, ascending or erect stems ¾ to 22 inches in height); the stems may be purple; the leaves are pale green or green; the inconspicuous flowers may be cream, pale green, green, greenish, white or white-green; flowering generally takes place between mid-January and early June (additional records: two for late June, one for early July, one for mid July, one for late July and one for late August). HABITAT: Within the range of this species it has been reported from mountains; grassy mesas; plateaus; cliffs; bases of cliffs; bouldery, rocky, stony and sandy canyons; canyon walls; along rocky, rocky-sandy and sandy-loamy canyon bottoms; talus slopes; rock clefts; crevices in rocks; buttes; ledges; loamy and clayey-loamy ridges; rocky ridgetops; foothills; bouldery and rocky hills; clayey hilltops; rocky hillsides; along bedrock, bouldery, bouldery-silty, rocky, cobbly, gravelly, sandy-loamy and clayey-loamy slopes; bases of slopes; bouldery-stony-gravelly-sandy, rocky-sandy-loamy and gravelly-sandy alluvial fans; bajadas; bouldery and rocky outcrops; amongst rocks; bases of boulders and rocks; sheltered areas below rocks, shrubs and trees; caves; rocky niches; tops and margins of lava flows; sand dunes; banks; clay lenses; sandy-loamy plains; flats; valley floors; coastal slopes; roadsides; rocky arroyos; within rocky draws; springs; along streams; along creeks; along and in rocky creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; along and in bouldery-rocky and cobbly drainages; cobbly-sandy drainage ways; tanks; depressions; rocky swales; (loamy) banks of arroyos; streambeds, rivers and washes; (bouldery) edges of washes, drainage ways and salt marshes; margins of rivers and washes; benches; rocky-sandy floodplains; canals; bottoms of stock tanks; sandy riparian areas; recently burned areas in scrubs, and disturbed areas growing in

wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-stony-gravelly-sandy, rocky, rocky-sandy, stony, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, sandy loam, clayey loam and loam ground; bouldery clay, rocky clay, sandy clay and clay ground, and silty ground often reported from shaded areas, occurring from sea level to 6,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: *Parietaria hespera* B.D. Hinton var. *californica* B.D. Hinton, the California Pellitory has been described as being either annual or perennial, and *Parietaria hespera* B.D. Hinton var. *hespera* has been described as a perennial. *Parietaria hespera* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (050910), 44 (050213 - color photograph), 46 (no record of species), 58, 63 (050213), **85** (050213 - color presentation), **89** (reported as being a winter annual herb located on Tumamoc Hill, recorded as *Parietaria debilis* Forst. f.)*

Parietaria hespera B.D. Hinton var. *hespera*: Rillita Pellitory

COMMON NAME: Typical Rillita Pellitory; Typical Southwest Pellitory; Typical Southwestern Pellitory; Typical Western Pellitory. DESCRIPTION: Terrestrial perennial forb/herb (spreading, sprawling branched prostrate, decumbent, ascending or erect stems 1¼ to 22 inches in height); the stems may be purple, the leaves are pale green or green; the inconspicuous flowers may be green, white or white-green; flowering generally takes place between late January and early June (additional record: two for late June, one for early July, one for late July and one for late August). HABITAT: Within the range of this species it has been reported from mountains; cliffs; bases of cliffs; bouldery, rocky and sandy canyons; canyon walls; rocky and sandy-loamy canyon bottoms; rock clefts; crevices in rocks; buttes; rocky ledges; ridgetops; hills; rocky hillsides; bedrock, bouldery, bouldery-silty, rocky, gravelly, sandy-loamy and clayey-loamy slopes; bases of slopes; rocky-sandy-loamy and gravelly-sandy alluvial fans; bajadas; rocky outcrops; amongst rocks; bases of boulders and rocks; in cobble under ledges and shrubs; caves; rocky niches; tops and margins of lava flows; sand dunes; banks; sandy-loamy plains; flats; valley floors; roadsides; along rocky arroyos; within rocky draws; springs; along streams; along creeks; along and in rocky creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; in bouldery-rocky drainages; cobbly-sandy drainage ways; rocky swales; tanks; banks of arroyos and draws, rivers and washes; bouldery edges of drainage ways; rocky-sandy floodplains; canals; bottoms of stock tanks, and riparian areas growing in moist and damp bouldery, bouldery-rocky, rocky, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, sandy loam, clayey loam and loam ground; sandy clay and clay ground, and bouldery-silty and silty ground often reported from shaded areas, occurring from sea level to 6,500 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Parietaria hespera* var. *hespera* is native to southwest-central and southern North America. *5, 6, 15, 43 (050910), 44 (050213 - color photograph), 46 (no record of species), 58, 63 (050213), **85** (050213 - color presentation)*

Verbenaceae: The Verbena Family

Aloysia wrightii (A. Gray) A.A. Heller: Wright's Beebrush

SYNONYMY: *Lippia wrightii* A. Gray. COMMON NAMES: Altamisa; Bee Brush; Beebrush; Lemon Verbena; Mexican Oregano (a common name which is also applied to *Aloysia lycioides* which is the Mexican Oregano of commerce); Mintbush Lippia; Oreganillo; Vara Dulce; Wild Lemon Verbena; Wright Aloysia; Wright Bee Brush; Wright Bee Bush; Wright Bee-brush; Wright Bee-bush; Wright Beebrush; Wright Beebush; Wright Lemon Verbena; Wright Lippia; Wright Oregano; Wright Oreganillo; Wright's Aloysia; Wright's Bee Brush; Wright's Bee-brush; Wright's Beebrush; Wright's Beebush; Wright's Lemon Verbena; Wright's Lippia; Wright's Oregano; Wright's Oreganillo. DESCRIPTION: Terrestrial perennial drought-deciduous or semi-evergreen shrub (20 inches to 8 feet in height and to about the same in width); the aromatic foliage is gray-green; the small flowers, located in dense elongate spikes (¾ to 2¾ inches in length and ½ inch in width) may be cream-white, white or yellow-white; flowering generally takes place between early March and early May and again between early July and mid-December (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky and clayey mesas; cliffs; rocky and gravelly bases of cliffs; rims of gorges; bedrock, bouldery-sandy, rocky, gravelly and gravelly-loamy canyons; along rocky canyon bottoms; gorges; talus slopes; crevices in rocks; buttes; rocky ledges; bedrock and rocky ridges; rocky ridgetops; clearings in woodlands; rocky foothills; rocky hills; rocky and rocky-clayey hillsides; bedrock, bouldery, rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-sandy-clayey-loamy, stony, gravelly, gravelly-sandy-loamy, sandy, sandy-loamy and sandy-clayey-loamy slopes; bajadas; rocky outcrops; amongst rocks; sandy lava flows; lava beds; debris fans; breaks; rocky shelves; sandy plains; rocky flats; basins; rocky valley floors; valley bottoms; along gravelly railroad right-of-ways; along gravelly roadsides; along rocky arroyos; bottoms of arroyos; within rocky draws; within sandy ravines; along streams; streambeds; creekbeds; along rivers; along and in bouldery, rocky, cobbly, gravelly and sandy washes; within drainages; marshy areas; (rocky) banks of rivers and washes; borders of washes; along edges of arroyos and washes; (rocky) margins of arroyos; (rocky-sandy) shores of lakes; gravel bars; terraces; bottomlands; floodplains; mesquite bosques; along ditches, and riparian areas growing in damp and dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam and sandy-clayey loam ground, and rocky clay and clay ground, occurring from 1,000 to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and is occasionally grown as an ornamental and has been suggested for use as an informal hedge, in herb gardens and in natural landscapes; the Wright Beebrush may live to be more than 72 years of age and reportedly has the taste of a bitter mint julep. This plant was reported to

have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial beverage crop (the Havasupai boiled the twigs or leaves to make a tea); it was also noted as having been used as a drug or medication. *Aloysia wrightii* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Lippia wrightii* A. Gray, Page 202), 15, **16**, 18, 43 (050910 - *Aloysia wrightii* A. Heller), 44 (021711), 46 (Page 729), 58, 63 (050313 - color presentation), 77, **85** (050313 - color presentation), **89** (reported as being a shrub located on Tumamoc Hill, recorded as *Lippia wrightii* Gray), 91 (Pages 73-74), 124 (021711 - no record of species), 127, 140 (Page 306)*

***Glandularia bipinnatifida* (T. Nuttall) T. Nuttall: Dakota Mock Vervain**

COMMON NAMES: Alfombrilla (var. *bipinnatifida*, Hispanic); Alfombrilla de Campo (var. *bipinnatifida*, Hispanic); Azul Chichique (var. *bipinnatifida*, Hispanic); Dakota Mock Vervain (var. *bipinnatifida*); Dakota Mock Vervain (var. *bipinnatifida*); Dakota Mock Vervain (*Glandularia bipinnatifida* var. *brevispicata* - Not Accepted, *Glandularia bipinnatifida* var. *ciliata* - Accepted); Dakota Mock-vervain (var. *bipinnatifida*); Dakota Verbena (var. *bipinnatifida*); Dakota Vervain (var. *bipinnatifida*); Davis Mountain Mock Vervain (var. *ciliata*); Desert Vervain (var. *ciliata*); Hierba del Ojo (var. *bipinnatifida*, Hispanic); Mexican Vervain (var. *ciliata*); Moradilla (var. *bipinnatifida*, Hispanic); Prostrate Vervain (var. *ciliata*); Small-flowered Verbena (var. *bipinnatifida*); Sweet William (var. *ciliata*, a name also applied to other species); Tatsundiku Moradu (var. *bipinnatifida*, Purépecha); Valley Lavender; Verbena (a name also applied to other taxa, the genus *Verbena* and the Verbenaceae, Spanish); Vervain (a name also applied to other taxa, the genus *Verbena* and the Verbenaceae); Wright Vervain. DESCRIPTION: Terrestrial annual or perennial forb/herb (sprawling and spreading prostrate, decumbent, ascending and/or erect stems 4 to 20 inches in height/length); the leaves may be gray, dark green or yellow-green; the flowers may be light blue, pale blue-violet, blue, blue-lavender, blue-purple, blue-purple with white eyes, bluish-lavender, bluish-purple, light lavender, lavender, lavender-blue, lavender-pink, lavender-purple, periwinkle blue, pale pink-lavender, pink, deep pink, pink-lavender, pink-purple, pale purple (aging blue), purple, purple & white, purplish-pink, rose, rose-pink, rose-purple, violet, violet-purple, white or yellow; flowering generally takes place between early February and early November (additional record: one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mountainsides; grassy mesas; rocky plateaus; cliffs; bases of cliffs; along rocky, gravelly and gravelly-loamy canyons; rocky canyon walls; along sandy canyon bottoms; scree; crevices in rocks; bluffs; rocky buttes; buttes; knolls; rocky and rocky-gravelly ridges; rocky and rocky-gravelly ridgetops; clearings and openings in forests; meadows; foothills; rocky, rocky-loamy, clayey and gypsum hills; rocky-gravelly-loamy hilltops; rocky, rocky-gravelly and gypsum hillsides; bouldery, rocky, rocky-loamy, rocky-clayey, rocky-clayey-loamy, shaley, stony, gravelly, gravelly-sandy, gravelly-silty, sandy, sandy-clayey, sandy-clayey-loamy, loamy, loamy-clayey, clayey and clayey-loamy slopes; bajadas; pediments; bedrock and rocky outcrops; amongst boulders; lava beds; glacial moraines; sand hills; dunes; shaley, loamy, loamy-clayey and clayey banks; breaks; bases of shaley barrens; rocky, rocky-loamy, gravelly-loamy, sandy, loamy, loamy-clayey and silty prairies; gravelly-loamy, sandy, sandy-loamy and sandy-clayey-loamy plains; sandy and sandy-clayey-loamy flats; loamy, loamy-clayey and silty uplands; sandy valley floors; along railroad right-of-ways; along and in gravelly and gravelly-loamy roadbeds; roadcuts; along rocky, rocky-silty, shaley, cindery, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy, clayey-loamy and silty roadsides; two-tracks; clayey-loamy arroyos; chutes; rocky draws; bottoms of draws; within rocky gulches; sandy bottoms of gulches; bouldery-rocky gullies; stony ravines; seeps; springs; in clay along streams; along and in rocky streambeds; in sand along creeks; sandy creekbeds; along and in rivers; along and in riverbeds; along and in gravelly and sandy washes; sandy drainages; along drainage ways; in rocks around ponds; bogs; bowls; sumps; swales; along (stony, gravelly-sandy, clayey and silty) banks of arroyos, draws, creeks, rivers and bowls; (silty) edges of streams and washes; margins of rivers and lakes; shores of lakes; terraces; sandy bottomlands; sandy floodplains; lowlands; flanks of stock tanks; sandy and clayey ditches; sandy and clayey-loamy riparian areas, and disturbed areas growing in moist, damp and dry shaley rimrock; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, stony-sandy, cindery, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam, silty-clayey loam and loam ground; rocky clay, sandy clay, loamy clay, silty clay and clay ground; rocky silty, gravelly silty and silty ground, and rocky-gypsum and gypsum, occurring from 200 to 10,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The flowers may be fragrant. *Glandularia bipinnatifida* is native to south-central and southern North America and Central America. *5, 6, 15, 18, 28 (recorded as *Verbena bipinnatifida*, color photograph 638), 30, 42 (050313), 43 (051110 - *Glandularia bipinnatifida* Nutt.), 44 (050313 - no listings recorded under Common Names for species; genus record), 46 (recorded as *Verbena bipinnatifida* Nutt., Page 727), 48 (genus), 58, 63 (050313 - color presentation), **85** (050313 - color presentation), 115 (color presentation), 124 (082611), 127, 140 (recorded as *Glandularia bipinnatifida* (Nuttall) Nuttall [*Verbena bipinnatifida* Nuttall], Page 306)*

***Glandularia bipinnatifida* (T. Nuttall) T. Nuttall var. *ciliata* (G. Bentham) B.L. Turner: Davis Mountain Mock Vervain.**

SYNONYMY: *Glandularia wrightii* (A. Gray) R.E. Umber; *Verbena bipinnatifida* T. Nuttall var. *latilobata* L.M. Perry; *Verbena ciliata* G. Bentham; *Verbena wrightii* A. Gray. COMMON NAMES: Davis Mountain Mock Vervain; Desert Vervain; Mexican Vervain; Prostrate Vervain; Sweet William (a name also applied to other species); Vervain (a name also applied to other taxa, the genus *Verbena* and the Verbenaceae); Wright Vervain. DESCRIPTION: Terrestrial annual or perennial

forb/herb (decumbent stems 6 inches to 2 feet in height/length); the leaves are dark green; the flowers may be blue, blue-lavender, blue-violet, bluish-purple, fuchsia, lavender, lavender-bluish, lavender-purple, magenta-purple, pink, deep pink, bright pink, hot pink, pink-purple, pinkish-purple, light purple, purple, purplish, purplish-pink, reddish-violet (aging purple), rose-purple, violet or white; flowering generally takes place between late February and early November. HABITAT: Within the range of this species it has been reported from mountains; gravelly-loamy mountainsides; mesas; rocky plateaus; bouldery, rocky and gravelly-loamy canyons; rocky canyon sides; along canyon bottoms; rocky gorges; talus; bases of cliffs; crevices in rocks; knolls; rocky ridges; clearings in forests; meadows; clayey-loamy foothills; hills; bouldery and rocky hillsides; escarpments; along rocky, rocky-loamy, rocky-clayey-loamy, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey-loamy, loamy, clayey and silty-loamy slopes; rocky outcrops; amongst boulders; sandy lava flows; amongst lava beds; sandy plains; gravelly-loamy and sandy-clayey-loamy flats; valley floors; railroad right-of-ways; along rocky, rocky-sandy, shaley, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy and clayey roadsides; within clayey arroyos; bottoms of arroyos; draws; bouldery-rocky gullies; ravines; along streams; streambeds; creeks; along rivers; riverbeds; within rocky washes; drainage ways; bogs; sumps; cobbly-sandy-loamy swales; banks of streambeds, washes and drainage ways; edges of springs; benches; floodplains; ditches; riparian areas, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-rocky, rocky, rocky-sandy, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; bouldery loam, rocky loam, rocky-gravelly loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-sandy-loamy, sandy loam, sandy-clayey loam, clay loam, silty loam and loam ground, and clay ground, occurring from 2,000 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The flowers may be fragrant. *Glandularia bipinnatifida* var. *ciliata* is native to southwest-central and southern North America. *5, 6, 28 (recorded as *Verbena ciliata*, color photograph 637), 42 (050313), 43 (051110 - *Glandularia bipinnatifida* var. *ciliata* (Benth.) B.L. Turner, *Verbena bipinnatifida* var. *latilobata* L.M. Perry), 44 (050313 - no record of variety; no listings recorded under Common Names for the species; genus record), 46 (recorded as *Verbena bipinnatifida* Nutt. var. *latilobata* Perry, Page 727; *Verbena ciliata* Benth., Page 727 and *Verbena wrightii* Gray, Page 727), 48 (genus), 63 (050313 - color presentation), **85** (050313 - redirected to *Glandularia bipinnatifida*, color presentation of species), **89** (reported as being a perennial herb located on Tumamoc Hill, recorded by J.J. Thornber as *Verbena ciliata* Benth. but currently believed by some to have been *Glandularia gooddingii*), 115 (color presentation of the species), 124 (120910 - no record, species), 127, 140 (recorded as *Glandularia wrightii* (A. Gray) Umber, Page 306)*

Glandularia gooddingii (J.I. Briquet) O.T. Solbrig: Southwestern Mock Vervain

SYNONYMY: *Verbena gooddingii* J.I. Briquet; *Verbena gooddingii* J.I. Briquet var. *nepetifolia* I. Tidestrøm. COMMON NAMES: Desert Verbena (a name also applied to other taxa); Desert Vervain; Goodding Glandularia; Goodding Mock Vervain; Gooding Verbena; Goodding Verbena; Goodding Vervain; Goodding's Glandularia; Goodding's Mock Verbena; Goodding's Mock Vervain; Goodding's Verbena; Goodding's Vervain; Gooding Verbena (error); Mexican Vervain; Mojave Verbena; Southwestern Mock Vervain; Southwestern Mock Vervain; Southwestern Verbena; Southwestern Vervain; Sweet William (a name also applied to other species); Verbena (a name also applied to other taxa, the genus *Verbena* and the Verbenaceae, Spanish); Vervain (a name also applied to other taxa, the genus *Verbena* and the Verbenaceae). DESCRIPTION: Terrestrial perennial forb/herb (ascending stems 6 inches to 2 feet in height; one plant was observed and described as being 6 to 10 inches in height and 6 inches in width, one plant was observed and described as being 20 inches in height and 28 inches in width, one plant was observed and described as being 24 inches in height and 12 inches in width); the leaves may be gray-green, green, dark green or yellow-green; the flowers may be light blue, blue, blue-lavender, blue-purple, blue-violet, bluish-purple, pale lavender, lavender, lavender-blue, lavender-purple, magenta, pink, pink-lavender, pink-purple, pink-violet, light purple, purple, purple with a white to yellow corolla tube, purple-blue, purple-lavender, purplish-pink, reddish-violet, rose-pink, sky blue or white-lavender; flowering generally takes place between early February and mid-October (additional records: one for early November, one for mid-November, two for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; cobbly-gravelly and gravelly mesas; plateaus; rocky cliffs; along canyons; bouldery-cobbly, rocky, gravelly and sandy canyon bottoms; talus slopes; crevices in rocks; rocky ledges; rocky-sandy and sandy ridges; rocky ridgetops; meadows; cinder cones; gravelly, gravelly-sandy and sandy foothills; rocky hills; hilltops; rocky hillsides; bouldery-sandy, rocky, rocky-gravelly, rocky-loamy, gravelly and clayey-loamy slopes; rocky outcrops; amongst boulders; terraces; rocky plains; sandy, clayey-loamy and silty flats; sandy valley floors; in roadways; along rocky, cindery, gravelly, gravelly-sandy-clayey-loamy, gravelly-loamy, pebbly, sandy, sandy-loamy and loamy roadsides; within rocky and gravelly arroyos; rocky bottoms of arroyos; gravelly gulches; bouldery-rocky ravines; seeps; springs; along and in streambeds; along creeks; creekbeds; along rivers; along and in rocky, rocky-gravelly, rocky-sandy, gravelly and sandy washes; drainages; around pools; playas; ciénegas; (sandy and silty) banks of creeks, rivers and washes; borders of washes; (gravelly-sandy and silty) edges of streambeds, creeks and washes; margins of washes; (stony) sides of streams; sand bars; cobbly benches; shelves; terraces; sandy bottomlands; sandy-clayey floodplains; rocky, cobbly-gravelly, gravelly and sandy riparian areas; recently burned areas of forests, and disturbed areas growing in dry bouldery, bouldery-rocky, bouldery-cobbly, bouldery-sandy, bouldery-clayey, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, cobbly, cobbly-gravelly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; bouldery clay, sandy clay and clay ground, and powdery-silty and silty ground, occurring from 500 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers may be fragrant. *Glandularia gooddingii* is

native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph 636), 43 (073109), 44 (082611 - no listing recorded under Common Names, common names recorded under *Verbena gooddingii*, color photograph), 46 (recorded as *Verbena gooddingii* Briq., Pages 726-727 and *Verbena gooddingii* Briq. var. *nepetifolia* Tidestrøm, Pages 726-727), 48 (genus), 63 (050313), 77 (recorded as *Verbena gooddingii* Briq., color photograph #53), **85** (050313 - color presentation), 89 (possibly reported as being a perennial herb located on Tumamoc Hill, recorded by J.J. Thornber as *Verbena ciliata* Benth. but currently believed by some to have been *Glandularia gooddingii*), 115 (color presentation), 124 (082611 - no record of species; genus record), 140 (Page 306)*

Glandularia wrightii (see *Glandularia bipinnatifida* var. *ciliata*)

***Lantana camara* C. Linnaeus: Lantana**

COMMON NAMES: Ach Man; Achamasiri-uandaku (Purépecha); Alfombrillo (Hispanic); Alfrombrilla Hedionda (Hispanic); Angel Lips; Bacon and Eggs; Bacon n Eggs; Bacon-and-eggs; Bush Lantana; Cambará-de-Cheiro (Portuguese); Cambará-de-Chumbo (Portuguese); Cambara de Espinho; Cambara-de-espinho (Portuguese); Cambará-juba (Portuguese); Cambará-miúdo (Portuguese); Cambara-verdadeiro (Portuguese); Cambarazinho (Portuguese); Cariaquillo; Chichietlacotl (Hispanic); Cinco Negritos (Hispanic); Common Lantana (a name also applied to other species); Confituría (Hispanic); Confiturilla (Spanish); Confiturilla Negra (Spanish); Corona (Hispanic); Corona de Sol (Hispanic); Cuasquito; Doradillo (Oaxaca); Erva-de-grilo (Portuguese); Frutilla (Hispanic); Gobernadora (Hispanic); Granadilla (Hispanic); Ham and Eggs; Ham n Eggs; Ham-and-eggs; Ham'n Eggs; Hedgeflower; Hierba de Cristo (a name also applied to other species, Spanish); Hierba de Pedro Antonio (Hispanic); Hierba de San Pedro (Hispanic); Hierba Negra; Kamara Lantana; Laurel (Hispanic); Lantana (a name also applied to other taxa and the genus *Lantana*); Lantana Weed; Lantana-cambará (Portuguese); Lantana-weed; Large Leaf Lantana; Large-leaf Lantana; Large-leaved Lantana; Largeleaf Lantana; Largeleaf Shrub Verbena; Mesehua (Hispanic); Morita Negra (Hispanic); Moscete (Hispanic); Ojo de Pescado (Hispanic); Orégano del Monte (Hispanic); Orosus (Hispanic); Palabra de Caballero (Hispanic); Palabra de Hombre (Hispanic); Pionía (Hispanic); Pionía de Cerro (Hispanic); Prickly Lantana; Qita Pesal (Hispanic); Quelite de Arroyo (Hispanic); Red-flowered Sage (a name also applied to other taxa); Rinyonina (Hispanic); Salverreal (Hispanic); Salvia (a name also applied to other species, Hispanic); Shrub Verbena (a name also applied to the genus *Lantana*); Siete Colores (Hispanic); Siete Negritos Macho (Hispanic); Spanish Flag Lantana; Spanish Flag Shrub Verbena; Supirrosa; Tootskumot (Oax); Tres Colores (Hispanic); Uña de Gato (Hispanic); Verbena-arbustiva (Portuguese); Weedy Lantana; West Indian Lantana; White Sage (a name also applied to other taxa); Wild Sage (a name also applied to other taxa). DESCRIPTION: Terrestrial perennial evergreen shrub or vine (1 to 10 feet in height; one plant was observed and described as being 40 inches in height and 16 to 20 feet in width); the flowers may be cream (aging pink), green & red, orange, orange (aging to pink, red or white), orange & red, orange & red & yellow, orange & yellow, orange-red, orange-red & yellow, pink & orange & yellow, pink & yellow & white, pink-rose, pink-rose to yellow-white, purple, red, red & orange, yellow, yellow aging to orange, yellow & orange or yellow-white; flowering generally takes place between mid-January and mid-November (additional record: one for late December); the tiny fruits may be black, metallic gray-blue, purple or dark purple. HABITAT: Within the range of this species it has been reported from mountains; cliff faces; rocky canyons; bases of bluffs; openings in forests (selva); meadows; rocky and sandy hills; hilltops; rocky hillsides; rocky, stony and sandy slopes; banks; cobbly plains; sandy flats; sandy coastal plains; uplands; valley floors; valley bottoms; sandy coastal plains; along roadsides; along rocky, gravelly-sandy and sandy arroyos; bottoms of arroyos; streams; along rivers; sandy riverbeds; washes; freshwater and saltwater marshes; depressions; sandy bottomlands; floodplains, and disturbed areas growing in moist and dry rocky, stony, cobbly, gravelly-sandy and sandy ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Lantana camara* plant is native to southern North America; Central America and coastal islands in the Caribbean Sea, and northern South America. *5, 6, 18, 26 (color photograph), 30, 43 (051410), 46 (no record of species; genus Page 728), 63 (050313 - color presentation), **77**, 80 (Species in the genus *Lantana* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Two species of these poisonous ornamental shrubs have escaped along streams in western Pima and Santa Cruz Counties." Species in the genus *Lantana* are considered to be Poisonous Cropland and Garden Plants. "All parts of this ornamental shrub are poisonous and have caused photosensitization and death of livestock. Also berries have poisoned children."), **85** (050313 - color presentation), 97*

***Lantana horrida* K.S. Knuth: West Indian Shrubverbena**

SYNONYMY: *Lantana horrida* sensu H.N. Moldenke auct. non K.S. Knuth; *Lantana urticoides* A. von Hayek. COMMON NAMES: Bunchberry; Caca de Mono (Spanish); Calico Bush; Common Lantana (a name also applied to other species); Common Verbena; Confiturulla Blanca (Spanish); Hierba de Cristo (a name also applied to other species, Spanish); Lantana (a name also applied to other species and the genus *Lantana*); Sonora (Spanish); Texas Lantana; Trailing Lantana; West Indian Shrub-verbena; West Indian Shrubverbena; Western Lantana. DESCRIPTION: Terrestrial perennial evergreen subshrub (4 to 8½ feet in height); the flowers may be orange, orange-yellow, red, rose-yellow, yellow or bright yellow (fading to orange or orange-red); based on few records located flowering generally takes place between early February and late October (flowering records: one for early February, one for early March, one for mid-July, one for early August, one for mid-August, two for late August, one for early September and two for late October); the fruits are black or deep blue-black. HABITAT: Within the range of this species it has been reported from mountains; canyons; along gravelly-sandy canyon bottoms; slopes; plains; sandy flats; roadsides; streams; riverbeds; washes; watersheds; banks of streams; lowlands; riparian areas, and disturbed areas growing in dry

gravelly-sandy and sandy ground, occurring at from near sea level to 4,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Lantana urticoides* plant is native to southwest-central (Texas) and southern North America. *5, 6, 13 (recorded as *Lantana horrida* H.B.K.), **16** (recorded as *Lantana horrida* H.B.K.), 43 (050413 - *Lantana horrida* Kunth), 44 (082611 - no listing recorded under Common Name; genus record), 46 (recorded as *Lantana horrida* H.B.K., Page 728), 63 (050413), 80 (Species in the genus *Lantana* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Two species of these poisonous ornamental shrubs have escaped along streams in western Pima and Santa Cruz Counties." Species in the genus *Lantana* are considered to be Poisonous Cropland and Garden Plants. "All parts of this ornamental shrub are poisonous and have caused photosensitization and death of livestock. Also berries have poisoned children."), **85** (082611), 97, 124 (082611 - no record of genus or species)*

Lantana horrida sensu Moldenke auct. non K.S. Knuth (see *Lantana horrida*)

Lantana urticoides (see *Lantana horrida*)

***Tetraclea coulteri* A. Gray: Coulter's Wrinklefruit**

COMMON NAMES: Coulter Tetraclea; Coulter Wrinklefruit; Coulter's Wrinklefruit. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 4 to 20 inches in height); the foliage may be ash-gray or gray-green; the flowers may be pale apricot with a pale peach floral tube, cream, cream with a pinkish floral tube, cream & rose, cream-white, creamy-tan, creamy-white, greenish-white, pink-cream, white, pale yellow, yellow or yellowish-white with a reddish floral tube; the anthers may be dark brown or maroonish; flowering generally takes place between mid-March and early November. HABITAT: Within the range of this species it has been reported from mountains; bouldery mountaintops; gravelly mesas; rims of gorges; canyons; gravelly ridges; bosques; rocky foothills; hills; rocky, rocky-gravelly, rocky-gravelly-silty and gravelly hillsides; sandy bases of escarpments; rocky, rocky-gravelly-sandy-loamy, cobbly, gravelly, sandy and sandy-loamy slopes; sandy bajadas; amongst boulders; silty plains; gravelly and sandy flats; sandy basins; gravelly valley floors; gravelly-silty-loamy valley bottoms; along gravelly, gravelly-sandy-clayey-loamy, gravelly-loamy, sandy and clayey roadsides; arroyos; sandy bottoms of arroyos; along and in bedrock-rocky, rocky and sandy washes; drainages; drainage ways; swales; (rocky) banks of arroyos and washes; edges of washes; benches; ledges; sandy-loamy terraces; floodplains; ditches; in silty-clay at stock tanks, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, shaley, cobbly, gravelly and sandy ground; rocky-gravelly-sandy loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-silty loam, sandy loam and sandy-clayey loam ground; sandy clay, silty clay and clay ground, and rocky-gravelly silty and silty ground, occurring from 400 to 7,500 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The genus Tetraclea is sometimes placed in the Lamiaceae (Labiatae), the Mint Family. *Tetraclea coulteri* is native to southwest-central and southern North America. *5, 6, **16**, 43 (051410), 44 (050413 - no record of species or genus), 46 (Page 730), 58, 63 (050413 - color presentation), **77**, **85** (050413 - color presentation), **89** (reported as being a perennial herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 127*

Verbena bipinnatifida var. *latilobata* (see *Glandularia bipinnatifida* var. *ciliata*)

***Verbena canescens* K.S. Kunth: Gray Vervain**

COMMON NAMES: Alfombrilla (Hispanic); Gray Verbena; Gray Vervain; Moradilla (Hispanic). DESCRIPTION: Terrestrial perennial forb/herb (stems 4 to 16 inches in height); the flowers are blue, bluish-purple or purple; based on few records located flowering generally takes place between early March and late September (flowering records: one early March, two for mid-March, two for late March, one for early April, two for early May, one for early June, four for mid-June, three for late June, two for early July, one for mid-July, one for mid-August, two for late August, one for early September, one for mid-September and one for late September). HABITAT: Within the range of this species it has been reported from rocky mesas; gravelly hills; grassy slopes; valley floors; along roadsides; bottoms of arroyos, and playa valleys growing in dry rocky and gravelly ground and sandy loam ground, occurring from 700 to 8,200 feet in elevation in the forest, woodland, grassland and desertscrub ecological formations. NOTES: EXOTIC Plant. *Verbena canescens* is native to southwest-central and southern North America. *5, 6, 30, 43 (051710), 44 (050413 - no listings recorded under Common Names; genus record), 46 (no record of species; genus Pages 725-728), 63 (050413), 85 (050413 - color presentation of dried materials), **89** (reported as being a perennial herb located on the Santa Cruz Flood-plain) 95 (Personal Communication - 052206)*

Verbena ciliata (see *Glandularia bipinnatifida* var. *ciliata*)

Verbena gooddingii (see *Glandularia gooddingii*)

Verbena gooddingii var. *nepetifolia* (see *Glandularia gooddingii*)

Verbena wrightii (see *Glandularia bipinnatifida* var. *ciliata*)

Viscaceae (Loranthaceae): The Christmas Mistletoe Family

***Phoradendron californicum* T. Nuttall: Mesquite Mistletoe**

SYNONYMY: *Phoradendron californicum* T. Nuttall var. *distans* W. Trelease. COMMON NAMES: Acacia Mistletoe; American Mistletoe (a name also applied to the genus *Phoradendron*); California Mesquite Mistletoe; California Mistletoe; Chayal (Uto-Aztecan: Cahuilla)[140]; Chile de Espino ("Spiny Chile", Spanish: Sonora)[140]; Desert Mistle Toe; Desert Mistle-toe; Desert Mistletoe; Desert [Mesquite] Mistletoe (English)[140]; Haakvoḍ (Uto-Aztecan: Akimel O'odham)[140]; Ha:hwaḍ; Ha:kvaḍ (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; Ha:kwaḍ <hakowa't> (Uto-Aztecan: Tohono O'odham)[140]; Haramkulyi (Uto-Aztecan: Mountain Pima)[140]; Kanúc (Yuman: Maricopa)[140]; Mesquite American Mistletoe; Mesquite Mistletoe; Mistletoe (a name also applied to other taxa, the genus *Phoradendron* and to the Viscaceae); Pohótela ("Phainopepla" because the Phainopepla disperses the seeds, Uto-Aztecan: Mayo)[140]; Sxacál [Sxyacál] (Yuman: Cocopa)[140]; To:kĭ (Uto-Aztecan: Hiá Ceḍ O'odham, Arizona)[140]; To(a)ker <toc'guer> ("On The Oak", Uto-Aztecan: Mountain Pima)[140]; Toji (Spanish: Sonora)[140]; Western Dwarf Mistletoe. DESCRIPTION: Terrestrial perennial subshrub or shrub (cluster of brittle stems 8 inches to 5 feet in length; one clump was observed and described as being 16 inches in length and 36 inches in width); the stems (16 to 40 inches in length) may be brown, green, green-reddish, dark olive-green, red, red-brown, reddish, yellow-green or yellowish; the fragrant flowers may be green, greenish-yellow or yellow-green; the anthers are yellow; flowering generally takes place between late July and early June (additional records: one record for late June and one record for early July, flowering beginning in January and ending in November has also been reported); the fruits may be orange, orange-pink, pink, pink-red, pinkish, pale red, translucent red, red-orange, salmon (reported on surfaces exposed to sunlight), reddish, translucent white, white, white-pink, white-reddish or whitish to yellow-white (reported on surfaces not exposed to sunlight) with the older berries turning brown-red or red. HABITAT: This partial parasite was observed growing on Catclaw Acacia, Whitethorn Acacia, Kearney Condalia, Desert Ironwood, Velvet Mesquite, Blue Paloverde and Foothill Paloverde, and is commonly reported as growing on: *Acacia spp.* (*Acacia constricta*, Whtitethorn Acacia; *Acacia farnesiana*, Sweet Acacia, and *Acacia greggii*, Catclaw Acacia); *Condalia spp.* (*Condalia globosa*, Bitter Snakewood and *Condalia warnockii*, Kearney Snakewood); *Juniperus* sp., Juniper; *Larrea tridentata*, Creosote Bush; *Olneya tesota*, Desert Ironwood; *Parkinsonia spp.* (*Parkinsonia aculeata*, Jerusalem Thorn; *Parkinsonia florida*, Blue Palo Verde; *Parkinsonia microphylla*, Yellow Palo Verde, and *Parkinsonia praecox*, Sonoran Palo Verde); *Prosopis spp.* (*Prosopis glandulosa*, Honey Mesquite; *Prosopis pubescens*, Screwbean Mesquite, and *Prosopis velutina*, Velvet Mesquite); *Simmondsia chinensis*, Jojoba, and *Ziziphus obtusifolia*, Lotebush occurring from sea level to 5,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: When removing Mesquite Mistletoe from the trees and shrubs on your property consider leaving some of the plants for wildlife. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food (berries) and as a drug or medication. The flowers are fragrant. The Northern Mockingbird (*Mimus polyglottos*) and Phainopepla (*Phainopepla nitens*) feed on the berries; White-wing Doves (*Zenaida asiatica*) and Verdins (*Auriparus flaviceps*) nest in the stems, and Mourning Doves (*Zenaida macroura*), Gambel's Quail (*Callipepla gambelii*) as well as other birds take refuge in the stems. *Phoradendron californicum* is native to southwest-central and southern North America. *5, 6, 13 (Pages 285-286, color photograph: Plate U.2., Page 406), 15, **16**, 28 (color photograph 799), 43 (051710 - *Phoradendron californicum* var. *distans* Trel. in Trel.), 44 (082611), 44 (050413), 46 (recorded as *Phoradendron californicum* Nutt. and *Phoradendron californicum* Nutt. var. *distans* Trelease, Page 224), **56**, **57**, 58, 63 (050413 - color presentation), 77, 80 (Species of the genus *Phoradendron* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Cattle may be killed by browsing these parasitic forbs, but plants are unpalatable and poisoning is rare. Also children may be poisoned by eating the berries."), **85** (050413 - color presentation), **89** (reported as being a dwarf shrub located on Tumamoc Hill), 97, 115 (color presentation), 124 (082611 - no record of species or genus), 127, 140 (Pages 276-278 & 305 - placed in the Santalaceae), ADS (Kissing plant is a tree killer, Tuesday, November 30, 2010, Section A, Pages 1&4, retort Friday, December 3, 2010, Section A, Page 17: Story missed positive points on mistletoe), **WTK** (August 12, 2005)*

Phoradendron californicum var. *distans* (see *Phoradendron californicum*)

Vitaceae: The Grape Family

Parthenocissus inserta (see NOTES and Footnotes 15, 28, 46, 97 under *Parthenocissus vitacea*)

***Parthenocissus vitacea* (E.B. Knerr) A.S. Hitchcock: Woodbine**

SYNONYMY: *Psedera vitacea* (E.B. Knerr) E.L. Greene. COMMON NAMES: American Ivy (a name also applied to other taxa); False Virginia-creeper (a name also applied to other taxa); Fünfblättrige Jungfernrebe (German); Hiedra Creeper; Grape Woodbine; Grape-woodbine; Thicket Creeper (a name also applied to other taxa); Thicket-creeper (a name also applied to other taxa); Vildvin (Swedish); Vigne Vierge Commune (French); Virginia Creeper (a name also applied to other taxa and the genus *Parthenocissus*); Woodbine (a name also applied to other taxa). DESCRIPTION: Terrestrial perennial deciduous vine or liana (woody prostrate clambering, climbing, scrambling, sprawling and/or trailing stems 10 to 33 feet in length, possibly longer with one report of the vines reaching 98 feet in length); tendrils may coil around and attach the stems to plant material for support; the leaves are green or dark green turning burgundy crimson, gold, mauve, purple or red in the fall; the inconspicuous flowers may be cream-white, green, greenish, red, reddish or white-cream; the anthers may be cream-white, white or yellow;

based on few records located flowering generally takes place between early April and mid-September; the fruits (¼ inch in diameter) may be black, bluish, bluish-black, dark purple, or purplish-black. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy canyon rims; cliffs; hanging gardens; bases of cliffs; along rock walls; along bouldery, rocky, gravelly, gravelly-loamy and sandy canyons; canyon walls; canyon sides; along rocky canyon bottoms; talus slopes; crevices; rocky bluffs; meadows; foothills; sandy hillsides; bouldery-loamy, rocky-sandy-loamy, rocky-silty-loamy, stony-gravelly, gravelly, sandy, sandy-loamy and loamy slopes; rocky outcrops; amongst boulders and rocks; boulder fields; grottos; lava flows; sand hills; prairies; plains; fields; valley floors; sandy coastal dunes; coastal saltwater marshes; roadcuts; along roadsides; along arroyos; within draws; gulches; ravines; sandy-silty seeps; along springs; along streams; along streambeds; along creeks; along and in bouldery-loamy creekbeds; along rivers; sandy riverbeds; in bouldery and sandy washes; within bouldery, bouldery-rocky, rocky and rocky-sandy drainages; rocky sinks; along (rocky, cobbly-gravelly and gravelly) banks of arroyos, streams, creeks and rivers; along edges of streams, rivers and marshy areas; along margins of rivers; sides of creeks; along shores of lakes; sandy beaches; sandy benches; sandy terraces; bottomlands; sandy floodplains; lowlands; along fencelines; along ditches; ditch banks; rocky riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, rocky, rocky-sandy, stony-gravelly, cobbly-gravelly, gravelly and sandy ground; bouldery loam, rocky-sandy loam, rocky-silty loam, gravelly loam, sandy loam, clayey loam and loam ground; clay ground, and sandy silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider using Woodbine where erosion control is necessary. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as a drug or medication; as a building material when it was grown on ramadas to create shade when grown, and as a ceremonial item. The fruits are eaten by birds, deer, squirrels and other small animals; deer may browse the foliage, and the foliage provides cover for many birds and mammals. *Parthenocissus vitacea* is considered by some authors to be the western species of *Parthenocissus*. *Parthenocissus vitacea* differs from *Parthenocissus quinquefolia* of eastern North America by having fewer-branched tendrils without the adherent disks (or having only weakly developed disks) and a somewhat different branching floral structure. The berries (and probably the leaves) of this plant are reportedly poisonous to mammals. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Woodbine has been EXTIRPATED from this township. *Parthenocissus vitacea* is native to east-central, southwest-central and southern North America. *15 (recorded as *Parthenocissus inserta* (Kerner) K. Fritsch), 18 (recorded as *Parthenocissus inserta*), 28 (recorded as *Parthenocissus inserta*, color photograph 849), 42 (050413), 43 (051710), 44 (050413 - color photograph), 46 (recorded as *Parthenocissus inserta* (Kerner) K. Fritsch (*P. vitaceae* (Knerr) A.S. Hitchc.), Page 535), 63 (050413 - color presentation), **85** (050413 - color presentation), **89** (reported as being a woody climber located on the Santa Cruz Flood-plain, recorded as *Psedera vitacea* (Knerr) Greene), 97 (recorded as *Parthenocissus inserta*), 106 (051510 - color presentation), 127*

Psedera vitacea (see *Parthenocissus vitacea*)

***Vitis arizonica* G. Engelmann: Canyon Grape**

SYNONYMY: *Vitis arizonica* G. Engelmann var. *glabra* T.V. Munson; *Vitis treleasei* T.V. Munson ex L.H. Bailey. COMMON NAMES: Arizona Grape; Arizona Wild Grape; Bakámai Bišáparagai (Uto-Aztecan: Northern Tepehuan)[140]; Bemah'gut ('the Grape-vine' Longfellow's *Hiawatha*); Canyon [Arizona, Gulch, Wild] Grape (English)[140]; Ch'il Na'atł'o'ii ("Weaving Plant", Athapascan: Navajo)[140]; Dahts'aa' <dasts'aa, dahts'aa' benanisdizí, tach'aa> (Athapascan: Western Apache)[140]; Dastsa <dastasa> (Athapascan: Chiricahua and Mescalero Apache)[140]; Gulch Grape; I'icamác (Yuman: Maricopa)[140]; Idjérk^{r}a (Yuman: Havasupai)[140]; Isampu (Uto-Aztecan: Panamint)[140]; Itcêq^{a} <i'je:qa> (Yuman: Walapai)[140]; Jeyulí (Uto-Aztecan: Guarijío)[140]; Jiragui (Spanish); Jirahui (Spanish); Mákwit (Uto-Aztecan: Luiseño)[140]; Mischiñ Uuḍvis <mischiñ huuḍvis> (Uto-Aztecan: Akimel O'odham)[140]; Ó:va (Uto-Aztecan: Hopi)[140]; Parra ("Vine", Spanish: Tamaulipas)[140]; Parra Cimarrona (Hispanic); Parra del Monte [Silvestre] ("Wild Grape", Spanish: Arizona, Texas, Chihuahua)[140]; Shohar U'ushi (Uto-Aztecan: Mountain Pima)[140]; Sonótova (Uto-Aztecan: Mono)[140]; Sụụ'rǫ'o'napụ (Uto-Aztecan: Ute)[140]; Tutzé (Athapascan: Jicari-lla

Apache)[140]; U´li (Hispanic); U:dvis (Uto-Aztecan: Hiá Ceḍ O'odham)[140]; U:ḍwis (Uto-Aztecan: Tohono O'odham)[140]; U:va <uuwa> (Uto-Aztecan: Onavas Pima)[140]; ʔU:vs (Yuman: Cocopa)[140]; Uirí (Uto-Aztecan: Guarijío)[140]; Urí <uli> (Uto-Aztecan: Tarahumara)[140]; Uuva (Uto-Aztecan: Yaqui)[140]; Uva [Cimarrón[("Wild Grape", Spanish: Chihuahua, Sonora)[140]; Uva Cimarrona (Spanish); Uva de Monte (Hispanic); Uva del Monte (Spanish); Uva Silvestre (Hispanic); Vid ("Vine", Spanish)[140]; Wild Grape (a name also applied to other species, the genus *Vitis* and to the Vitaceae). DESCRIPTION: Terrestrial perennial deciduous vine (clambering, climbing scrambling, sprawling, spreading, trailing and/or twining stems 16 inches to 33 feet in length); the bark is red-brown; the heart-shaped leaves may be green, dark green or yellow-green; the stems may be reddish; the tiny flowers may be cream-white-yellow, cream-yellow, pale green, green-yellow, greenish, greenish-white, greenish-yellow, white, pale yellow, yellow, yellow-green or yellowish-white; flowering generally takes place between early April and mid-July (additional record: one for late August; flowering in March has also been reported); the mature fruits (¼ to ¾ inch in diameter, juicy with a few large seeds) may be black, dark blue, blue-black, dark blue-purple, deep purple or purple sometimes with a (glaucous) bloom. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; plateaus; cliffs; hanging gardens; bases of cliffs; along rocky, rocky-clayey, gravelly-sandy, sandy and clayey-loamy canyons; canyon walls; rocky, stony and sandy canyon bottoms; chasms; along talus; crevices; bluffs; along rocky ledges; meadows; foothills; hills; hillsides; rocky escarpments; bouldery-cobbly, rocky, rocky-sandy, rocky-loamy, gravelly, gravelly-sandy, sandy and loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; shaded alcoves; gravelly flats; sandy basins; valley floors; along gravelly roadsides; within rocky arroyos; bottoms of arroyos; within rocky draws; gulches; rocky ravines; seeps; along springs; along streams; along and in bouldery, rocky-gravelly-sandy streambeds; along and in bouldery creeks; along rocky, rocky-sandy and sandy-clayey creekbeds; riverbeds; along and in rocky and sandy washes; along watercourses; in bedrock, bouldery-rocky and rocky-sandy drainages; along and in lakes; boggy areas; along (rocky and sandy) banks of streams, creeks, creekbeds, rivers, washes and lakes; (sandy) edges of creeks, rivers and washes; margins of rivers; along (rocky) shores of lakes; benches; terraces; sandy bottomlands; floodplains; along fencelines; within ditches; ditch banks; bouldery, bouldery-sandy, rocky, sandy and sandy-clayey riparian areas, and disturbed areas growing in shallow water and wet, moist, damp and dry well drained bouldery, bouldery-rocky, bouldery-cobbly, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam, clayey loam and loam ground, and rocky clay, sandy clay and clay ground, occurring from 1,300 to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a toy or in games, as a love medicine and for ceremonial items. The flowers may be fragrant, and the fruit are reportedly sweet with a slightly bitter aftertaste. The Canyon Grape may be useful in controlling erosion along drainages. Birds feed on the berries. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). The Canyon Grape has been EXTIRPATED from this township. *Vitis arizonica* is native to southwest-central and southern North America. *5, 6, 13, 15, 18 (genus), 28 (color photograph 850), 30, 42 (050413), 43 (080209), 44 (050413 - no record of species; genus record), 46 (recorded as *Vitis arizonica* Engelm.; *Vitis arizonica* Engelm. var. *glabra* Munson, and *Vitis treleasei* Munson (note), Page 535), 48, 58, 63 (050413 - color presentation), **85** (050513 - color presentation), **89** (reported as being a woody climber located on the Santa Cruz Flood-plain), 115 (color presentation), 124 (041312 - no record of species; genus record), 125, 127, 140 (Pages 278-280 & 307), 153*

Vitis arizonica var. *glabra* (see *Vitis arizonica*)

Vitis treleasei (see *Vitis arizonica*)

Zygophyllaceae: The Creosote-bush Family

Kallstroemia brachystylis (see footnote 89 under *Kallstroemia californica*)

***Kallstroemia californica* (S. Watson) A.M. Vail: California Caltrop**

SYNONYMY: *Kallstroemia brachystylis* A.M. Vail; *Kallstroemia californica* (S. Watson) A.M. Vail var. *brachystylis* (A.M. Vail) T.H. Kearney & R.H. Peebles. COMMON NAMES: California Calthrop; California Caltrop; California Carpetweed; California Kallstroemia; Golondrina (Mexico, Baja California (Norte), a name also applied to other species including *Chamaesyce* spp. and *Euphorbia* spp.); Little Summer Poppy; Mal de Ojo (Spanish); Yellow Kallstroemia. DESCRIPTION: Terrestrial annual forb/herb (sprawling prostrate, decumbent and/or ascending stems 2 to 8 inches in height and 2 inches to 5 feet in length); the stems may be light pink or reddish; the leaves are gray-green; the flowers (¼ to ½ inch in diameter) may be pale orange, orange, dull orange, orange-yellow, yellow, yellow-orange or yellowish-orange; flowering generally takes place between early July and late November (additional records: one for early February, one for mid-March, one for mid-April, one for early June and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; rocky and sandy canyons; canyon bottoms; pockets of sand; meadows; bedrock foothills; hills; rocky hillsides; rocky-gravelly bases of hills; rocky, rocky-gravelly, gravelly-sandy, sandy and sandy-silty slopes; gravelly and sandy bajadas; boulder and rock outcrops; amongst rocks; sand hills; sand dunes; blow-sand deposits; sandy plains; gravelly, sandy and silty flats; basins; sandy and silty valley floors; coastal dunes; coastal shores; along rocky-gravelly, gravelly, gravelly-loamy, sandy and sandy-loamy roadsides; arroyos; along streams; along streambeds; along rivers; along and in rocky, sandy, sandy-silty, clayey and silty washes; along drainages; sandy playas; sandy-silty depressions; silty swales; along (sandy) banks of rivers and washes; along edges of washes; along margins of washes; shores of bays (bahias); mudflats; sandy beaches; sandy benches; clayey bottomlands; along sandy floodplains; lowlands; mesquite bosques; along fencelines; around stock tanks (represos); silty ditches; riparian areas; waste places, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Kallstroemia californica* is native to southwest-central and southern North America. *5, 6, 15, 43 (051710 - *Kallstroemia californica* Vail), 44 (050513 - color photograph), 46 (Page 492), **56**, **57**, 58, 63 (051510), 68, 77 (color photograph #100), 80 (Species of the genus *Kallstroemia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Animals must be forced to eat large amounts of this unpalatable, annual forb before poisoning occurs."), **85** (050513 - color presentation), 86 (note under *Kallstroemia grandiflora*), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes, recordered as *Kallstroemia brachystylis* Vail), 127*

Kallstroemia californica var. *brachystylis* (see *Kallstroemia californica*)

***Kallstroemia grandiflora* J. Torrey ex A. Gray: Arizona Poppy**

COMMON NAMES: Arizona Caltrop; Arizona Poppy; Arizona-poppy; Arizona Summer Poppy; Baiborin (Spanish), Baiburin (Spanish), Caltrop (a name applied to the genus *Kallstroemia* and the Zygophyllaceae); Desert Poppy; Desert-poppy; Mal de Ojo (a name also applied to other species, Spanish); Mexican Poppy; Mexican-poppy; Orange Caltrop; Summer Poppy; Summer-poppy; Vaivurin (Spanish). DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate, decumbent, ascending and/or erect stems 4 to 20 inches in height and to 4 feet in length); the stems may be reddish-orange; the leaves may be gray-green or green; the showy flowers (½ to 1¼ inches in diameter) may be apricot-orange, harvest-moon-orange, melon-orange, light orange, pale orange with a dark orange-red center, orange, orange with a crimson or red center, orangish-yellow, pink-orange, yellow-orange or yellowish-orange; the anthers are orange; flowering generally takes place between late June and early November (additional records: one for mid-May, one for late November, one for early December and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; canyon sides; canyon bottoms; rocky ridgetops; foothills; sandy hills; rocky hillsides; sandy escarpments; rocky, rocky-loamy, gravelly, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, sandy, clayey and silty slopes; gravelly bajadas; rocky outcrops; lava flows; llanos; cobbly plains; rocky, gravelly, gravelly-sandy and sandy flats; basins; along valley floors; valley bottoms; along sandy railroad right-of-ways; along rocky-gravelly, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, sandy and loamy roadsides; along and in rocky and sandy arroyos; bottoms of arroyos; streambeds; creeks; rocky-sandy and sandy creekbeds; along and in rocky, gravelly, gravelly-sandy-silty and sandy washes; drainages; along banks of rivers; benches; borders of washes; margins of washes; shores of lakes; sandy terraces; rocky-sandy bottomlands; floodplains; mesquite bosques; around stock tanks; ditches; sandy riparian areas, and disturbed areas growing in moist and dry rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, sandy loam and loam ground; gravelly clay, sandy clay and clay ground; gravelly-sandy silty and silty ground, and gypsum, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Arizona Poppy is a food plant of doves, quail and Whitetail Deer (*Odocoileus virginianus* subsp. *couesi*). *Kallstroemia grandiflora* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph 533), 43 (073109), 44 (050513 - color photograph), 46 (Page 492), 48, **56**, **57**, 58, 63 (050513 - color presentation), 68, 77, 80 (Species of the genus *Kallstroemia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Animals must be forced to eat large amounts of this unpalatable, annual forb before poisoning occurs."), **85** (050513 - color presentation), 86 (color photograph), **89** (reported as being a summer annual herb located on the Mesa-like Mountain Slopes), 115 (color presentation), 124 (082611 - no record of species; genus record), 140 (Page 307)*

***Kallstroemia hirsutissima* A.M. Vail ex J.K. Small: Hairy Caltrop**

COMMON NAMES: Carpetweed; Hairy Caltrop. DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate and/or erect stems 12 to 40 inches in height/length); the flowers are pale orange, salmon-orange, yellow, dark yellow or yellowish-orange; based on few records located, flowering generally takes place between mid-June and late September (flowering records: two for mid-June, one for late June, one for mid-July, five for late July, one for mid-August, five for late August, seven for early September and two for late September). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; rocky talus; meadows; foothills; hills; sandy-loamy slopes; bajadas; sandy-clayey plains; silty flats; valley floors; valley bottoms; along railroad right-of-ways; along gravelly roadsides; arroyos; along streams; gravelly washes; swales; floodplains, and disturbed areas growing in dry rocky and gravelly ground; sandy loam ground; sandy clay and clay ground, and silty ground, occurring from 1,300 to 8,600 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Kallstroemia hirsutissima* is native to southwest-central and southern North America. *5, 6, **16**, 43 (051710), 44 (050513 - no record of species; genus record), 46 (Page 492), 63 (051510), 80 (Species of the genus *Kallstroemia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Animals must be forced to eat large amounts of this unpalatable, annual forb before poisoning occurs."), **85** (050513 - color presentation), 86 (note under *Kallstroemia grandiflora*), 124 (021511 - no record of species; genus record)*

Larrea divaricata (see *Larrea tridentata*)

Larrea divaricata subsp. *tridentata* (see *Larrea tridentata*)

***Larrea tridentata* (A.P. de Candolle) F.V. Coville: Creosote Bush**

SYNONYMY: *Larrea divaricata* A.J. Cavanilles; *Larrea divaricata* A.J. Cavanilles subsp. *tridentata* (A.P. de Candolle) R.S. Felger & C.H. Lowe; *Larrea tridentata* (A.P. de Candolle) F.V. Coville var. *arenaria* L.D. Benson; *Larrea tridentata* (A.P. de Candolle) F.V. Coville var. *tridentata*. COMMON NAMES: Algodones Creosote Bush (*Larrea tridentata* var. *arenaria* - Not Accepted, *Larrea tridentata* - Accepted); Chaparral (a name more commonly applied to plant associations rather than a particular species of plant); Chihuahuan Creosote; Coville Creosotebush; Creosote; Creosote Brush; Creosote Bush; Creosote Bush (*Larrea tridentata* var. *arenaria* - Not Accepted, *Larrea tridentata* - Accepted; *Larrea tridentata* var. *tridentata* - Not Accepted, *Larrea tridentata* - Accepted, a name also applied to the genus *Larrea* and the Zygophyllaceae); Creosote-bush (a name also applied to the genus *Larrea* and the Zygophyllaceae); Creosotebrush; Creosotebush (a name also applied to the genus *Larrea*); Creosotum; Cresote; Cresote Bush; Desert Larrea; Gobernadora (Spanish); Greasewood (a name also applied to other taxa); Guamis; Hediondilla ("Little Bad Smeller" a name also applied to other species, Spanish); Kreosotbuske (Swedish); Kreosotstrauch (German); Little Stinker; Shea Goi (Pima); Spreading Creosote; Z'xat (Seri). DESCRIPTION: Terrestrial perennial evergreen shrub (ascending and/or erect stems 20 inches to 13 feet in height and about the same in width; plants were observed and described as being 13 inches in height and 10 inches in width, one plant was observed and described as being 40 inches in height and 2 feet in width, plants were observed and described as being 40 inches in height and 50 inches in width, one plant was observed and described as being 4 feet in height and 5 feet in width, plants were observed and described as being 4 feet in height and 3 feet in width, one plant was observed and described as being 6 feet in height and 8 feet in width); the bark is gray; the leaves may be bright glossy green, dark green, golden-yellow (rarely), yellow-green or dark yellow-green; the flowers (½ to 1 inch in diameter) are yellow or yellow-white; flowering may take place throughout the year with the peak blooming periods occurring in the spring, between March and April, and then again between November and December; the round, fuzzy fruits (¼ inch in diameter) are gray, reddish, white or rust colored. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bases of mountains; rocky, rocky-gravelly, rocky-clayey-loamy, gravelly and sandy mesas; plateaus; rocky cliffs; bases of cliffs; rims of canyons; rocky, sandy and clayey canyons; bouldery and rocky canyon bottoms; gorges; rocky talus slopes; crevices in rocks; sandy pockets of soil; sandy buttes; knolls; along rocky ridges; bedrock, bouldery-cobbly and rocky foothills; bouldery, rocky, rocky-sandy, gravelly and sandy hills; stony-sandy hilltops; rocky, gravelly-clayey and sandy hillsides; bedrock, bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, stony-gravelly-sandy, stony-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, gravelly-silty, sandy, sandy-loamy and sandy-silty slopes; sandy bases of slopes; rocky alluvial fans; stony-gravelly-sandy, gravelly, sandy and sandy-silty bajadas; pediments; rocky outcrops; amongst boulders and rocks; lava fields; sandy lava beds; sand dunes; gravel banks; benches; benchlands; breaks; rocky-gravelly, gravelly and sandy plains; sandy fields; rocky, rocky-sandy, cindery-gravelly, gravelly, gravelly-sandy, gravelly-silty, sandy, sandy-clayey, sandy-silty, clayey and clayey-silty flats; basins; sandy and sandy-clayey valley floors; valley bottoms; coastal plains; coastal beaches; along rocky-sandy, stony, gravelly, gravelly-loamy and sandy roadsides; rocky, stony-gravelly-sandy and sandy arroyos; along sandy bottoms of arroyos; springs; rocky streambeds; creekbeds; along rivers; along sandy riverbeds; along and in rocky, gravelly, gravelly-sandy, gravelly-silty and sandy washes; drainages; swales; along (sandy) banks of streams, creeks, rivers and washes; borders of washes; (sandy) edges of washes, lakes and swales; (rocky) margins of washes; (rocky and rocky-sandy) shores of rivers and lakes; gravel and sand bars; benches; shelves; gravelly, sandy and sandy-silty terraces; floodplains; mesquite bosques; around margins of charcos; in gravelly-sand and sandy-clay along canals; gravelly and gravelly-sandy riparian areas, and disturbed areas growing in moist and dry rocky and cobbly-gravelly-sandy desert pavement; bouldery, bouldery-cobbly, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, stony, stony-gravelly-sandy, stony-sandy, cindery-gravelly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, sandy loam and clayey loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and rocky-sandy silty,

gravelly-sandy silty, gravelly silty, sandy silty, clayey silty and silty ground, occurring from below sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America, it was noted as having been used as a building material (*L.t.* var. *tridentata*), as tools, in the making of brooms, brushes and musical instruments (*L.t.* var. *tridentata*), as a drug or medication and in body art (*L.t.* var. *tridentata*). Older stems of the Creosote Bush may be 40 to 90 years of age. Using Creosote Bush in the restoration of disturbed sites may increase water infiltration and storage, transplants recommended over spot-seeding and rodent protection for the transplanted seedlings is necessary. When planting a Creosote Bush consider planting a small Desert Night-blooming Cereus (*Peniocereus greggii* var. *transmontanus*) at the base of the plant. The branches will provide support and the roots will protect the tuber of the cereus from hungry Javelinas. The Creosote Bush is the characteristic plant of the southwestern deserts in North America with its distribution very closely delineating the desert regions. As the Creosote Bush ages the older central stems of the plant die off and new stems form at the outer edge of the crown. New stems are not created at the center of the plant. As the crown of the plant expands a "clonal ring", made up of genetically identical individual shrublets, develops which continues the outward expansion of the ring eventually reaching several yards in diameter. It has been estimated that some of the older rings approach from 9,400 to 11,700 years of age. The Creosote Bush provides cover for many animals; Lac Scale insects (*Tachardiella larreae*), jackrabbits, desert woodrats and other small mammals feed on this plant; stem galls are produced in response to the Creosote Gall midge (*Asphondylia* sp.), and the Desert Tortoise (*Gopherus agassizi*) often digs its shelter under the base of the plant where the roots help to stabilize the soil. *Larrea tridentata* is native to southwest-central and southern North America. *5, 6, 13 (Pages 120-124, color photographs of *Larrea tridentata* var. *tridentata*: Plates L.2., Page 399 and M.1., Page 400), 15 (recorded as (*Larrea tridentata* (Sesse & Moc. ex DC.) Cov.), 18, 26 (recorded as *Larrea tridentata*, color photograph 354), 28, (recorded as *Larrea tridentata* (*Larrea divaricata*), color photograph), 42 (050513), 43 (051710 - *Larrea divaricata* Cav. subsp. *tridentata* (Sessé & Moc. ex DC.) Felger; *Larrea tridentata* Coville; *Larrea tridentata* J.M. Coult.; *Larrea tridentata* J.M. Coult. var. *arenaria* L.D. Benson;), 44 (050513 - color photograph), 46 (recorded as *Larrea tridentata* (DC.) Coville "An outstanding xerophyte and a very important element of the perennial desert flora in southern and western Arizona. ... Creosote-bush has a strong characteristic odor, especially noticeable when the foliage is wet. The plant is ordinarily not touched by livestock, although it is reported that sheep, especially pregnant ewes, have been killed by partaking of it. This plant is reported to cause dermatitis in exceptional persons who are allergic to it.", Page 491), 48, **56** (recorded as *Larrea divaricata* Cav. subsp. *tridentata* (de Candolle) Felger & Lowe), **57** (recorded as *Larrea divaricata* Cavanilles subsp. *tridentata* (de Candolle) Felger & Lowe), 63 (050613 - recorded as *Larrea tridentata* (DC.) Coville and recognizes *Larrea tridentata* (DC.) Coville var. *arenaria* L.D. Benson and *Larrea tridentata* (DC.) Coville var. *tridentata*, color presentation), 77 (recorded as *Larrea divaricata* Cav.ssp. *tridentata* (DC.) Felger & Lowe, color photograph #101), 80 (This species is listed under Rarely Poisonous and Suspected Poisonous Range Plants. "Early reports accusing this common desert shrub of being poisonous have been proven wrong."), **85** (050613 - recognizes *Larrea tridentata* (Sessé & Moc. ex DC.) Coville, Larrea tridentata var. arenaria L.D. Benson and *Larrea tridentata* var. *tridentata*, color presentation including habitat), **89** (reported as being a shrub located on the Mesa-like Mountain Slopes, recorded as *Larrea divaricata* (DC.) Coville =Covillea tridentata (DC.) Vail), 91 (recorded as *Larrea tridentata* (Moc. & Ses.) Cav. [= *L. divaricata* Cav. subsp. *tridentata* (Ses. & Moc. ex DC.) Felger & Lowe, *Covillea tridentata* (DC.) Vail], Pages 255-259), 101 (color photograph), 107, 115 (color presentation), 124 (110910 - no record of species or genus), 127, **WTK** (August 12, 2005)*

Larrea tridentata var. *arenaria* (see *Larrea tridentata*)

Larrea tridentata var. *tridentata* (see *Larrea tridentata*)

***Tribulus terrestris* C. Linnaeus: Puncturevine**

COMMON NAMES: Abrojos (Spanish); Abrojo de Flor Amarilla; Automobile Weed; Automobile-weed; Bemo K'yatchipba ("grass round" refers to the rounded spiny fruits, Zuni); Bull-head; Bullhead (a name also applied to other taxa); Bur Nut; Bur-nut; Burnut; Cabeza de Chivo (Spanish); Cadillo; Caltrop (a name also applied to other taxa); Cat's-head; Common Dubbeltjie; Common Dubbletjie; Common Puncture Vine; Common Puncture Weed; Common Puncture-vine; Common Puncture-weed; Common Puncturevine; Devil's-thorn (a name also applied to other taxa); Devil's-weed (a name also applied to other taxa); Espigón (Spanish); Goat Head (a name also applied to other taxa); Goat's Head (a name also applied to other taxa); Goat's Head Bur; Goat's Head Burr; Goat-heads; Goathead (a name also applied to other taxa); Goats Head Bur; Goats Head Burr; Gokhru (India); Ground Bar-nut; Ground Bur Nut; Ground Burr Nut; Ground Bur-nut; Ground Burr-nut; Ground Burnut; Ground Burrnut; Ji Li (transcribed Chinese); Land Caltrop; Land Caltrops; Mexican Sandbur; Namgasae (transcribed Korean); Puncture Vine (a name also applied to the genus *Tribulus*); Puncture Weed (a name also applied to the genus *Tribulus*); Puncture-vine (a name also applied to the genus *Tribulus*); Puncture-weed (a name also applied to the genus *Tribulus*); Puncturevine (a name also applied to the genus *Tribulus*); Puncturevine Caltrop; Punctureweed (a name also applied to the genus *Tribulus*); Raiz de Abrojo (Spanish); Sand-bur (a name also applied to other taxa); Small Caltrop; Small Calthrops; Small Caltrops; Tackbur; Tackweed (a name also applied to other taxa); Tackweed Caltrop; Texas But; Texas Sandbur; Tiggarnöt (Swedish); Toboso (Spanish); Torito (Spanish); Torrito; Tribule Terrestre (French); Tribulus (a name also applied to the genus *Tribulus*); Weedy Puncture Vine; !#&! Stickers. DESCRIPTION: Terrestrial annual forb/herb (sprawling prostrate mat-forming stems to 2 inches in height and 6 inches to 8 feet in length); the stems may be reddish; the foliage is green or dark green; the small flowers (¼ to ½ inch in diameter) may be greenish-yellow, orange or yellow; flowering generally takes place between late April and early November (additional records: one for early January (southern hemisphere), two for early February, one for late February, one

for mid-March, two for late March, two for early April, one for early December and one for late December); the star-shaped seedpod is made up of 5 nutlets which separate ate maturity, each of the nutlets having two very sharp, stout, vicious spines. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; rocky canyons; sandy-loamy canyon bottoms; talus; sandy bluffs; ridge crests; openings in woodlands; gravelly hills; rocky hillsides; rocky, rocky-gravelly, rocky-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy, sandy-loamy, clayey and clayey-loamy slopes; rocky alluvial fans; sandy bajadas; sand dunes; sand hummocks; benches; sandy terraces; sandy and clayey prairies; gravelly, sandy, clayey and clayey-loamy flats; vernally flooded flats; cobbly-loamy and loamy hollows; clayey and silty valley floors; coastal prairies; coastlines; island beaches; along cindery railroad right-of-ways; roadcuts; rocky, gravelly and gravelly-sandy roadbeds; along gravelly, gravelly-loamy, sandy, sandy-loamy and clayey roadsides; two-tracks; within rocky-sandy-clayey arroyos; sandy bottoms of arroyos; within ravines; springs; along streams; streambeds; along creeks; clayey creekbeds; along rivers; along rocky-cobbly-sandy and sandy riverbeds; along and in gravelly. gravelly-sandy and sandy washes; sandy drainages; lakes; silty lakebeds; depressions; sinks; swales; (gravelly) banks of streams, creeks, rivers, riverbeds and washes; borders of washes; along margins of rivers, washes, ponds and lakes; (sandy-loamy) shores of ponds; mudflats; sand bars; gravelly-sandy and sandy beaches; benches; rocky-sandy-clayey, sandy-loamy and sandy terraces; bottomlands; floodplains; lowlands; sandy fencerows; banks and shores of reservoirs; along and in ditches; along gravelly and clayey-loamy ditch banks; sandy riparian areas; sandy-loamy waste places; recently burned areas of scrubs, and disturbed areas growing in dry rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; cobbly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky clay, rocky-sandy clay, gravelly clay, sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a ceremonial medicine. *Tribulus terrestris* is native to central, eastern and southern Europe; Asia; Africa, and Australia; however, the exact native range is obscure. *5, 6, 15, **16**, 28 (color photograph 355), 43 (051710), 44 (050613 - color photograph), 46 (Page 491), **56**, **57**, 58, 63 (050613 - color presentation), 68, 77, 80 (This species is listed as a Secondary Poisonous Range Plant. "Puncturevine has caused extensive losses of sheep in South Africa, Australia, and the United States due to photosensitization or bighead. In addition, the plant has caused nitrate poisoning in both sheep and cattle and the burs have produced lesions of the mouth and feet. Symptoms of photosensitization observed in the United States include the typical swelling of the head, blindness, dying of the skin, loss of lips and ears, and high mortality among young animals. Losses may be reduced by removing animals from infested ranges, providing shade, feed and water, and keeping the animals quiet."), **85** (050713 - color presentation), 86 (color photograph), **89** (reported under Miscellaneous Introduced Species as being a long-lived annual herb), 101 (color photograph), 115 (color presentation), 124 (110910), 127, 140 (Page 307), **WTK** (May 4, 2013)*

LISTING OF EUKARYTIC ALGAE, ONE-CELLED ANIMALS and SLIME MOLDS

Kingdom Protista: The Eukaryotic Algae, One-celled Animals and Slime Molds

***Cladophora* sp.: a Green Algae**

COMMON NAME: a Green Algae. DESCRIPTION: Aquatic branched filamentous (attached or free-floating) green algae. HABITAT: Reported from fresh and salt water. *74, **89** (reported as being an algae located in the Santa Cruz River and Irrigation Ditches)*

***Closterium* sp.: a Green Algae**

COMMON NAME: a Green Algae. DESCRIPTION: Aquatic solitary (free-floating) green algae. HABITAT: Reported from fresh water. ***89** (reported as being an algae located in the Santa Cruz River and Irrigation Ditches)*

***Hydrodictyon* sp.: Water Net**

COMMON NAMES: a Green Algae, Water Net. DESCRIPTION: Aquatic net-forming green algae. HABITAT: Reported from fresh water. *74, **89** (reported as being an algae located in the Santa Cruz River and Irrigation Ditches)*

***Oedogonium* sp.: a Green Algae**

COMMON NAME: a Green Algae. DESCRIPTION: Aquatic filamentous (attached or free-floating) green algae. HABITAT: Reported from fresh water. *74, **89** (reported as being an algae located in the Santa Cruz River and Irrigation Ditches)*

***Penium* sp.: a Green Algae, Blanket Weed**

COMMON NAMES: a Green Algae, Blanket Weed. DESCRIPTION: Aquatic green algae. HABITAT: Reported from fresh water. *89 (reported as being an algae located in the Santa Cruz River and Irrigation Ditches)*

***Spirogyra* sp.: a Green Algae**

COMMON NAME: a Green Algae. DESCRIPTION: Aquatic unbranched filamentous free-floating green algae. HABITAT: Reported from fresh water habitats. *74, 89 (reported as being an algae located in the Santa Cruz River and Irrigation Ditches)*

***Vaucheria* sp.: Water Felt**

COMMON NAME: Water Felt. DESCRIPTION: Aquatic branched filamentous yellow-green algae. HABITAT: Reported from fresh and salt water habitats. *74, 89 (reported as being an algae located in the Santa Cruz River and Irrigation Ditches)*

LISTING OF ANIMALS

STRICTLY ENFORCED LAWS PROTECT MANY OF ARIZONA'S NATIVE ANIMALS FROM COLLECTION AND FROM BEING DISTURBED OR KILLED

Operation GAME THIEF: 602-942-3000

Kingdom Animalia: The Animal Kingdom

Subkingdom Metazoa: The Multicellular Animals

Section Protostomia: The Protosomes

Phylum Arthropoda: The Arthropods

Subphylum Mandibulata: The Mandibulates

CLASS INSECTA: The INSECTS

Apidae: The Honeybee Family

It has been suggested that, if stung, you should remove the stinger as soon as possible, call 911 or 1-800-222-1222 for additional information and consider transport to a medical facility, it may take hundreds of bee stings to inflict a fatal toxic dose of venom in a healthy adult; however, one sting can cause a fatal allergic (anaphylactic) reaction in a hypersensitive person. *97*
http://www.pharmacy.arizona.edu/outreach/poison

If stung contact the Arizona Poison and Drug Information Center: 1-800-222-1222.

***Apis mellifera* Linnaeus, 1758: Honeybee**

COMMON NAMES: Abeille Domestique (French)[42]; African Honeybee; European Honeybee; Honeybee; Western Honeybee. HABITS: Found in bee boxes, buildings, water boxes and holes in ground, caves, cavities in saguaros, crevices, hollow trees and logs. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. NOTES: Introduced EXOTIC Invasive Species. The Honeybee is an exotic domesticated animal kept for crop pollination and for the production of honey and beeswax. *14 (041912 - no record of species), 42 (061812), 60, 97, 106 (041912 - color presentation), **WTK** (December 2008)*

ORDER LEPIDOPTERA: The BUTTERFLIES, MOTHS AND SKIPPERS

Papilionidae: The Swallowtail Family

Heraclides cresphontes (see *Papilio cresphontes*)

***Papilio cresphontes* Cramer, 1777: Giant Swallowtail Butterfly**

SYNONYMY: *Heraclides cresphontes* (Cramer, 1777) - Invalid?. COMMON NAMES: Giant Swallowtail; Giant Swallowtail Butterfly; Orange Dog; Orange Puppy. HABITS: The larvae feed on the leaves of citrus, hop and prickly ash trees. HABITAT: Within the range of this species it has been reported as occurring in the grassland and desertscrub ecological formations. *14 (041912 - color presentation), 42 (071912 - no record for *Heraclides cresphontes*), 60, 106 (041912 - recorded as *Papilio cresphontes*), **WTK** (August 2006)*

Pieridae: The Sulfur Butterfly and White Family

***Anthocharis cethura* C. Felder & R. Felder, 1865: Desert Orangetip Butterfly**

COMMON NAMES: Cethura; Cethura Orange Tip; Desert Orangetip; Desert Orangetip Butterfly; Felder's Orange Tip Butterfly; Felder's Orangetip Cethura; Pima Orangetip (subsp. *pima* W.H. Edwards 1888 - Valid). HABITS: The larvae feed on the buds and pods of Crucifers (Brassicaceae). HABITAT: Within the range of this species it has been reported from the woodland, grassland and desertscrub ecological formations. ***8**, 14 (041912), 42 (071912), 106 (041912 - recorded as *Anthocharis cethura cethura* (C. & R. Felder, 1865), color presentation)*

Sphingidae: The Sphinx Moth Family

***Darapsa myron* (Cramer, 1780 - Valid?): Hog Sphinx Moth**

COMMON NAMES: Grape-vine Sphinx; Hog Caterpillar; Hog Sphinx; Hog Sphinx Moth; Virginia Creeper Sphinx; Virginia-creeper Sphinx. HABITS: Feeds on grape (larva) and Virginia creeper (larva). HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. NOTE: The adults feed on decaying fruit and tree sap. *14 (041912), 42 (071912 - no record of species or genus), 60 (color photograph), 106 (041912 - color presentation), **WTK** (August 18, 2010)*

Section Deuterostomia: The Deuterostomes
Phylum Chordata: The Chordates
Subphylum Vertebrata: The Vertebrates

CLASS AMPHIBIA: The AMPHIBIANS

Bufonidae: The Toad Family

***Anaxyrus cognatus* (Say in James, 1823): Great Plains Toad**

SYNONYMY: *Bufo cognatus* Say in James, 1823. COMMON NAMES: Great Plains Toad; Sapo de la Gran Planicie (Spanish)[42]. HABITS: Feeds on algae (larvae), arachnids, insects, mites (juveniles) and snails. Takes shelter by burrowing into soil. Breeding takes place in streams, irrigation ditches, temporary pools, and fields under irrigation. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (041812 - recorded as *Bufo cognatus*, color presentation), 37 (recorded as *Bufo cognatus*), 42 (071912), 55 (recorded as *Bufo cognatus*), 73 (recorded as *Bufo cognatus*), **78** (recorded as *Bufo cognatus*), 87 (recorded as *Bufo cognatus*), 106 (041812 - (recorded as *Bufo cognatus*), color presentation)*

***Anaxyrus punctatus* (Baird & Girard, 1852): Red-spotted Toad**

SYNONYMY: *Bufo punctatus* Baird & Girard, 1852. COMMON NAMES: Red-spotted Toad; Sapo Manchas Rojas (Spanish)[42]. HABITS: Feeds on algae (larvae), arachnids, carrion (larvae), cyanobacteria (larvae), organic detritus (larvae) and insects. Takes shelter in underground burrows and rock crevices. Breeding takes place in springs, reservoirs, and temporary pools associated with intermittent streams. HABITAT: Within the range of this species it has been reported from rocky areas in arroyos, canyons, flats, floodplains and oases near water in the forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (041812 - recorded as *Bufo punctatus*, color presentation), 37 (recorded as *Bufo punctatus*), 42 (071912), 55

(recorded as *Bufo punctatus*), 73 (recorded as *Bufo punctatus*), **78** (recorded as *Bufo punctatus*), 87 (recorded as *Bufo punctatus*), 106 (041812 - recorded as *Bufo punctatus*, color presentation)*

Bufo alvarius (see *Incilius alvarius*)

Bufo cognatus (see *Anaxyrus cognatus*)

***Incilius alvarius* (Girard in Baird, 1859): Sonoran Desert Toad**

SYNONYMY: *Bufo alvarius* Girard in Baird, 1859. COMMON NAMES: Colorado River Toad; Sapo del Desierto-sonorense (Spanish)[42]; Sonoran Desert Toad. HABITS: Feeds on beetles, grasshoppers, lizards, mice, snails, spiders and other toads. Takes shelter in underground burrows. Breeding corresponds to spring and summer rains when they congregate at temporary pools and other bodies of water. HABITAT: Within the range of this species it has been reported from near springs, streams, reservoirs, and pools in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Skin secretions are toxic to dogs and other animals and the mouthing a Colorado River Toad may cause temporary paralysis or death. *14 (041812 - recorded as *Bufo alvarius*, color presentation), 37 (recorded as *Bufo alvarius*), 42 (071912), 55 (recorded as *Bufo alvarius*), 73 (recorded as *Bufo alvarius*), **78** (recorded as *Bufo alvarius*), 87 (recorded as *Bufo alvarius*), 106 (071912 - recorded as *Bufo alvarius*, color presentation)*

Microhylidae: The Microhylid Family

***Gastrophryne olivacea* (Hallowell, 1856): Great Plains Narrow-mouthed Toad**

COMMON NAMES: Great Plains Narrow-mouthed Toad; Plains Narrow-mouthed Toad; Sapo-boca Angosta Oliváceo (Spanish)[42]; Sinaloan Narrow-mouthed Toad; Western Narrow-mouthed Toad. HABITS: Feeds on ants and other insects. Takes shelter in underground burrows, crevices and under bark and rocks. Breeding takes place in temporary rain pools, ponds, and other aquatic habitats. HABITAT: Within the range of this species it has been reported from moist areas, pools along intermittent streams, cattle tanks, and spring seepages in the woodland, grassland, desertscrub and wetland ecological formations. *8, 14 (041812 - color presentation), 42 (071912), 55, 73, **78**, 87, 106 (041812 - color presentation)*

Pelobatidae: The Spadefoot Toad Family

***Scaphiopus couchi* Baird, 1854: Couch's Spadefoot**

COMMON NAME: Couch's Spadefoot. HABITS: Feeds on amphibians (larvae), ants, arachnids, beetles, carrion (larvae), centipedes, crickets, cyanobacteria (larvae), organic detritus (larvae), millipedes, plant matter, tadpoles and termites. Takes shelter in underground burrows. Breeding takes place in temporary ponds, rain pools, irrigation ditches, reservoirs, and slow moving streams. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (041812 - color presentation), 37, 42 (071912), 55, 73, **78**, 87, 106 (041812 - color presentation)*

Scaphiopus hammondii multiplicatus (see *Spea multiplicata*)

Scaphiopus multiplicatus (see *Spea multiplicata*)

***Spea multiplicata* (Cope, 1863): New Mexico Spadefoot**

SYNONYMY: *Scaphiopus hammondii* (often spelled *hammondi*) *multiplicatus* Kellogg, 1932; *Scaphiopus multiplicatus* Cope, 1863. COMMON NAMES: Desert Spadefoot Toad; Mexican Spadefoot Toad; New Mexico Spadefoot; New Mexico Spadefoot Toad; Southern Spadefoot Toad; Western Spadefoot. HABITS: Feeds on larval amphibia (larvae), arachnids, carrion (larvae), centipedes, cyanobacteria (larvae), organic detritus (larvae), gastropods, insects, and mollusks. Takes shelter in underground burrows and cracks (juveniles). Breeding takes place in temporary ponds and rain pools. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (071912 - color presentation), 42 (071912), **78**, 87 (recorded as *Scaphiopus multiplicatus*), 106 (071912 - color presentation)*

Ranidae: The Frog Family

***Lithobates yavapaiensis* (Platz and Frost, 1984): Lowland Leopard Frog**

SYNONYMY: *Rana yavapaiensis* Platz and Frost, 1984. COMMON NAMES: Lowland Leopard Frog; Rana de Yavapai (Spanish)[42,106]; San Felipe Leopard Frog; Yavapai Frog; Yavapai Leopard Frog. HABITS: Feeds on algae (larvae), organic debris (larvae), insects, plant tissue (larvae), snails and spiders). Takes shelter in underground burrows and rock fissures. Breeding takes place in cienegas, impoundments, ponds, rivers, springs and streams. HABITAT: Within the range of this species

it has been reported from freshwater springs; small to medium-sized streams and rivers; small ponds; marsh habitats, and stock tanks being generally restricted to permanent and semi permanent waters often concentrating in deep pools in association with root masses of large riparian trees in the woodland, grassland and wetland ecological formations. *8, 14 (041912 - recorded as *Rana yavapaiensis* (Platz and Frost), color presentation), 42 (061812), 87 (recorded as *Rana yavapaiensis*), 106 (041912 - recorded as *Rana yavapaiensis* Platz and Frost, 1984, color presentation)*

Rana yavapaiensis (see *Lithobates yavapaiensis*)

CLASS AVES: The BIRDS

Accipitridae: The Eagle, Hawk, Kite and Allies Family

***Accipiter cooperii* (Bonaparte, 1828): Cooper's Hawk**

COMMON NAMES: Big Blue Darter; Chicken Hawk; Cooper's Hawk; Epervier de Cooper (French)[42]; Épervier de Cooper (French)[42]; Gavilán de Cooper (Spanish)[42]; Galvilan Palomero (Hispanic)[14]; Gavilán Pollero (Spanish)[90]; Hen Hawk; Mexican Hawk; Quail Hawk; Striker; Swift Hawk. HABITS: Feeds on small birds and mammals. Nests are platforms made of sticks located in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - color presentation)*

***Accipiter striatus* Vieillot, 1808: Sharp-shinned Hawk**

COMMON NAMES: Epervier Brun (French)[42]; Épervier Brun (French)[42]; Falcon de Sierra (Spanish: *A.s. venator* Wetmore, 1914 - Valid)[106]; Galvilan Pajerero (Hispanic)[14]; Gavilán Pecho Blanco (*A.s. chionogaster* - Invalid; *A. chionogaster* (Kaup, 1852) - Valid)[42]; Gavilán Pecho Rufo (Spanish)[42]; Gavilán Pecho Rufo (Spanish: *A.s. venator* Wetmore, 1914 - Valid)[106]; Plain-breasted Hawk (*A.s. ventralis* - Invalid; *A. ventralis* P.L. Sclater, 1866 - Valid); Puerto Rican Sharp-shinned Hawk (*A.s. venator* Wetmore, 1914 - Valid); Rufous-thighed Hawk (*A.s. erythronemius* - Invalid; *A. erythronemius* (Kaup, 1850) - Valid); Sharp-shinned Hawk; "Sharp-shins"; "Sharpies"; White-breasted Hawk (*A.s. chionogaster* - Invalid; *A. chionogaster* (Kaup, 1852) - Valid); Wishag (Tohono O'odham)[90]. HABITS: Feeds on birds and small mammals. Nests are platforms made of twigs located in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *velox* (Wilson), color presentation), 20, 42 (071912), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation)*

***Buteo jamaicensis* (Gmelin, 1788): Red-tailed Hawk**

COMMON NAMES: Aguililla Cola Roja (Spanish)[42]; Buse à Queue Rousse (French)[42]; Buzzard; Buzzard Hawk; Chicken Hawk; Eastern Redtail; Gavilan Cola Roja (Hispanic)[14]; Gavilán Cola Roja (Spanish)[90]; Harlan's Hawk (*B.j. harlani* (Audubon, 1830) - Valid); Hen Hawk; Mouse Hawk; Red Hawk; Redtail; Red-tailed Buzzard; Red-tailed Hawk; Western Redtail. HABITS: Feeds on birds, lizards and rodents. Nests are platforms made of sticks located on cliffs and in saguaro cacti and trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *calurus* (Cassin); subsp. *fuertesi* (Sutton & Van Tyne); subsp. *harlani* (Audubon), color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation)*

***Circus cyaneus* (Linnaeus, 1766): Northern Harrier**

COMMON NAMES: Busard Saint-Martin (French)[42]; Gavilan Norteno (Hispanic)[14]; Gavilán Rastrero (Spanish)[42]; Hen Harrier; Marsh Hawk; Northern Harrier. HABITS: Feeds on birds, mice and other small mammals. Nests are made of grasses, reeds and stalks located on the ground in grasses or marshes. HABITAT: Within the range of this species it has been reported from the tundra, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *hudsonius* (Linnaeus), color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - color presentation)*

***Parabuteo unicinctus* (Temminck, 1824): Harris's Hawk**

COMMON NAMES: Aguililla Cinchada (Spanish)[90]; Aguililla Roja (Hispanic)[14]; Aguililla Rojinegra (Spanish)[42]; Bay-winged Hawk; Buse de Harris (French)[42]; Dusky Hawk; Harris Hawk; Harris' Hawk; Harris's Hawk; "Louisiana Hawk". HABITS: Feeds on rabbits, rodents, and birds. Nests are platforms made of sticks located in mesquites, small trees and yuccas. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *harrisi* (Audubon), color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation), **WTK** (1 Immature - injured, collected for rehabilitation)*

Alcidinidae: The Kingfisher Family

***Chloroceryle americana* (Gmelin, 1788): Green Kingfisher**

COMMON NAMES: Green Kingfisher; Martín-pescador Verde (Spanish)[42]; Texas Kingfisher. HABITS: Feeds on insects, fishes and lizards. Eggs are laid at the end of burrows located on the banks of streams. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *8, 14 (041912 - color presentation), 42 (071912), **55** (reported from Tucson), 69, 73, 93, 106 (041912 - color presentation)*

Anatidae: The Duck, Goose and Swan Family

***Anas platyrhynchos* Linnaeus, 1758: Mallard**

COMMON NAMES: Canard Colvert (French)[42]; Common Mallard; Common Wild Duck; Curly-tail; Domestic Duck (*A.p. domesticus* Linnaeus, 1758 - Invalid?)[106]; English Duck; French Duck; Gray Duck; Gray Mallard; Greenhead; Mallard; Mallard Duck; Mexican Duck; Mottled Duck; Pato de Collar (Spanish)[14,42]; Stock Duck; Wild Duck. HABITS: Feeds on acorns, earthworms and aquatic plants. Nests are down-lined hollows located in grass and reeds and under shrubs, saplings and deadfalls, rarely in crotches in trees and abandoned crow, hawk and magpie nests. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (060312 - subsp. *platyrhynchos*; subsp. *diazi* (Ridgway), color presentation), 20, 42 (061812), 55, 69, 73, 84, 93, 106 (060312 - includes a listing of subspecies, color presentation), **WTK** (April 17, 18 & 20, 2013, M&F noticed in the Menlo Park Pool. additional note: two large (100?+ & 50?+) flocks of what appeared to be somewhat longer-necked? birds observed flying to the south-southeast)*

Apodidae: The Swift Family

***Aeronautes saxatalis* (Woodhouse, 1853): White-throated Swift**

COMMON NAMES: Vencejo Montanes (Hispanic)[14]; Vencejo Pecho Blanco (Spanish)[42]; White-throated Swift. HABITS: Feeds on insects. Nests are brackets made of saliva cemented twigs located in caves and crevices in mountain and sea cliffs. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *saxatalis* (Woodhouse), color presentation), 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation)*

***Chaetura pelagica* (Linnaeus, 1758): Chimney Swift**

COMMON NAMES: Chimney Swift; Martinet Ramoneur (French)[42]; Vencejo de Chimenea (Spanish)[42]. HABITS: Feeds on arachnids and flying insects. Nests are brackets, quarter cups and half saucers made of twigs cemented together with saliva located in caves and holes in logs, snags and trees (and chimneys). HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (041912), 20, 42 (071912), **55** (non-breeding pair reported from Tucson, May 30 to mid-June 1952), 69, 73, 93, 106 (041912 - color presentation)*

Cardinalidae: The Bunting, Cardinal and Grosbeak Family

***Cardinalis cardinalis* (Linneaus, 1758): Northern Cardinal**

SYNONYMY: *Richmondena cardinalis* (Linneaus, 1758). COMMON NAMES: Cardenal (Hispanic)[14]; Cardenal Rojo (Spanish)[42,90]; Cardinal Rouge (French)[42]; Common Cardinal; Northern Cardinal; Redbird; Sipuk (Tohono O'odham)[90]. HABITS: Feeds on small fruits, insects and seeds. Nests are loose cups of shredded bark and twigs located in a low shrubs or thickets. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *affinis* Nelson; subsp. *superbus* Ridgway, color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - color presentation), **WTK** (July 1, 2009 - M; March 5, 2011 - M; March 10, 2011 - F)*

***Cardinalis sinuatus* Bonaparte, 1838: Pyrrhuloxia**

SYNONYMY: *Pyrrhuloxia sinuata* Bonaparte, 1838. COMMON NAMES: Bichpod (Tohono O'odham)[90]; Cardenal Gris (Spanish)[90]; Cardenal Pardo (Spanish)[42]; Cardinal Torito (Hispanic)[14]; Desert Cardinal; Gray Cardinal; Pyrrhuloxia. HABITS: Feeds on small fruits, insects and seeds. Nests are neat cups located in thorny bushes. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *sinuatus* Bonaparte, color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - color presentation)*

Pyrrhuloxia sinuata (see *Cardinalis sinuatus*)

Richmondena cardinalis (see *Cardinalis cardinalis*)

Cathartidae: The New World Vulture Family

***Cathartes aura* (Linnaeus, 1758): Turkey Vulture**

COMMON NAMES: Buzzard; Carrion Crow (Caribbean); Chilean Turkey Vulture (*C.a. jota* (Molina, 1782) - Valid); Eastern Turkey Vulture (*C.a. septentrionalis* Wied-Neuwied, 1839 - Valid); John Crow (Caribbean); Nuwi (Tohono O'odham)[90]; Turkey Buzzard; Turkey Vulture; Urubu à Tête Rouge (French)[42]; Western Turkey Vulture (*C.a. aura* (Linnaeus, 1758) - Valid; *C.a. meridionalis* - Invalid?; *C.a. teter* Friedmann, 1933 - Invalid); Zopilote (Spanish)[14,90]; Zopilote Aura (Spanish)[42]. HABITS: Feeds on carrion. Little or no nest construction, eggs are laid in protected areas in crevices in rocks, on cliffs, on the ground in thickets and in tree hollows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *septentrionalis* Wied-Neuwied; subsp. *teter* Friedmann, color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - color presentation)*

Charadriidae: The Lapwing and Plover Family

***Charadrius vociferus* Linnaeus, 1758: Killdeer**

COMMON NAMES: Chiwi-chuhch (Tohono O'odham)[90]; Chorlo Tildío (Spanish)[42]; Killdeer; Pluvier Kildir (French)[42]; Tildio (Spanish)[14,90]. HABITS: Feeds on arachnids, insects, marine invertebrates and worms. No nest, eggs are laid in a scrape on bare ground in fields and shores. HABITAT: Within the range of this species it has been reported from the forest, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *vociferous* Linnaeus, color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - color presentation)*

Columbidae: The Dove and Pigeon Family

***Columba livia* Gmelin, 1789: Rock Dove**

COMMON NAMES: Blue Rock Dove; Common Pigeon; Pigeon Biset; Domestic Pigeon; Feral Pigeon; Pigeon Biset; Pigeon; Paloma Domestica (Hispanic)[14]; Paloma Doméstica (Spanish)[42]; Pigeon; Pigeon Biset (French)[42]; Rock Dove; Rock Pigeon. HABITS: Feeds on insects, green plant matter and seeds. Nests are located on buildings and cliffs. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC. *14 (041912 - color presentation), 20, 42 (061812), 69, 73, **78**, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation), **WTK** (July 17, 2012)*

***Columbina inca* (Lesson, 1847): Inca Dove**

SYNONYMY: *Scardafella inca* (Lesson, 1847). COMMON NAMES: Gugu (Tohono O'odham)[90]; Inca Dove; Tortola (Hispanic)[14]; Tórtola Cola Larga (Spanish)[42]; Tortolita Común (Spanish)[90]. HABITS: Feeds on fruit, insects and seeds, Saucer shaped nests are made of mixed vegetation and located in shrubs and low trees. HABITAT: Within the range of this species it has been reported from the grassland and desertscrub ecological formations. *14 (041912 - color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - color presentation)*

Scardafella inca (see *Columbina inca*)

***Streptopelia decaocto* (Frivaldszky, 1838): Eurasian Collard-dove**

COMMON NAMES: Collard Dove; Eurasian Collard Dove; Eurasian Collard-dove. HABITS: Feeds on grain, insects, seeds and shoots. Nests are made of sticks and located in trees. HABITAT: Suburban, urban and areas close to human habitation. NOTES: Exotic. *Streptopelia decaocto* is native to southern Asia. *14 (041912), 42 (071912), 55 (no record of species), 69 (no record of species), 73 (no record of species) 93 (no record of species), 106 (041912 - color presentation), 144 (color photograph), **WTK** (March 16, 2011, apparently paired with the Ringed Turtle Dove, *Streptopelia risoria* also observed)*

***Streptopelia risoria* (Linnaeus, 1758): Ringed Turtle Dove**

COMMON NAMES: Barbary Dove; Ring Dove; Ringed Turtle-dove; Ringed Turtle Dove; Ringneck Dove. HABITS: Nests are flimsy stick platforms located in trees. HABITAT: Suburban and urban areas in gardens and parks. NOTES: Exotic. *Streptopelia risoria* may be native to southern Asia; however, the origin of this species has also been reported as being unknown. *14 (041912 - no record of species), 42 (071912), 55 (no record of species), 69, 73 (no record of species) 93, 106 (041912 - color presentation), 144 (color photograph), **WTK** (March 16, 2011, apparently paired with a Eurasian Collard-dove, *Streptopelia decaocto* also observed)*

***Zenaida asiatica* (Linnaeus, 1758): White-winged Dove**

COMMON NAMES: Mexican Dove; Okokoi (Tohono O'odham)[90]; Paloma ala Blancha (Spanish)[14,42]; Paloma de alas Blanchas (Spanish)[90]; Sonora Dove; Tourterelle à Ailes Blanche (French)[42]; Western White-wing Dove (*Z.a. mearnsi* (Ridgway, 1915) - Valid); White-wing; White-winged Dove; White-winged Pigeon. HABITS: Feeds on berries, fruit, gastropods, insects, mollusks and seeds. Nests are flimsy stick platforms located in thickets and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 -

subsp. *grandis* (Saunders); subsp. *mearnsi* (Ridgway); subsp. *monticola* (Saunders), color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - color presentation), **WTK** (April 28, 2010; April 13, 2011, April 22, 2012, April 26, 2013)*

***Zenaida macroura* (Linnaeus, 1758): Mourning Dove**

SYNONYMY: *Zenaidura macroura* (Linnaeus, 1758). COMMON NAMES: American Mourning Dove; Carolina Pigeon; Carolina Turtle-dove; Carolina Turtledove; Clarion Island Turtledove (*Z.m. clarionensis* (C.H. Townsend, 1890) - Valid); Dove; Hohhi (Tohono O'odham)[90]; Huilota (Hispanic)[14]; Mourning Dove; Paloma Huilota (Spanish)[42]; Paloma Triste (Spanish)[90]; Panama Mourning Dove; Rain Dove; Tourterelle Triste (French)[42]; Turtle Dove; Wild Dove. HABITS: Feeds on fruit, insects and seeds. Nests are loose platforms made of forbs, grasses, leaves, rootlets, sticks and twigs located in cacti, shrubs, trees and on the ground. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *carolinensis* (Linnaeus); subsp. *marginella* (Woodhouse), color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation)), **WTK** (July 4, 2009)*

Zenaidura macroura (see *Zenaida macroura*)

Corvidae: The Crow, Jay, Magpie and Raven Family

***Corvus corax* Linnaeus, 1758: Common Raven**

COMMON NAMES: American Raven; Common Raven; Cuervo Común (Spanish)[42,90]; Cuervo Grande (Hispanic)[14]; Grand Corbeau (French)[42]; Hawani (Tohono O'odham)[90]; Kahgahgee' ('the Raven' Longfellow's *Hiawatha*); Northern Raven Western Raven (*C.c. sinuatus* Wagler, 1829 - Valid). HABITS: Feeds on small animals and birds, berries, carrion, insects and seeds. Nests are made of bones, sticks and wool located on cliffs, saguaros and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *sinuatus* (Wagler), color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation), 153, **WTK** (December 3, 2011, 2 - huge birds)*

Cuculidae: The Ani, Cuckoo and Roadrunner Family

***Geococcyx californianus* (Lesson, 1829): Greater Roadrunner**

COMMON NAMES: Correcaminos Norteño (Spanish)[42,90]; Greater Roadrunner; Paisano (Spanish)[14,90]; Roadrunner; Tadai (Tohono O'odham)[90]. HABITS: Feeds on the young of ground nesting birds, insects, lizards, scorpions and snakes. Nests are course shallow cups of sticks located in cacti, mesquite trees and shrubs. HABITAT: Within the range of this species it has been reported from the forest, scrub, grassland, desertscrub and wetland ecological formations. *14 (042012 - color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - color presentation), **WTK** (October 17, 2009)*

Emberizidae: The Junco, Longspur, Sparrow and Towhee Family

***Aimophila carpalis* (Coues, 1873): Rufous-winged Sparrow**

SYNONYMY: *Peucaea carpalis* (Coues, 1873). COMMON NAMES: Rufous-winged Sparrow; Zacatonero ala Rufa (Spanish)[42,]. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are cups made of woven course and fine grasses located in low bushes and cacti, in young mesquite trees and on the ground. HABITAT: Within the range of this species it has been reported from the woodland, grassland and desertscrub ecological formations. *14 (042012 - recorded as *Peucaea carpalis* (Sclater)), 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - recorded as *Peucaea carpalis* (Coues, 1873), "This species was first discovered in 1872, near old Fort Lowell, Tucson, where it was described as "very common". In 1881, the sparrow was found: "sparingly about Tucson and Camp Lowell. It inhabited the mesquite thickets, keeping closely hidden in the bunches of 'sacaton' grass, from which, when flushed, it flew into the branches above." After 1886, verified species records were exceedingly rare. The species was considered extinct in Arizona due to overgrazing. The rufous-winged sparrow was rediscovered in 1936, the first record in over fifty years.", color presentation)*

***Calamospiza melanocorys* Stejneger, 1885: Lark Bunting**

COMMON NAMES: Bruant Noir et Blanc (French)[42]; Gorrión ala Blanca (Spanish)[42]; Lark Bunting. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are loose cups made of grasses and plant down located in tussocks of grass on the ground and in scrapes. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042012 - color presentation), 20, 42 (072012), 55, 69, 73, **78**, 84, 93, 106 (042012 - color presentation)*

Chlorura chlorura (see *Pipilo chlorurus*)

***Chondestes grammacus* (Say, 1823): Lark Sparrow**

COMMON NAMES: Bruant à Joues Marron (French)[42], Gorrion Alondra (Hispanic)[14]; Gorrión Arlequín (Spanish)[42]; Lark Sparrow. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are cups made up of grasses and lined with fine fibers and hairs and located on the ground in the shelter of grasses and in small bushes and vines. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042012 - subsp. *strigatus* (Swainson), color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - color presentation)*

***Junco hyemalis* (Linnaeus, 1758): Dark-eyed Junco**

COMMON NAMES: "Cassiar" Junco; Dark-eyed Junco; Gorrion Ojas Negros (Hispanic)[14]; Gray-headed Junco; Grey-headed Junco (*J.h. caniceps* (Woodhouse, 1853) - Valid); Junco Ardoisé (French), Junco Ojo Oscuro (Spanish)[42]; Oregon Junco (*J.h. montanus* Ridgway, 1898 - Valid; *J.h. oreganus* (J.K. Townsend, 1837) - Valid; *J.h. shufeldti* Coale, 1887 - Valid; *J.h. thurberi* Anthony, 1890 - Valid); Pink-sided Junco (*J.h. hyemalis* (Linnaeus,1758) - Valid); Red-backed Junco (*J.h. dorsalis* Henry, 1858 - Valid); Slate-colored Junco (*J.h. cismontanus* Dwight, 1918 - Valid; *J.h. hyemalis* (Linnaeus, 1758)) - Valid; White-winged Junco (*J.h. aikeni* Ridgway, 1873 - Valid). HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are cups made up of shreds of bark, grasses, mosses, rootlets and twigs lined with grasses and hair located on the ground in protected areas or on lower branches of shrubs and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Dark-eyed Junco is a predator of the Douglas-fir Tussock Moth (*Orgyia pseudotsugata*) feeding on egg masses, larvae and pupae, and the Western Spruce Budworm (*Choristoneura occidentalis*). *14 (042012 - subsp. *aikeni* Ridgway; subsp. *caniceps* (Woodhouse); subsp. *cismontanus* Dwight; subsp. *dorsalis* Henry; subsp. *hyemalis*; subsp. *mearnsi* Ridgway; subsp. *montanus* Ridgway; subsp. *oreganus* (Townsend); subsp. *shufeldti* Coale; subsp. *thurberi* Anthony, color presentation), 20, 42 (061812), 55, 69, 73, **78**, 90, 93, 106 (042012 - includes a listing of subspecies, color presentation)*

Junco hyemalis subsp. *aikeni*: White-winged Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *caniceps*: Grey-headed Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *cismontanus*: Slate-colored Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *dorsalis*: Red-backed Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *hymenalis*: Slate-colored Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *mearnsi*: Pink-sided Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *montanus*: Oregon Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *oreganus*: Oregon Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *shufeldti*: Oregon Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *thurberi*: Oregon Junco (see *Junco hyemalis*)

***Melospiza lincolnii* (Audubon, 1834): Lincoln's Sparrow**

COMMON NAMES: Bruant de Lincoln (French)[42]; Gorrion Lincoln (Hispanic)[14]; Gorrión de Lincoln (Spanish)[42]; Lincoln's Sparrow; "Tom's Finch". HABITS: Feeds on berries, buds, fruits, insects and seeds. Nests are cups made of grasses located under vegetation on the ground and in bogs and muskegs. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042012 - subsp. *alticola* (Miller and McCabe); subsp. *lincolnii*, color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - color presentation)*

Melozone aberti (see *Pipilo aberti*)

Melozone fusca (see *Pipilo fuscus*)

Melozone fuscus (see *Pipilo fuscus*)

Peucaea carpalis (see *Aimophila carpalis*)

***Pipilo aberti* S.F. Baird, 1852: Abert's Towhee**

SYNONYMY: *Melozone aberti* (Baird, 1852). COMMON NAMES: Abert's Towhee; Toqui de Abert (Hispanic)[14]; Toquí Enmascarado (Spanish)[42]. HABITS: Feeds on buds, berries, small fruit, insects and seeds. Nests are cups made of grasses

located close to the ground in bushes and trees. HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. *14 (042012 - recorded as *Melozone aberti* subsp. *aberti* (Baird), color presentation), 42 (061812), 55 (recorded as *Melozone aberti*), 69, 73, **78**, 93, 106 (042012 - color presentation)*

***Pipilo chlorurus* (Audubon, 1839): Green-tailed Towhee**

SYNONYMY: *Chlorura chlorura* (Audubon, 1839). COMMON NAMES: Green-tailed Towhee; Tohi à Queue Verte (French)[42]; Toqui Cola Verde (Hispanic)[14,]; Toquí Cola Verde (Spanish)[42]. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are made of shredded bark and grasses located under brush and on the ground. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042012 - color presentation), 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - color presentation)*

***Pipilo fuscus* Swainson, 1827: Canyon Towhee**

SYNONYMY: *Melozone fusca* Swainson, 1827; *Melozone fuscus* (Swainson, 1827). COMMON NAMES: Bichput (Tohono O'odham)[90]; Brown Towhee; Canyon Towhee; Toqui Canonero (Hispanic)[14]; Toquí Pardo (Spanish)[42]; Toquí Pinto (Spanish)[90]; Vieja (Spanish)[90]; Yuma Brown Towhee. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are large deep cups of grasses and rootlets located in bushes and low trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042012 - recorded as *Melozone fuscus* subsp. *mesatus* (Oberholser); subsp. *mesoleucus* (Baird), color presentation), 42 (061812 - no record for either *Melozone fusca* or *Melozone fuscus*), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - recorded as *Melozone fusca* Swainson, 1827, color presentation)*

***Pooecetes gramineus* (Gmelin, 1789): Vesper Sparrow**

COMMON NAMES: Bruant Vespéral (French)[42]; Gorrión Cola Blanca (Spanish)[42]; Vesper Sparrow. HABITS: Feeds on berries, buds, fruits, insects, seeds and small fruit. Nests are grass lined cups located on the ground in grass and low vegetation. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042012 - subsp. *altus* (Marshall); subsp. *confinis* (Baird), color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 93, 106 (042012 - color presentation)*

***Spizella breweri* Cassin, 1856: Brewer's Sparrow**

COMMON NAMES: Brewer's Sparrow (*S.b. breweri* Cassin, 1856 - Invalid; *Spizella breweri* Cassin, 1856 - Valid); Gorrion Brewer (Hispanic)[14]; Gorrión de Brewer (Spanish)[42]; Timberline Sparrow (*S.b. taverneri* Swarth and A.C. Brooks, 1925 - Invalid; *Spizella taverneri* Swarth and A.C. Brooks, 1925 - Valid). HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are cups made of grasses located in low conifers, sagebrush or on the ground. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042012 - subsp. *breweri*: Brewer's Sparrow; subsp. *taverneri* (Swarth and Brooks)), 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - includes a listing of subspecies, color presentation)*

***Zonotrichia atricapilla* (Gmelin, 1789): Golden-crowned Sparrow**

COMMON NAMES: Golden-crowned Sparrow; Gorrion Copete de Oro (Hispanic); Gorrión Corona Dorada (Spanish)[42]. HABITS: Members of this family feed on berries, buds, fruit, insects and seeds. Nests are cups made of grass and lined with rootlets located on the ground or close to the ground in clumps of vegetation, bushes and shrubs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042012 - color presentation), 42 (072012), **55** (reported from Tucson), 73, 84, 93, 106 (042012 - color presentation)*

***Zonotrichia leucophrys* (J.R. Forster, 1772): White-crowned Sparrow**

COMMON NAMES: Bruant à Couronne Blanche (French)[42]; Gambel's Sparrow; Gorrion Copete Blanco (Hispanic)[14]; Gorrión Corona Blanca (Spanish)[42,90]; Intermediate Sparrow; Mountain White-crowned Sparrow (*Z.l. oriantha* Oberholser, 1932 - Valid); Nuttall's Sparrow; Tomtol (Tohono O'odham)[90]; White-crown; White-crowned Sparrow. HABITS: Members of this family feed on berries, buds, fruit, insects and seeds. Nests are cups made of grasses located in bushes or on the ground. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042012 - subsp. *gambelii* (Nuttall); subsp. *oriantha* (Oberholser), color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - includes a listing of subspecies, color presentation)*

Falconidae: The Caracara and Falcon Family

***Falco mexicanus* Schlegel, 1850: Prairie Falcon**

COMMON NAMES: Faucon des Prairies (French)[42]; Halcon Cafe' (Hispanic)[14]; Halcón Mexicano (Spanish)[42]; Prairie Falcon. HABITS: Feeds on birds, insects and rodents. Nests are made on sticks located on cliff niches or on the bare ground. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub

and wetland ecological formations. *14 (042012 - color presentation), 42 (072012), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - color presentation)*

***Falco peregrinus* Tunstall, 1771: Peregrine Falcon**

COMMON NAMES: American Peregrine Falcon (*F.p. anatum* Bonaparte, 1838 - Valid); Arctic Peregrine Falcon (*F.p. tundrius* C.M. White, 1968 - Valid); Austral Peregrine Falcon (*F.p. cassini* Sharpe, 1873 - Valid); Australian Peregrine Falcon (*F.p. macropus* Swainson, 1838 - Valid); Barbary Falcon (*F.p. pelegrinoides* Temminck, 1829 - Invalid?; *Falco pelegrinoides* Temminck, 1829 - Valid); Black Shaheen (*F.p. peregrinator* Sundevall, 1837 - Valid); Duck Hawk (*F.p. anatum* Bonaparte, 1838 - Valid); Eurasian Peregrine Falcon (*F.p. pereginus* Tunstall, 1771 - Valid); Faucon Pèlerin (French)[42]; Faucon Pélerin (French)[42]; Halcon Arctico (Hispanic); Halcon Peregrino (Hispanic)[14]; Halcón Peregrino (Spanish)[42]; Indian Peregrine Falcon (*F.p. peregrinator* Sundevall, 1837 - Valid); Maltese Falcon (*F.p. brookei* Sharpe, 1873 - Valid); Mediterranean Falcon (*F.p. brookei* Sharpe, 1873 - Valid); Peale's Falcon (*F.p. pealei* Ridgway, 1874 - Valid); Peregrine; Peregrine Falcon; Shaheen (*F.p. peregrinator* Sundevall, 1837 - Valid); Shaheen Falcon (*F.p. peregrinator* Sundevall, 1837 - Valid). HABITS: Feeds on bats, birds, insects, reptiles and rodents. Eggs are laid on potholes, scrapes or sticks located on cliff ledges. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Peregrine Falcon has been reported as being the fastest creature on earth, able to free fall at speeds exceeding 260 mph. *14 (042012 - subsp. *anatum* (Bonaparte); subsp. *tundrius* (White), color presentation of subspecies *anatum*), 20, 35, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - includes a listing of subspecies, color presentation)*

***Falco sparverius* Linnaeus, 1758: American Kestrel**

COMMON NAMES: American Kestrel; Cernicalo (Hispanic)[14]; Cernícalo Americano (Spanish)[42,90]; Crécerelle d'Amérique (French)[42]; Desert Sparrow Hawk; Sisiki (Tohono O'odham)[90]; Sparrow Hawk. HABITS: Feeds on amphibians, small birds, insects, reptiles and rodents. Eggs are laid in holes in saguaros and trees and on cliffs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042012 - subsp. *sparverius* Linnaeus, color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042012 - includes a listing of subspecies, color presentation)*

Fringillidae: The Cardueline and Fringilline Finch Family

***Carduelis lawrencei* Cassin, 1850: Lawrence's Goldfinch**

SYNONYMY: *Spinus lawrencei* (Cassin, 1850). COMMON NAMES: Jilguero Gris (Spanish)[42]; Lawrence's Goldfinch. HABITS: Feeds on berries, buds, small fruit, insects and seeds. Nests are small, neat, tightly woven cups located in bushes and small trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042012 - color presentation), 42 (061812), 55, 69, 73, **78**, 84, 93, 106 (042012 - color presentation)*

***Carduelis psaltria* (Say, 1823): Lesser Goldfinch**

SYNONYMY: *Spinus psaltria* (Say, 1823). COMMON NAMES: Arkansas Goldfinch; Arkansas Green-back; Dark-backed Goldfinch; Green-backed Goldfinch (*C.p. hesperophila* (Oberholser, 1903) - Valid); Jilguero Dominico (Spanish)[42]; Lesser Goldfinch; Tarweed Canary. HABITS: Feeds on tree buds, insects (larval and adult stages) and seeds. Nests are small cups made of fine plant materials including strips of bark, cocoons, cotton, feathers, grasses, leaves, lichens, mosses, plant stems, rootlets, thistle, twigs, spider webbing and wool with the nest height being from 1 to 30 feet and located in bushes, shrubs and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042112 - subsp. *hesperophilus* (Oberholser); subsp. *psaltria*, color presentation), 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042112 - includes a listing of subspecies, color presentation)*

***Carduelis psaltria* subsp. *hesperophila* (Oberholser, 1903): Green-backed Goldfinch**

SYNONYMY: *Spinus psaltria* subsp. *hesperophilus* (Oberholser, 1903). COMMON NAMES: Green-backed Goldfinch; Lesser Goldfinch. HABITS: Feeds on tree buds, insects (larval and adult stages) and seeds. Nests are small cups made of fine plant materials including strips of bark, cocoons, cotton, feathers, grasses, leaves, lichens, mosses, plant stems, rootlets, thistle, twigs, spider webbing and wool with the nest height being from 1 to 30 feet and located in bushes, shrubs and trees bushes, shrubs and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042112 - species, color presentation of species), 42 (072012), 55 (species), 69, 73, 84 (species), 90 (species), 93, 106 (042112- species, color presentation of species), **WTK** (August 2008, July 24, 2009, May 20, 2011 (feeding of Basil seed) - F&M observed feeding on seed of the Red Sage)*

***Carpodacus cassinii* S.F. Baird, 1854: Cassin's Finch**

COMMON NAMES: Cassin's Finch; Cassin's Purple Finch; Pinzón de Cassin (Spanish)[42]. HABITS: Feeds on berries, buds, fruits, insects and seeds. Nests are cups and saucers made of bark, feathers, forbs, grasses, hair, leaves, lichens, rootlets and sticks and lined with fine bark and hairs located on the branches of conifer trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: The Cassin's

Finch is a predator of the Douglas-fir Tussock Moth (*Orgyia pseudotsugata*) and Western Spruce Budworm (*Choristoneura occidentalis*). *14 (042112 - color presentation), 42 (072012), **55** (Tucson), 69, 73, 93, 106 (042112 - color presentation)*

***Carpodacus mexicanus* (Statius Müller, 1776): House Finch**

COMMON NAMES: "Hollywood Finch"; House Finch; "Linnet"; Pinzón Mexicano (Spanish)[42,90]; Roselin Familier (French)[42]. HABITS: Feeds on buds, berries, fruit, insects and seeds. Nests are tightly woven, compact cups made of debris, feathers, grasses, hair, lichens, plant tufts, sticks and twigs located in cavities and in bushes, cacti, shrubs, trees and vines, sometime uses abandoned nests of other birds. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042112 - subsp. *frontalis* (Say), color presentation), 20, 42 (061812), 55, 69, 73, **78**, 84, 90, 93, 106 (042112 - color presentation), **WTK** (March 20, 2011 - F&M)*

***Carpodacus purpureus* (Gmelin, 1789): Purple Finch**

COMMON NAMES: California Purple Finch; Common Purple Finch; Pinzón Purpúreo (Spanish)[42]; Purple Finch; Roselin Pourpré (French)[42]. HABITS: Feeds on berries, buds, insects and seeds (among their favorites: millet, sunflower and thistle). Nests are shallow cups made of strips of bark, rootlets and twigs and lined with grasses and hair located in the forks or on horizontal branches of conifer trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (042112 - subsp. *californicus* (Baird); subsp. *purpureus*, 20, 42 (072012), 69, 73, 84, 93, 106 (042112 - color presentation), **WTK** (March 11, 2011 - M)*

Spinus lawrencei (see *Carduelis lawrencei*)

Spinus psaltria (see *Carduelis psaltria*)

Spinus psaltria subsp. *hesperophilus* (see *Carduelis psaltria* subsp. *hesperophila*)

Hirundinidae: The Martin and Swallow Family

***Tachycineta thalassina* (Swainson, 1827): Violet-green Swallow**

COMMON NAMES: Golondrina Verde (Hispanic)[14]; Golondrina Verdemar (Spanish)[42]; Violet-green Swallow. HABITS: Feeds on insects. Nests are cups made of grasses lined with feathers located in holes in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042112 - subsp. *lepida* (Mearns), color presentation), 42 (072012), **55** (reported from Tucson in mid-November 1944), 69, 73, 84, 90, 93, 106 (042112 - color presentation)*

Icteridae: The Blackbird, Oriole and Allies Family

Cassidix mexicanus (see *Quiscalus mexicanus*)

***Euphagus carolinus* (Statius Müller, 1776): Rusty Blackbird**

COMMON NAMES: Quiscale Rouilleux (French)[42]; Rusty Blackbird; Tordo Canadiense (Spanish)[42]; Tordo Mohoso (Hispanic)[14]. HABITS: Feeds on amphibians, arachnids, crustaceans, insects, mollusks and seeds. Nests are bulky cups made of grasses, leaves, mosses and sticks located above water in bushes and trees; within the range of this species it has been reported from wetland ecological formations. HABITAT: Within the forest, woodland, grassland and desertscrub ecological formations. *14 (042112 - subsp. *carolinus* (Muller)), 20, 42 (072012), **55** (reported from Tucson), 69, 73, 93, 106 (042112 - color presentation)*

***Icterus cucullatus* Swainson, 1827: Hooded Oriole**

COMMON NAMES: Bolsero Encapuchado (Spanish)[42]; Calandria (Spanish)[90]; Calandria Copetona (Hispanic)[14]; Hooded Oriole; S-Oam Shashani (Tohono O'odham)[90]. HABITS: Feeds on small aquatic animals, small fruit, insects and seeds; nests are a long, hanging basket or woven pouch located under palm fronds, shrubs and yuccas. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (042112 - color presentation), 20, 42 (061912), **55** (reported from Tucson December 23, 1951, January 26, 1952 and December 1959), 69, 73, **78**, 84, 93, 106 (042112 - color presentation)*

***Molothrus aeneus* (Wagler, 1829): Bronzed Cowbird**

SYNONYMY: *Tangavius aeneus* (Wagler, 1829). COMMON NAMES: Bronze-brown Cowbird (*M.a. armenti* Cabanis, 1851 - Valid); Bronzed Cowbird; Red-eyed Cowbird; Tordo Ojo Rojo (Spanish)[42]; Tordo Ojos Rojos (Hispanic)[14]. HABITS: Feeds on small aquatic animals, small fruit, insects and seeds; parasitic. Eggs are laid in the nests of orioles and other birds. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological

formations. *14 (042212 - subsp. *loyei* (Parkes and Blake), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

***Molothrus ater* (Boddaert, 1783): Brown-headed Cowbird**

COMMON NAMES: Brown-headed Cowbird; Common Cowbird; Dwarf Cowbird; Nevada Cowbird; Tordo (Spanish)[90]; Tordo Cabeza Café (Spanish)[42]; Tordo Copete Café (Hispanic)[14]; Vacher à Tête Brune (French)[42]. HABITS: Feeds on small aquatic animals, small fruit, insects and seeds; parasitic. Eggs are laid in the nests or other birds. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *artemisiae* (Grinnell); subsp. *obscurus* (Gmelin), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

***Quiscalus mexicanus* (Gmelin, 1788): Great-tailed Grackle**

SYNONYMY: *Cassidix mexicanus* (Gmelin, 1788). COMMON NAMES: "Blackbird"; Boat-tailed Grackle (a name more appropriately applied to *Quiscalus major* Vieillot, 1819 of the eastern and southern United States coastal marshes and Florida); Chanate Cola Grande (Hispanic)[14]; "Crow"; "Cuervo" (Mexico)[106]; Great-tailed Grackle; "Jackdaw"; Mexican Grackle; Zanate (Spanish)[90]; Zanate Mexicano (Spanish)[42]. HABITS: Feeds on small aquatic animals, small fruit, insects and seeds. Nests are cups made of sticks, grasses, mud and sticks lined with grasses located in trees, bushes and marsh reeds. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *monsoni* (Phillips); subsp. *prosopidicola* (Lowery), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation), **WTK** (May 1, 2011)*

Tangavius aeneus (see *Molothrus aeneus*)

***Xanthocephalus xanthocephalus* (Bonaparte, 1826): Yellow-headed Blackbird**

COMMON NAMES: Carouge à Tête Jaune (French)[42]; Tordo Cabeza Amarilla (Hispanic)[14]; Yellow-headed Blackbird. HABITS: Feeds on small aquatic life, insects, small fruit, seeds and waste grain. Nests are woven cups made of grasses and sedges located above water on cattails, reeds and tules in marshy areas. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042212 - color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 93, 106 (042212 - color presentation)*

Laniidae: The Shrike Family

***Lanius ludovicianus* Linnaeus, 1766: Loggerhead Shrike**

COMMON NAMES: Alcaudón Verdugo (Spanish)[42]; "Butcher Bird"; Loggerhead Shrike; Pie-grièche Migratrice (French)[42]; San Clemente Loggerhead Shrike (*L.l. mearnsi* - Valid); Verdugo (Hispanic)[14]; White-rumped Shrike. HABITS: Feeds on small birds, large insects, lizards and small mammals. Nests are made of feathers, rootlets and twigs located in bushes and trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (042212 - subsp. *excubitorides* (Swainson); subsp. *gambeli* (Ridgway); subsp. *sonoriensis* (Miller), color presentation), 20, 42 (072012), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

Mimidae: The Catbird, Mockingbird and Thrasher Family

***Mimus polyglottos* (Linnaeus, 1758): Northern Mockingbird**

COMMON NAMES: Cenzontle (Spanish)[14,90]; Centzontle Norteño (Spanish)[42]; Mockingbird; Moqueur Polyglotte (French)[42]; Northern Mockingbird; Shug (Tohono O'odham)[90]. HABITS: Feeds on arachnids, berries, crustaceans, fruits, gastropods, insects, mollusks, reptiles and seeds. Nests are bulky cups made of grasses, hair, leaves, mosses, plant stems, rootlets, sticks, twigs and wool and lined with fine plant material and rootlets located near ground in bushes, chollas, shrubs, thickets, dense trees and vines. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *leucopterus* (Vigors), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation), **WTK** (October 5, 2011)*

***Toxostoma bendirei* (Coues, 1873): Bendire's Thrasher**

COMMON NAMES: Bendire's Thrasher; Cuitlacoche Bendire (Hispanic)[14]; Cuitlacoche Pico Corto (Spanish)[42]. HABITS: Feeds on berries, fruits and insects. Nests are cup-shaped, made of twigs and lined with down, feathers, grasses, leaves, rootlets, stems and other fine, soft material and located in cholla cacti, paloverdes and thorny bushes. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (042212), 42 (072012), **55**, 69, 73, 84, 93, 106 (042212)*

***Toxostoma curvirostre* (Swainson, 1827): Curve-billed Thrasher**

COMMON NAMES: Cuitlacoche; Cuitlacoche Comun (Hispanic)[14]; Cuitlacoche Pico Curvo (Spanish)[42,90]; Curve-billed Thrasher; Kudwik (Tohono O'odham)[90]; Palmer's Thrasher. HABITS: Feeds on arachnids, berries, crustaceans, diplopods, fruits, gastropods, insects, mollusks and seeds. Nests are woven cups made up of bark, grasses, hair, rootlets, sticks and twigs and located in bushes, cholla cacti and shrubs. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *celsum* (Moore), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

Odontophoridae: The Quail Family

***Callipepla gambelii* subsp. *gambelii* (Gambel, 1843): Gambel's Quail**

SYNONYMY: *Lophortyx gambelii* subsp. *gambelii* Gambel, 1843; *Lophortyx gambelii* subsp. *ignoscens* Friedmann, 1943; *Lophortyx gambelii* subsp. *sanus* Mearns, 1914. COMMON NAMES: Arizona Quail; Codorniz Chiquiri [Spanish)[42]; Codorniz (Gambel) Chiquiri (Spanish)[90]; Codorniz de Gambel (Hispanic)[14]; Desert Quail; Gambel's Quail; Kakaichu (Tohono O'odham)[90]. HABITS: The species feeds on insects, plant material and seeds. The eggs are laid in scrapes or grass lined nests located on the ground under prickly-pear cacti. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - species, color presentation), 42 (081812), 55 (species, recorded as *Lophortyx gambelii*), 69 (note, species, recorded as *Lophortyx gambelii*), 73 (species, recorded as *Lophortyx gambelii*), **78**, 84 (species), 90 (species), 93 (species, recorded as *Lophortyx gambelii*), 106 (042212 - species including a listing of subspecies, color presentation), **WTK** (041711 - F&M)*

Lophortyx gambelii subsp. *gambelii* (see *Callipepla gambelii* subsp. *gambelii*)

Lophortyx gambelii subsp. *ignoscens* (see *Callipepla gambelii* subsp. *gambelii*)

Lophortyx gambelii subsp. *sanus* (see *Callipepla gambelii* subsp. *gambelii*)

Parulidae: The Wood Warbler Family

***Dendroica coronata* (Linnaeus, 1766): Yellow-rumped Warbler**

SYNONYMY: *Setophaga coronata* (Linnaeus, 1766). COMMON NAMES: Audubon Warbler; Audubon's Warbler (*D.c. auduboni* (J.K. Townsend, 1837) - Valid); Black-fronted Warbler (*D.c. nigrifrons* Brewster, 1889 - Valid); Chipe Coronado (Spanish)[42]; Goldman's Warbler (*D.c. goldmani* Nelson, 1897 - Valid); Myrtle Warbler (*D.c. coronata* (Linnaeus, 1766) - Valid); Paruline à Croupion Jaune (French)[42]; Verdin Cola Amarilla (Hispanic)[14]; Yellow-rumped Warbler. HABITS: Feeds on insects and spiders. Nests are cupped-shaped and made of shredded bark, feathers and twigs and located in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - recorded as *Setophaga coronata*: *D.c.* subsp. *auduboni* (Audubon's); subsp. *coronata* ("Myrtle"), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - recorded as *Setophaga coronata* (Linnaeus, 1766), includes a listing of subspecies, color presentation)*

***Dendroica petechia* (Linnaeus, 1766): Yellow Warbler**

SYNONYMY: *Setophaga petechia* (Linnaeus, 1766). COMMON NAMES: American Yellow Warbler; Barbados Golden Warbler (*D.p. petechia* (Linnaeus, 1766) - Valid); Barbados Yellow Warbler (*D.p. petechia* (Linnaeus, 1766) - Valid); Barbados Yellow Wood Warbler (*D.p. petechia* (Linnaeus, 1766) - Valid); Californian Yellow Warbler (*D.p. brewsteri* Grinnell, 1903 - Valid); Chipe Amarillo (Spanish)[42]; Mangrove Warbler (*D.p. erithachorides* S.F. Baird, 1858 - Valid); Paruline Jaune (French)[42]; Sonoran Yellow Warbler (*D.p. sonorana* Brewster, 1888 - Valid); "Summer Yellowbird"; Verdin Amarillo (Hispanic)[14]; Yellow Warbler. HABITS: Feeds on insects and spiders. Nests are felted cups of plant fibers located in the forks of shrubs and trees. HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. *14 (042212 - recorded as *Setophaga petechia* (Linnaeus): *D.p.* subsp. *amnicola* (Batchelder); *D.p.* subsp. *morcomi* (Coale); *D.p.* subsp. *rubiginosa* (Pallas); *D.p.* subsp. *sonorana* (Brewster), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - recorded as *Setophaga petechia* (Linnaeus, 1766), includes a listing of subspecies, color presentation)*

***Dendroica virens* (Gmelin, 1789): Black-throated Green Warbler**

SYNONYMY: *Setophaga virens* (Gmelin, 1789). COMMON NAMES: Black-throated Green Warbler; Chipe Dorso Verde (Spanish)[42]; Paruline à Gorge Noire (French)[42]; Verdin Verde Gargantan Negra (Hispanic)[14]. HABITS: Feeds on arachnids, berries and insects. Nests are neat cups made of birch bark, grasses, mosses, plant fibers, spider webbing and twigs and lined with feathers and hair located in conifer trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (042212 - recorded as *Setophaga virens*, *D.v.* subsp. *virens* (Gmelin)), 20, 42 (072012), **55** (reported from Tucson), 69, 84 (sighting considered to be far from the normal range of this species), 106 (042212 - color presentation)*

***Icteria virens* (Linnaeus, 1758): Yellow-breasted Chat**

COMMON NAMES: Buscabreña (Spanish)[42]; Long-tailed Chat; Paruline Polyglotte (French)[42]; Yellow-breasted Chat. HABITS: Feeds on arachnids, berries, crustaceans, insects and spiders. Nests are large open cups made of bark, stems of forbs, grasses, leaves, rootlets and twigs located in briars, bushes, thick shrubs, thickets and small trees. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the forest, woodland, scrub, grassland, desertscrub ecological formations. *14 (042212 - subsp. *auricollis* (Deppe), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

***Oporornis tolmiei* (J.K. Townsend, 1839): MacGillivray's Warbler**

COMMON NAMES: Chipe de Tolmie (Spanish)[42]; MacGillivray's Warbler; Verdin MacGillivray (Hispanic)[14]. HABITS: Feeds on insects and spiders. Nests are cupped-shaped and made of grasses located in briars, low brush and weeds. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *monticola* (Phillips); subsp. *tolmiei*, color presentation), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

***Protonotaria citrea* (Boddaert, 1783): Prothonotary Warbler**

COMMON NAMES: Chipe Dorado (Spanish)[42]; Paruline Orangée (French)[42]; Golden Swamp Warbler; Prothonotary Warbler. HABITS: Feeds on insects and snails. Nests are cups made of moss located in cavities in trees and holes in stumps. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: *Protonotaria citrea* is native to central and southern North America; Central America and coastal islands in the Caribbean Sea, and northern South America. *14 (041512), 20, 42 (061912), **55** (Tucson, May 1, 1884), 69, 106 (041512 - color presentation)*

Setophaga coronata (see *Dendroica coronata*)

Setophaga petechia (see *Dendroica petechia*)

Setophaga virens (see *Dendroica virens*)

***Vermivora luciae* (J.G. Cooper, 1861): Lucy's Warbler**

SYNONYMY: *Oreothlypis luciae* (J.G. Cooper, 1861). COMMON NAMES: Chipe Rabadilla Rufa (Spanish)[42]; Lucy's Warbler; Verdin Lucy (Hispanic)[14]. HABITS: Feeds on insects (beetles, caterpillars, leafhoppers) and spiders. Nests are cup-shaped and located in trees, under loose bark or in a cavity or hole. HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. *14 (042212 - recorded as *Oreothlypis luciae* (Cooper)), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - recorded as *Oreothlypis luciae* (Cooper, 1861), color presentation)*

***Wilsonia pusilla* (A. Wilson, 1811): Wilson's Warbler**

COMMON NAMES: Chipe Corona Negra (Spanish)[42]; Paruline à Calotte Noire (French)[42]; Pileolated Warbler; Wilson's Warbler; Verdin Wilson (Hispanic)[14]. HABITS: Feeds on insects and spiders. Nests are cups made up of bark, grasses, deer and horse hair, leaves, mosses, plant fibers and stems and located on the ground or near to the ground in shrubs. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTE: The Wilson's Warbler is a predator of the Douglas-fir Tussock Moth (*Orgyia pseudotsugata*) and Western Spruce Budworm (*Choristoneura occidentalis*). *14 (042212 - subsp. *chryseola* (Ridgway); subsp. *pileolata* (Pallas); subsp. *pusilla*, color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - includes a listing of subspecies, color presentation)*

Passeriidae: The Old World Sparrow Family

***Passer domesticus* (Linnaeus, 1758): House Sparrow**

COMMON NAMES: English Sparrow (United States); Gorrión Casero (Spanish)[42,90]; Gorrion Ingles (Hispanic)[14]; House Sparrow; O'Odopiwa (Tohono O'odham)[90]; Moineau Domestique (French)[42]; Phillip Sparrow; Zacatero (Spanish)[90]. HABITS: Feeds on fruit, garbage, grain, insects (and insect larvae) and seeds; nests are bulky masses of debris, feathers, forbs, grasses, straw and twigs located in cavities, crannies, ivy, niches, rocks and suspended from trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Species, partially responsible for the near extinction of Bluebirds in the United States. The House Sparrow is an agricultural pest feeding on grains. The House Sparrow prefers agricultural and urban areas close to human habitation. *14 (042212 - color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 93, 106 (042212 - includes a listing of subspecies, color presentation), **WTK** (March 6, 2011)*

Picidae: The Woodpecker and Wryneck Family

Centurus uropygialis (see *Melanerpes uropygialis*)

***Colaptes chrysoides* (Malherbe, 1852): Gilded Flicker**

COMMON NAMES: Carpintero Collarejo Cesértico (Spanish)[90]; Common Flicker; Gilded Flicker; Kudat (Tohono O'odham)[90]; Mearn's Gilded Flicker. HABITS: Feeds on acorns, fruits, insects, seeds and spiders. Nests are made in hollowed out holes in the saguaro cactus. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the forest, woodland, grassland and desertscrub ecological formations. *14 (042212), 42 (061912), 55, 69, **78**, 84, 90, 93, 106 (042212 - color presentation)*

Dendrocopus scalaris (see *Picoides scalaris*)

***Melanerpes uropygialis* (S.F. Baird, 1854): Gila Woodpecker**

SYNONYMY: *Centurus uropygialis* S.F. Baird, 1854. COMMON NAMES: Carpintero del Desierto (Spanish)[42,90]; Carpintero Gila (Hispanic)[14]; Gila Woodpecker; Hikiwigi (Tohono O'odham)[90]. HABITS: Feeds on berries, fruit, honey and wood boring insects. Nests are made in hollowed out holes in saguaros and trees. HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. *14 (042212 - subsp. *uropygialis* (Baird), color presentation), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

***Picoides scalaris* (Wagler, 1829): Ladder-backed Woodpecker**

SYNONYMY: *Dendrocopus scalaris* (Wagler, 1829). COMMON NAMES: Cactus Woodpecker; Carpintero Listado (Hispanic)[14]; Carpintero Mexicano (Spanish)[42]; Chehegam (Tohono O'odham)[90]; Ladder-backed Woodpecker; Pájaro Carpintero (Spanish)[90]. HABITS: Feeds on wood boring insects and cactus fruits. Nests are made in hollowed out holes in agaves, cacti, posts and yuccas. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041222 - subsp. *cactophilus* (Oberholser); subsp. *symplectus* (Oberholser), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

***Sphyrapicus nuchalis* S.F. Baird, 1858: Red-naped Sapsucker**

SYNONYMY: *Sphyrapicus varius* subsp. *nuchalis* S.F. Baird, 1858. COMMON NAMES: Carpintero Rojo (Hispanic)[14]; Chupasavia Nuca Roja (Spanish)[42]; Red-naped Sapsucker. HABITS: Feeds on berries, insects, tree sap and seeds. Nests are made in hollowed out holes in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

Sphyrapicus varius subsp. *nuchalis* (see *Sphyrapicus nuchalis*)

Ptilogonatidae: The Silky Flycatcher Family

***Phainopepla nitens* (Swainson, 1838): Phainopepla**

COMMON NAMES: Capulinero (Hispanic)[14]; Capulinero Negro (Spanish)[42,90]; Kuigam (Tohono O'odham)[90]; Northern Phainopepla; Phainopepla. HABITS: Feeds on berries, elderberries, fruits, grapes, small insects, mistletoe berries and vegetables. Nests are shallow cups on the forks of limbs of trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *lepida* (Van Tyne), color presentation), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

Rallidae: The Coot, Gallinule and Rail Family

***Laterallus jamaicensis* (Gmelin, 1789): Black Rail**

COMMON NAMES: Black Rail; California Black Rail; Polluela Negra (Spanish)[42]; Râle Noir (French)[42]. HABITS: Feeds on small crustaceans, insects and other small invertebrates and seeds. Nests are domed cups made of grasses concealed in vegetation located in freshwater and saltwater marshes. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the desertscrub ecological formation. *14 (042212 - subsp. *coturniculus* (Ridgway) is the subspecies reported as occurring in Arizona), 20, 42 (072012), **55** (species reported from Tucson by Stephens, April 23, 1881), 69, 73, 84, 93, 106 (042212 - color presentation)*

***Rallus limicola* Vieillot, 1819: Virginia Rail**

COMMON NAMES: Gallareta (Hispanic)[14]; Râle de Virginie (French)[42]; Rascón Limícola (Spanish)[42]; Virginia Rail. HABITS: Feeds on arachnids, berries, crustaceans, earthworms, small fishes, frogs, insects, mollusks, aquatic plants, seeds, slugs, snails and small snakes. Platform nests are saucers made of woven cattails, grasses, reeds, rushes and sedges lined with fine materials attached to aquatic plants located in marshes and other fresh bodies of water. HABITAT: Within the range of this

species it has been reported from wetland ecological formations in the forest, woodland, grassland and desertscrub ecological formation. *14 (042212 - subsp. *limicola* Vieillot, color presentation), 20, 42 (072012), **55** (reported from Tucson), 69, 73, 84, 93, 106 (042212 - color presentation)*

Remizidae: The Verdin Family

***Auriparus flaviceps* (Sundevall, 1850): Verdin**

COMMON NAMES: Baloncillo (Spanish)[42,90]; Gisop (Tohono O'odham)[90]; Verdin (Hispanic)[14]. HABITS: Feeds on berries, insects, insect eggs and larvae and seeds. Nests are spheres of thorny twigs lined with grasses and feathers located in bushes, chollas, shrubs, trees and the stems of the Desert Mistletoe. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *ornatus* (Lawrence), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042212 - color presentation)*

Strigidae: The Typical Owl Family

***Athene cunicularia* (Molina, 1782): Burrowing Owl**

SYNONYMY: *Speotyto cunicularia* (Molina, 1782). COMMON NAMES: Lechuza Llanera (Spanish)[90]; Billy Owl; Burrowing Owl; Chevêche des Terriers (French)[42]; Ground Owl; Long-legged Owl; North American Burrowing Owl; Northern Burrowing Owl; Prairie Dog Owl; Prairie Owl; Tecolote Llanero (Spanish)[42]; Western Burrowing Owl. HABITS: Feeds on small birds, frogs, large insects, lizards, small mammals, scorpions and snakes. Nests are grass lined and located at the end of a rodent burrow in open ground. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. ***8**, 14 (042212 - subsp. *hypugaea* (Bonaparte), color presentation), 20, 42 (072112), 55 (recorded as *Speotyto cunicularia* (Molina)), 69 (recorded as *Speotyto cunicularia*), 73, 84, 90, 93, 106 (042212 - listing of subspecies, color presentation)*

***Bubo virginianus* (Gmelin, 1788): Great Horned Owl**

COMMON NAMES: Baha California Great Horned Owl (*B.v. elachistus* Brewster, 1902 - Valid); Buho (Spanish)[90]; Búho Cornudo (Spanish)[42]; Calfornian Great Horned Owl (*B.v. pacificus* Cassin, 1854 - Valid); "Cat Owl"; Central American Great Horned Owl (*B.v. mesembrinus* (Oberholser, 1904) - Valid); Coastal Great Horned Owl (*B.v. saturatus* Rigway, 1877 - Valid); Common Great Horned Owl (*B.v. virginianus* (Gmelin, 1788) - Valid); Desert Great Horned Owl (*B.v. pallescens* Stone, 1897 - Valid); Grand-duc d'Amérique (French)[42]; Great Horned Owl; Horned Owl; North Andean Great Horned Owl (*B.v. nigrescens* Berlepsch, 1884 - Valid); Northeastern Great Horned Owl (*B.v. heterocnemis* (Oberholser, 1904) - Valid); Northern Great Horned Owl (*B.v. subarcticus* Hoy, 1853 - Valid); Northwestern Great Horned Owl (*B.v. lagophonus* (Oberholser, 1904) - Valid); Rocky Mountains Great Horned Owl (*B.v. pinorum* (Dickerman and Johnson, 2008) - Invalid?); South American Great Horned Owl (*B.v. nacurutu* (Vieillot, 1817) - Valid); Subarctic Great Horned Owl (*B.v. subarcticus* Hoy, 1852 - Valid); Tecolote Cornudo (Spanish)[90]; Tecolote Cuernudo (Hispanic)[14]; Tiger Owl; Yucatan Great Horned Owl (*B.v. mayensis* Nelson, 1901 - Valid). HABITS: Feeds on frogs, small birds, crayfish, decapods, fishes, insects, lizards and small mammals. Eggs are laid in the deserted nests of other birds and sometimes lining the nest with feathers located on the ground or in crevices, potholes, trees and on bluffs and cliffs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (060913 - subsp. *occidentalis* (Stone); subsp. *pallescens* (Stone), color presentation), 20, 42 (061912), 55, 69, 73, 84, 90, 93, 106 (060912 - includes a listing of subspecies, color presentation), **WTK** (102112 - not sighted, based on call, 0230 hours)*

Speotyto cunicularia (see *Athene cunicularia*)

Sturnidae: The Myna and Starling Family

***Sturnus vulgaris* Linnaeus, 1758: European Starling**

COMMON NAMES: Azores Starling (*S.v. granti*, 1903 - Invalid?); Common Starling (*S.v. vulgaris* Linnaeus, 1758 - Valid); Estornino Pinto (Spanish)[42]; Étourneau Sansonnet (French)[42]; European Starling; Faroese Starling (*S.v. faroensis* Feilden, 1872 - Invalid?); Shetland Starling (*S.v. zetlandicus* Hartert, 1918 - Invalid?); Starling. HABITS: Feeds on amphibians, arachnids, berries, crustaceans, decapods, fruits, grains, grubs, insects, mollusks, nectars, seeds, spiders and worms. Nests are made up of bark, dry grass, hair, leaves, lichen, moss, rootlets, straw, sticks and twigs and lined with down, feathers, soft leaves and wool and may be located in abandoned bird nests, depressions, cavities in cliffs, trees, posts, rocks, shrubs, trees and in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub,

grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Species. Starlings can damage crops, cause substantial loss to feeding operations for cattle, and compete with native birds for nesting sites and food. *14 (042312 - color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - includes a listing of subspecies, color presentation)*

Sylviidae: The Gnatcatcher and Old World Warbler Family

***Polioptila caerulea* (Linnaeus, 1766): Blue-gray Gnatcatcher**

COMMON NAMES: Blue-gray Gnatcatcher; Blue-grey Gnatcatcher; Gobemoucherons Gris-bleu (French)[42]; Perlita Azulgris (Spanish)[42]; Pisita Gris (Hispanic)[14]; Western Gnatcatcher. HABITS: Feeds on insects. Nests are small cups made up of lichens, plant down and spider webs and located on the limbs of trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *amoenissima* (Grinnell), color presentation), 20, 42 (072112), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

***Polioptila melanura* Lawrence, 1857: Black-tailed Gnatcatcher**

COMMON NAMES: Black-tailed Gnatcatcher; Perlita del Desierto (Spanish)[42,90]; Pisita Cola Negra (Hispanic)[14]; Plumbeous Gnatcatcher; Schuk Mookam Gisop (Tohono O'odham)[90]. HABITS: Feeds on small insects and spiders. The nests are felted open cups made up of strips of bark, forbs, grasses, plant fibers and spider webbing and lined with finer and softer material, and located low to the ground in the forks of branches of shrubs. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *melanura* (Lawrence), color presentation), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (0042312 - color presentation)*

Thraupidae: The Tanager Family

***Piranga ludoviciana* (A. Wilson, 1811): Western Tanager**

COMMON NAMES: Louisiana Tanager; Piranga Cabeza Roja (Hispanic)[14]; Tangara à Tête Rouge (French)[42]; Tángara Capucha Roja (Spanish)[42]; Western Tanager. HABITS: Feeds on berries, small fruits (hawthorn apples, cherries, elderberries, mulberries, raspberries, serviceberries), insects and agave nectar. Nests are shallow flimsy saucers made up of shredded bark, grasses, pine needles, rootlets, weed stalks and twigs and located on the horizontal branches of trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Western Tanagers are major consumers of the Western Spruce Budworm (*Choristoneura occidentalis*) and may also eat the larvae of the Douglas-fir Tussock Moth (*Orgyia pseudotsugata*). The genus *Piranga* may have been moved from the Tanager Family [Thraupidae] to the Cardinal Family [Cardinalidae]. *14 (042312 - color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

Trochilidae: The Hummingbird Family

***Archilochus alexandri* (Bourcier and Mulsant, 1846): Black-chinned Hummingbird**

COMMON NAMES: Black-chinned Hummingbird; Chuparosa (Hispanic)[14]; Colibrí Barba Negra (Spanish)[42,90]; Wipismal (Tohono O'odham)[90]. HABITS: Feeds on small insects and nectar collected from flowers. Nests are tiny cups made up of lichens and plant wool that is woven together with spider webbing, and located in shrubs and trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *10, 14 (042312 - color presentation), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

C*alypte anna* (Lesson, 1829): Anna's Hummingbird

COMMON NAMES: Anna's Hummingbird; Chuparosa Anna (Hispanic)[14]; Colibrí Cabeza Roja (Spanish)[42,90]; Wipismal (Tohono O'odham)[90]. HABITS: Feeds on small insects and nectar collected from flowers. Nests are tiny woven cups made up of lichens, mosses and very small twigs bound together with spider silk, often being lined with down feathers and hair and located in vines, shrubs and trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, desertscrub and wetland ecological formations. *10, 14 (042312 - color presentation), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

***Calypte costae* (Bourcier, 1839): Costa's Hummingbird**

COMMON NAMES: Chuparosa Costa (Hispanic)[14]; Colibrí Cabeza Violeta (Spanish)[42]; Costa's Hummingbird. HABITS: Feeds on small insects and nectar collected from flowers. Nests are small woven cups made up of down, plant fibers and leaves and coated with lichen located on limbs of shrubs and trees. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *10, 14 (042312 - color presentation), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

***Selasphorus rufus* (Gmelin, 1788): Rufous Hummingbird**

COMMON NAMES: Rufous Hummingbird; Wipismal (Tohono O'odham)[90]; Zumbador Rufo (Spanish)[42,90]. HABITS: Feeds on small insects and nectar collected from flowers. Nests are lichen-covered cups located in shrubs and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *10, 14 (042312 - color presentation), 20, 42 (072112), **55** (reported from Tucson December 1950 to January 14, 1951), 69, 73, 84, 90, 93, 106 (042312 - color presentation)*

Troglodytidae: The Wren Family

***Campylorhynchus brunneicapillus* (Lafresnaye, 1835): Cactus Wren**

COMMON NAMES: Cactus Wren; Hokkad (Tohono O'odham)[90]; Matraca del Desierto (Hispanic)[90]; Saltapared del Disierto (Hispanic)[14]. HABITS: Feeds on small frogs, fruits, insects (ants, beets, grasshoppers, wasps), small reptiles, seeds and spiders. Nests are spheroid masses made up of grasses and straw and lined with feathers and hair and located in cacti, yuccas and thorny bushes. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *couesi* (Sharpe), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation), **WTK** (July 4, 2009)*

***Salpinctes obsoletus* (Say, 1823): Rock Wren**

COMMON NAMES: Chivirín Saltarroca (Spanish)[42]; Rock Wren; Saltapared Rocosa (Hispanic)[14]. HABITS: Feeds on insects and spiders. Nests are cups made up of bark, grasses, moss, rootlets and weeds lined with feathers, hairs and wool and located in rock crannies. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *obsoletus* (Say), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

Turdidiae: The Bluebird, Solitaire and Thrush Family

***Sialia currucoides* (Bechstein, 1798): Mountain Bluebird**

COMMON NAMES: Azulejo Pálido (Spanish)[42]; Merlebleu Azuré (French)[42]; Mountain Bluebird; Ventura de Montana (Hispanic)[14]. HABITS: Feeds on berries, fruits, grubs, insects, seeds, snails, spiders and worms. Nests are made up of grasses and lined with bark chips or feathers and located in holes in tree stubs, trees or in cliffs. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - color presentation), 20, 42 (072112), 55, 69, 73, 84, 90, 93, 106 (042312 - color presentation)*

Tyrannidae: The Tyrant Flycatcher Family

***Contopus sordidulus* P.L. Sclater, 1859: Western Wood Pewee**

COMMON NAMES: Pibí Occidental (Spanish)[42]; Western Wood Pewee; Western Wood-pewee. HABITS: Feeds on insects which may be taken by gleaning or hawking. Nests are tightly built grass or lichen-covered cups located on the horizontal branches of trees or in cavities in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *saturatus* (Bishop); subsp. *veliei* (Coues), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

***Contopus virens* (Linnaeus, 1766): Eastern Wood Pewee**

COMMON NAMES: Eastern Wood Pewee; Pibí Oriental (Spanish)[42]; Pioui de L'est (French)[42]. HABITS: Feeds on arachnids, berries, fruits and insects. Nests are cups made up of grasses and fine plant fibers and covered with lichens and attached to the horizontal branches of trees with mud. HABITAT: Within the range of this species it has been reported from forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (042312), 20, 42, **55** (reported from Tucson May 24, 1886), 69, 73, 106 (042312 - color presentation)*

***Empidonax flaviventris* (W.M. Baird & S.F. Baird, 1843): Yellow-bellied Flycatcher**

COMMON NAMES: Mosquerito Estomago Amarillo (Hispanic)[14]; Mosquero Vientre Amarillo (Spanish)[42]; Moucherolle à Ventre Jaune (French)[42], Yellow-bellied Flycatcher. HABITS: Feeds on berries, insects and seeds. Nests are deep cups made up of sphagnum moss and rootlets located on or near the ground. HABITAT: Within the range of this species it has been reported from forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (042312), 20, 42 (072112), **55** (reported from Tucson September 22, 1956), 69, 106 (042312 - color presentation)*

***Empidonax virescens* (Vieillot, 1818): Acadian Flycatcher**

COMMON NAMES: Acadian Flycatcher; Mosquero Verdoso (Spanish)[42], Moucherolle Vert (French)[42]. HABITS: Feeds on berries, insects and seeds. Nests are woven cups made of plant fibers located on horizontal forks of branches of shrubs

and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, desertscrub and wetland ecological formations. *14 (042312), 20, 42 (072112), **55** (reported from Tucson May 24, 1886), 69, 106 (042312 - color presentation)*

***Empidonax wrightii* S.F. Baird, 1858: Gray Flycatcher**

COMMON NAMES: American Gray Flycatcher; Gray Flycatcher; Grey Flycatcher; Mosquerito Gris (Hispanic)[14]; Mosquero Gris (Spanish)[42]. HABITS: Feeds on insects which may be taken by gleaning or hawking. Nests are woven cups which may be made up of strips of bark, grass stalks and other plant material and lined with softer materials such as soft grasses, feathers, hair and wool; the nests are located in sagebrush and on branches or in the limb-trunk crotches of junipers, pinyon pine and other small shrubs and trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - color presentation), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

***Myiarchus cinerascens* (Lawrence, 1851): Ash-throated Flycatcher**

COMMON NAMES: Ash-throated Flycatcher; Copeton Cinezo (Hispanic)[14]; Papamoscas Cenizo (Spanish)[42,90]; Tyran à Gorge Cendrée (French)[42]. HABITS: Feeds on insects which may be taken by gleaning or less often by hawking, it may also feed on fruits and small mammals and reptiles. Nests are made of various materials including snake skins and located in cavities, knotholes and woodpecker holes in posts, trees and yuccas. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *cinerascens* (Lawrence), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

***Myiarchus tyrannulus* (Statius Müller, 1776): Brown-crested Flycatcher**

COMMON NAMES: Arizona Crested Flycatcher; Brown-crested Flycatcher; Mexican Crested Flycatcher; Mexican Flycatcher; Mosquerito Cafe' (Hispanic)[14]; Papamoscas Tirano (Spanish)[42,90]; Weid's Crested Flycatcher. HABITS: Feeds on insects and fruit. Nests lined with feathers and hairs are located in cavities in posts and trees including the Saguaro Cactus. HABITAT: Within the range of this species it has been reported from the forest, woodland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *magister* (Ridgway), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 106 (042312 - color presentation)*

***Pyrocephalus rubinus* (Boddaert, 1783): Vermilion Flycatcher**

COMMON NAMES: Cardenalito (Hispanic)[14]; Darwin's Flycatcher (*P.r. nanus* Gould, 1839 - Valid); Galapagos Flycatcher (*P.r. nanus* Gould, 1839 - Valid); Mosquero Cardenal (Spanish)[42]; Vermilion Flycatcher. HABITS: Feeds on insects, flycatchers feed mostly on insects (beetles, flies, grasshoppers) that are usually taken by hawking. Nests are flat saucers made of feathers, fibers, rootlets, stems, twigs and spider webbing lined with animal or plant hair and lichen located on the horizontal crotches and forks of branches of conifers. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *flammeus* (Van Rossem); subsp. *mexicanus* (Sclater), color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

***Sayornis saya* (Bonaparte, 1825): Say's Phoebe**

COMMON NAMES: Moucherolle à Ventre Roux (French)[42]; Papamoscas Boyero (Hispanic)[14]; Papamoscas Llanero (Spanish)[42]; Say's Phoebe. HABITS: Feeds on berries and flying insects. Nests may be cup-shaped or brackets made up of grasses, moss, mud and wool and lined with hair and other fine materials; the nests may be located on ledges or rock walls. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *saya*; subsp. *yukonensis* (Bishop), color presentation), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

***Tyrannus verticalis* Say, 1823: Western Kingbird**

COMMON NAMES: Arkansas Kingbird; Madrugador Avispero (Hispanic)[14]; Tirano Pálido (Spanish)[42]; Tyran de l'Ouest (French)[42]; Western Kingbird. HABITS: Feeds on berries and insects which are taken by gleaning or hawking. Nests are bulky, neatly-lined saucers or cups made up of grasses, twigs and wool lined with matted hair and located in bushes and on horizontal branches of trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - color presentation), 20, 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

***Tyrannus vociferans* Swainson, 1826: Cassin's Kingbird**

COMMON NAMES: Cassin's Kingbird; Madrugador Chilero (Hispanic)[14]; Tirano Gritón (Spanish)[42]. HABITS: Feeds on berries, fruits and flying insectswhich are taken by hawking. Nests are bulky cups lined with grasses, hair, twigs and wool and located on horizontal branches of trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *vociferans* (Swainson), color presentation), 42 (061912), 55, 69, 73, **78**, 84, 90, 93, 106 (042312 - color presentation)*

Vireonidae: The Vireo Family

***Vireo bellii* Audubon, 1844: Bell's Vireo**

COMMON NAMES: Arizona Bell's Vireo; Arizona Vireo; Bell's Vireo; Least Bell's Vireo (*V.b. pusillus* - Valid); Vireo Aceitunado (Hispanic)[14]; Vireo de Bell (Spanish)[42]. HABITS: Feeds on insects, mollusks, snails and spiders. Nests are pensile well camouflaged cups made up of downy plant fibers, insect silk, grasses, spider webbing, sticks and wool suspended from branches of dense bushes, shrubs, vines (including the shrubs and vines of the Pacific [or Western] Poison Oak, *Toxicodendron diversilobum* (Torr. & A. Gray) Greene) and low trees. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the woodland, grassland and desertscrub ecological formations. *8, 14 (042312 - subsp. *arizonae*; subsp. *medius*, color presentation), 20, 42 (061912), 55, 69, 73, 84, 93, 106 (042312 - color presentation)*

***Vireo huttoni* Cassin, 1851: Hutton's Vireo**

COMMON NAMES: Hutton's Vireo; Stephen's Vireo; Vireo Hutton (Hispanic)[14]; Vireo Reyezuelo (Spanish)[42]. HABITS: Feeds on insects. Nests are suspended cups made up of down or moss and lined with feathers and moss located hanging from the branches of shrubs and trees or the fork of a tree. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *stephenii* (Brewster), color presentation), 42 (061912), 55, 69, 73, 78, 84, 90, 93, 106 (042312 - color presentation)*

***Vireo olivaceus* (Linnaeus, 1766): Red-eyed Vireo**

COMMON NAMES: Red-eyed Vireo; Viréo aux Yeux Rouges (French)[42]; Vireo Ojo Rojo (Spanish)[42]; Vireo Ojos Rojos (Hispanic)[14]. HABITS: Feeds on berries, fruits, insects and insect larvae, mollusks, plant material including buds, flowers, fruits and seeds, snails and spiders. Nests are woven basket-like cups made of cocoons silk, lichens, paper from wasp nests, plant fibers and spider webbing suspended from forks in bushes and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *olivaceous* (Linnaeus), color presentation), 20, 42 (072112), **55** (reported from Tucson on July 6, 1952), 69, 73, 84 (sighting considered to be far from the normal range of this species), 93, 106 (042312 - color presentation)*

***Vireo plumbeus* Coues 1866: Plumbeous Vireo**

COMMON NAMES: Plumbeous Vireo; "Solitary Vireo" (*Vireo plumbeus* was once considered a subspecies of *Vireo solitarius*); Vireo Plomizo (Spanish)[42]. HABITS: Feeds on insects. Nests are neat baskets made from strips of bark, down, long fibers and grasses and lined with soft material located hanging from the forks of twigs in bushes and trees and camouflaged with bark chips, catkins, leaves and lichen. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - color presentation), 42 (061912), 78, 90, 106 (042312 - color presentation)*

CLASS MAMMALIA: The MAMMALS

Antilocapridae: The Pronghorn Family

***Antilocapra americana* (Ord, 1815): Pronghorn**

COMMON NAMES: American Pronghorn (*A.a. americana* (Ord, 1815) - Valid); Antelope; Berrendo (Spanish)[42]; Chihuahuan Pronghorn (*A.a. mexicana* Merriam, 1901 - Valid); Chihuahuan Pronghorn Antelope (*A.a. mexicana* Merriam, 1901); Mexican Pronghorn (*A.a. mexicana* Merriam, 1901 - Valid); Peninsular Pronghorn (*A.a. peninsularis* Nelson, 1912 - Valid); Prong Buck; Prong-horn; Pronghorn; Pronghorn Antelope; Prong-horned Antelope; Sonoran Pronghorn (*A.a. sonoriensis* Goldman, 1945 - Valid); Sonoran Pronghorn Antelope (*A.a. sonoriensis* Goldman, 1945 - Valid). HABITS: Feeds on cacti, forbs, grasses and shrubs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: A pioneer of Tucson, Arizona, states that in the early days it was not uncommon to have bands of antelope circling the wagon on the trip between Tucson and Nogales.[65] *8, 14 (042312 - subsp. *americana* (Ord); subsp. *mexicana* Merriam, 1901; subsp. *sonoriensis* Goldman, 1945, color presentation of *Antilocapra americana americana*), 42 (061912), **55** (recorded as *Antilocapra americana* Ord. Prong-horned Antelope. Formerly widely distributed in grassland areas throughout the state; presently restricted to areas of favorable habitat.), 65 (*Antilocapra americana mexicana*), 73, 106 (042312 - includes a listing of subspecies, color presentation), 100 (color photograph), 110 (Sonoran Pronghorn (*Antilocapra americana sonoriensis*): Historic Range: Southwest Arizona, south of the Bill Williams River and east to the Santa Cruz River. In Mexico, the northern part of the State of Sonora.), 118 (recorded as *Antilocapra americana americana* (Ord) - Distribution: mapping and records for northeastern and northwestern Arizona; *Antilocapra americana mexicana* Merriam - Distribution: Southeastern Arizona, and *Antilocapra americana sonoriensis* Goldman - Distribution: Southwestern Arizona. Figure 111, Page 255), 148 (color presentation)*

***Antilocapra americana* subsp. *mexicana* Merriam, 1901: Chihuahuan Pronghorn**

COMMON NAMES: "Antelope"; Chihuahuan Pronghorn; Chihuahuan Pronghorn Antelope; Mexican Pronghorn; Prong-horn; Pronghorn, Pronghorn Antelope; Prong-horned Antelope. HABITS: The species feeds on cacti, forbs, grasses and shrubs. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXTIRPATED from southeastern Arizona, several reintroductions have taken place. A pioneer of Tucson, Arizona, states that in the early days it was not uncommon to have bands of antelope circling the wagon on the trip between Tucson and Nogales.[65] *8 (Historically throughout south-eastern and south-central Arizona.), 14 (042312 - subsp. *americana* (Ord); subsp. *mexicana* Merriam, 1901; subsp. *sonoriensis* Goldman, 1945, color presentation of *Antilocapra americana americana*. Historically occurred in grass-shrub valleys and grasslands of southeastern and south-central Arizona), 42 (061912), 55 (species: recorded as *Antilocapra americana* Ord. Prong-horned Antelope. Formerly widely distributed in grassland areas throughout the state; presently restricted to areas of favorable habitat.), **65** (A pioneer of Tucson, Arizona, states that in the early days it was not uncommon to have bands of antelope circling the wagon on the trip between Tucson and Nogales.), 73 (species), 100 (color photograph of species), 106 (042312), 118 (recorded as *Antilocapra americana mexicana* Merriam - Distribution: Southeastern Arizona. Figure 111, Page 255), 148 (color presentation)*

Bovidae: The Cow, Sheep and Allies Family

***Bison bison* (Linnaeus, 1758): American Bison**

SYNONYMY: *Bos bison* Linnaeus, 1758. COMMON NAMES: American Bison; American Buffalo; American Plains Bison (*B.b. bison* (Linnaeus, 1758) - Valid); American Wood Bison (*B.b. athabascae* Rhoads, 1898 - Valid; *B.b. bison* (Linnaeus, 1758) - Valid); Ancient Bison (*Bison bison antquus* - Invalid; *Bison antquus* Leidy, 1852- Valid); Bison (*B.b. bison* (Linnaeus, 1758) - Valid); Bisonte (Hispanic)[14]; Bisonte Americano (Spanish)[42]; Buffalo; Cibolas (term used to refer to the Buffalo and Buffalo-hunting Indians by early Mexican and Spanish explorers)[14]; Mountain Bison; Pezhekee' ('the Bison' Longfellow's Hiawatha; Pemi'can is the meat of the deer or buffalo dried and pounded); Plains Bison (*B.b. bison* (Linnaeus, 1758) - Valid); Prairie Bison; Tatanka (Lakota Sioux); Wood Bison (*B.b. athabascae* Rhoads, 1898 - Valid; *B.b. bison* (Linnaeus, 1758) - Valid); Woodland Bison; Zu-ke-ta kah-noo-nah (used by the Indians for the smaller southern Buffalo, Texas and the Pecos Valley)[14]; Zu-ta kah-noo-nah (used by the Indians for the larger northern Buffalo, ranged from the Arkansas River and northward)[14]. HABITS: Feeds on grasses and sedges and other herbaceous vegetation to about 5 feet in height. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Native to North America. Herds have been reduced from an estimated 30 to 200 million head in the mid-1800's to around 350,000 head at present (mostly animals being raised for human consumption) with possibly fewer than 4,000 head (brought up from fewer than 550 Plains Bison in the United States) being continuously "free-roaming" animals. The American Bison (*Bison bison*) is a direct descendant of the Ancient Bison (*Bison antquus* Leidy, 1852) which was once hunted by the Clovis peoples along the San Pedro River in southern 'Arizona'. *8 (according to BISON-M the Arizona Game and Fish Department, Heritage Data Management System, Bison bison has been listed under the Natural Heritage Arizona State Rank "SRFSE" ("SRF" = "State Reported Falsely"; "SE" = "State Exotic")), 14 (042312 - recorded as *Bos bison* (Linnaeus) color presentation), 42 (072112), 55 (no record of species), 63 (052809), 73, 100, 106 (032213 - includes a listing of subspecies and a separate record for *Bison antquus* Leidy, 1852, color presentation), 118 (included in the Hypothetical List of Mammals possibly occurring in Arizona, satisfactory record of which is lacking. *Bison bison* subsp. (unnamed). "Although Coues (1867) indicated that buffalo "formerly ranged over Arizona - now absent," there is no good evidence that they occurred in the state within historic times except as introductions (for example see Bailey, 1935:1).), 148 (color presentation), 153*

Bos bison (see *Bison bison*)

***Ovis canadensis* Shaw, 1804: Rocky Mountain Bighorn Sheep**

COMMON NAMES: American Bighorn; Audubon's Bighorn Sheep (*O.c. auduboni* Merriam, 1901 - Invalid?, extinct circa 1925); Badlands Bighorn (*O.c. auduboni* Merriam, 1901 - Invalid?); Berrego Cimarron (Hispanic)[14]; Berrego Cimarron del Desierto (Hispanic); Big Horn; Bighorn; Bighorn Sheep (*O.c. canadensis* Shaw, 1804 - Invalid?); Borrego Cimarrón (Spanish)[42]; California Bighorn Sheep (*O.c. californiana* Douglas, 1829 - Invalid?); Desert Bighorn (*O.c. mexicana* Merriam, 1901 - Invalid?; *O.c. nelsoni* Merriam, 1897 - Invalid?); Desert Bighorn Sheep (*O.c. mexicana* Merriam, 1901 - Invalid?; *O.c. nelsoni* Merriam, 1897 - Invalid?); Mexican Bighorn Sheep (*O.c. mexicana* Merriam, 1901 - Invalid?); Mountain Sheep; Nelson's Bighorn Sheep (*O.c. nelsoni* Merriam, 1897 - Invalid?); Peninsular Bighorn Sheep (*O.c. cremnobates* Elliot, 1904 - Invalid?); Rocky Mountain Bighorn (*O.c. canadensis* Shaw, 1804 - Invalid?); Rocky Mountain Bighorn Sheep (*O.c. canadensis* Shaw, 1804 - Invalid?); Sierra Nevada Bighorn (*O.c. sierrae* Grinnell, 1912 - Invalid?); Sierra Nevada Bighorn Sheep (*O.c. sierrae* Grinnell, 1912 - Invalid?); Texas Big Horn Sheep; Texas Bighorn Sheep; Weems' Bighorn Sheep (*O.c. weemsi* Goldman, 1937 - Invalid?). HABITS: Feeds on agave, brittle bush, bursage, bush muhly, cacti, catclaw, cholla, coffeeberry, desert fluffgrass, desert ironwood, desert thorn, fairy duster, filaree, galleta, grama, jojoba, mesquite, mallow, Nevada joint fir, plantain, prickly-pear, ratany, ricegrass, saguaro, saltbush, threeawn and turpentine broom. Young are dropped in small scraped out depressions located in protected places on inaccessible peaks. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *canadensis*, color presentation; subsp. *mexicana* (Merriam), color presentations; subsp. *nelsoni*), 42 (061912 - no subspecies listed), **55** (recorded as

Ovis canadensis Shaw. Bighorn. Probably formerly statewide in mountainous or rocky situations; presently restricted to scattered low desert mountains.), 65, 73, 100 (color photograph), 106 (042312 - listing of subspecies, color presentation), 118 (recorded as *Ovis canadensis mexicana* Merriam - Distribution: Probably formerly statewide in mountainous situations. Figure 112, Page 257), 148 (color presentation)*

Ovis canadensis subsp. *mexicana* Merriam, 1901 - Invalid?: Desert Bighorn Sheep

COMMON NAMES: Berrego Cimarron del Desierto (Hispanic)[14]; Big Horn; Bighorn; Bighorn Sheep; Desert Bighorn; Desert Bighorn Sheep; Mexican Bighorn Sheep; Mountain Sheep. HABITS: The species feeds on agave, brittle bush, bursage, bush muhly, cacti, catclaw, cholla, coffeeberry, desert fluffgrass, desert ironwood, desert thorn, fairy duster, filaree, galleta, grama, jojoba, mesquite, mallow, Nevada joint fir, plantain, prickly-pear, ratany, ricegrass, saguaro, saltbush, threeawn and turpentine broom; young are dropped in small scraped out depressions located in protected places on inaccessible peaks. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *canadensis*, color presentation; subsp. *mexicana* (Merriam), color presentations; subsp. *nelsoni*), 42 (061912 - no subspecies listed), 55 (species: recorded as *Ovis canadensis* Shaw. Bighorn. Probably formerly statewide in mountainous or rocky situations; presently restricted to scattered low desert mountains."), 65 (species), 73 (species), 100 (color photograph of species, species record), 106 (042312 - color presentation of species), **118** (recorded as *Ovis canadensis mexicana* Merriam - Distribution: Probably formerly statewide in mountainous situations. Figure 112, Page 257), 148 (color presentation)*

Canidae: The Dog and Allies Family

Canis familiaris (see *Canis lupus* subsp. *familiaris*)

Canis latrans Say, 1823: Coyote

COMMON NAME: American Jackal; Barking Coyote; Belize Coyote (*C.l. goldmani* Merriam, 1904 - Valid); California Valley Coyote (*C.l. ochropus* Eschscholtz, 1829 - Valid); Colima Coyote (*C.l. vigilis* Merriam, 1897 - Valid); Coyote (English, French, Hispanic, Spanish: derived from the Náhuatl word "cóyotl")[14,42,106]; Durango Coyote (*C.l. impavidus* J.A. Allen, 1903 - Valid); Honduras Coyote (*C.l. hondurensis* Goldman, 1936 - Valid); Lower Rio Grande Coyote (*C.l. microdon* Merriam, 1897 - Valid); Mearns Coyote (*C.l. mearnsi* Merriam, 1897 - Valid); Mexican Coyote (*C.l. cagotis* C.E.H. Smith, 1839 - Valid); Mountain Coyote (*C.l. lestes* Merriam, 1897 - Valid); Northeastern Coyote (*C.l. thamnos* Jackson, 1949 - Valid); Northern Coyote (*C.l. incolatus* Hall, 1934 - Valid); Northwest Coast Coyote (*C.l. umpquensis* Jackson, 1949 - Valid); Peninsula Coyote (*C.l. peninsulae* Merriam, 1897 - Valid); Plains Coyote (*C.l. latrans* Say, 1823 - Valid); Prairie Wolf; San Pedro Martir Coyote (*C.l. clepticus* Elliot, 1903 - Valid); Salvador Coyote (*C.l. dickeyi* Nelson, 1932 - Valid); Southeastern Coyote (*C.l. frustor* Woodhouse, 1851 - Valid); Texas Plains Coyote (*C.l. texensis* Bailey, 1905 - Valid); Tiburón Island Coyote (*C.l. jamesi* Townsend, 1912 - Valid). HABITS: Feeds on amphibians, berries, birds, carrion, fruits, gophers, insects, mice, rabbits, reptiles and squirrels. The young are born in dens that may be dug in the ground or located in caves. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *lestes* (Merriam); subsp. *mearnsi* (Merriam); subsp. *texensis* (V. Bailey), color presentation), 42 (061912), **55** (recorded as *Canis latrans* Say. Coyote. Statewide (120 - 9,100 feet).), 65 (color photograph), 73, **78**, 100 (color photograph), 106 (042412 - includes a listing of subspecies, color presentation), 118 (recorded as *Canis latrans mearnsi* Merriam - Distribution: Statewide. Figure 87, Page 217), 148 (color presentation), **WTK** (Male: 010213)*

Canis latrans subsp. *mearnsi* Merriam, 1897: Coyote

COMMON NAMES: Coyote; Mearns Coyote. HABITS: The species feeds on amphibians, berries, birds, carrion, fruits, gophers, insects, mice, rabbits, reptiles and squirrels. The young are born in dens that may be dug in the ground or located in caves. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *lestes* (Merriam); subsp. *mearnsi* (Merriam); subsp. *texensis* (V. Bailey), color presentation of species), 42 (061912), 55 (species: recorded as *Canis latrans* Say. Coyote. Statewide (120 - 9,100 feet).), 65 (color photograph of species, species record), 73 (species), 100 (color photograph of species, species record), 106 (042412 - species, color presentation of species), **118** (recorded as *Canis latrans mearnsi* Merriam - Distribution: Statewide. Figure 87, Page 217), 148 (color presentation)*

Canis lupus Linnaeus, 1758: Gray Wolf

COMMON NAMES: Buffalo Wolf (*C.l. nubilus* Say, 1823 - Valid); Common Wolf; Domestic Dog (*C.l. familiaris* Linnaeus, 1758 - Valid); Dusky Wolf (*C.l. nubilus* Say, 1823 - Valid); Gray Wolf; Grey Wolf; Intermountain Gray Wolf; Great Plains Wolf (*C.l. nubilus* Say, 1823 - Valid); Intermountain Gray Wolf; Lobo (Spanish)[65]; Lobo Gris (Hispanic)[14]; Lobo Gris (Spanish)[42]; Lobo Mexicano (Hispanic: applied to *C.l. baileyi* Nelson and Goldman, 1929 - Valid)[14]; Loup (French)[42]; Mexican Gray Wolf (*C.l. baileyi* Nelson and Goldman, 1929 - Valid); Mexican Grey Wolf (*C.l. baileyi* Nelson and Goldman, 1929 - Valid); Mexican Wolf (*C.l. baileyi* Nelson and Goldman, 1929 - Valid); Northern Plains Gray Wolf (*C.l. nubilus* Say, 1823 - Valid); Southern Rocky Mountain Wolf (*C.l. youngi* Goldman, 1937 - Valid); Southern Rocky Mountain Gray Wolf (*C.l. youngi* Goldman, 1937 - Valid); Timber Wolf; Wolf. HABITS: Feeds on berries, birds, fish, fruits, insects, deer, elk, javelina, livestock,

small mammals, bighorn sheep, pronghorn and rabbits. Maternity dens are chambers without nests usually located in the ground on high ground, under rock ledges, slopes of canyon walls or hills near water. HABITAT: Within the range of this species it has been reported from forest, woodland, grassland and wetland ecological formations. NOTES: The Mexican Gray Wolf is the smallest subspecies of gray wolf in North America. This wolf generally avoids desert areas. At one time the Mexican Gray Wolf was extirpated from Arizona; however, successful re-introduction efforts are bringing it back from near extinction. *8, 14 (042412 - subsp. *baileyi* Nelson and Goldman; subsp. *nubilus* Say; subsp. *youngi* Goldman, color presentation), 42 (061912), **55** (recorded as *Canis lupus* Frisch. Gray Wolf. Formerly throughout the eastern portions of the state, at present rare or approximately extinct.), 73, 100 (color photograph), 106 (042312 - includes a listing of subspecies, color presentation), 110 (recorded as *Canis lupus baileyi* - shows the historic range as being roughly that portion of Pima County east of the Tohono O'odham Nation), 118 (recorded as *Canis lupus baileyi* Nelson and Goldman - Distribution: Southeastern Arizona. Figure 88, Page 219), 148 (color presentation)*

Canis lupus subsp. *baileyi* Nelson and Goldman, 1929: Mexican Gray Wolf

COMMON NAMES: Lobo (Spanish)[65]; Lobo Mexicano (Hispanic)[14]; Mexican Gray Wolf; Mexican Grey Wolf; Mexican Wolf. HABITS: Feeds on berries, birds, fish, fruits, insects, deer, elk, javelina, livestock, small mammals, bighorn sheep, pronghorn and rabbits. Maternity dens are chambers without nests usually located in the ground on high ground, under rock ledges, slopes of canyon walls or hills near water. HABITAT: Within the range of this species it has been reported from forest, woodland, grassland and wetland ecological formations. NOTES: The Mexican Gray Wolf is the smallest subspecies of gray wolf in North America. This wolf generally avoids desert areas. At one time the Mexican Gray Wolf was extirpated from Arizona; however, successful re-introduction efforts are bringing it back from near extinction. *8, 14 (0042412 - subsp. *baileyi* Nelson and Goldman; subsp. *nubilus* Say; subsp. *youngi* Goldman, color presentation), 42 (061912), 55 (species: recorded as *Canis lupus* Frisch. Gray Wolf. Formerly throughout the eastern portions of the state, at present rare or approximately extinct.), 73 (species), 100 (species, color photograph of species), 106 (042312 - species, color presentation of species), 110 (recorded as *Canis lupus baileyi* - shows the historic range as being roughly that portion of Pima County east of the Tohono O'odham Nation), **118** (recorded as *Canis lupus baileyi* Nelson and Goldman - Distribution: Southeastern Arizona. Figure 88, Page 219), 148 (color presentation)*

Canis lupus subsp. *familiaris* Linnaeus, 1758: Dog

SYNONYMY: *Canis familiaris* Linnaeus, 1758. COMMON NAMES: Dog, Domestic Dog. HABITS: The species feeds on small mammals and domestic stock. Generally found around areas of human habitation, in dense vegetation and other natural shelter. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC (native to the Middle East and eastern Asia). Feral dogs and packs of feral dogs pose a serious threat to humans and wildlife. *14 (042412 - subsp. *baileyi* Nelson and Goldman; subsp. *nubilus* Say; subsp. *youngi* Goldman, color presentation of species), 42 (061912), 55 (species), 65 (species), **78**, 100, 106 (042312 - species, color presentation of species), 148 (color presentation), 148 (color presentation), **WTK** (August 2008)*

Urocyon cinereoargenteus (Schreber, 1775): Common Gray Fox

COMMON NAMES: Arizona Gray Fox (*U.c. scottii* Mearns, 1891 - Valid); Common Gray Fox; Gray Fox; Renard Gris (French)[42]; Scott's Gray Fox (*U.c. scottii* Mearns, 1891 - Valid); Southern Gray Fox (*U.c. scottii* Mearns, 1891 - Valid); Zorra Gris (Hispanic)[14]; Zorra Gris (Spanish)[42]. HABITS: The species feeds on birds, desert cottontails, hackberry and prickly-pear fruits, grasses, insects (crickets and grasshoppers), juniper berries, lizards, manzanita berries, nuts, small rodents and snakes. Nests are made of bark, grasses and leaves and located in underground burrows, small caves, piles of rock, amongst boulders, crevices in cliffs and in hollows in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Gray Fox climbs trees. *14 (042412 - subsp. *scottii* (Mearns), color presentation), 42 (061912), **55** (recorded as *Urocyon cinereoargenteus* (Schreber). Gray Fox. Statewide with the possible exception of the northeast portion (120 - 5,800 feet).), 65 (species, color photograph), 73, 100 (color photograph), 106 (042412 - includes a listing of subspecies, color presentation), 118 (recorded as *Urocyon cinereoargenteus scottii* Mearns - Distribution: Probably statewide. Figure 90, Page 222), 148 (color presentation)*

Urocyon cinereoargenteus subsp. *scottii* Mearns, 1891: Common Gray Fox

COMMON NAMES: Arizona Gray Fox; Common Gray Fox; Gray Fox; Scott's Gray Fox; Southern Gray Fox; Zorra Gris (Hispanic)[14]. HABITS: The species feeds on birds, desert cottontails, hackberry and prickly-pear fruits, grasses, insects (crickets and grasshoppers), juniper berries, lizards, manzanita berries, nuts, small rodents and snakes. Nests are made of bark, grasses and leaves and located in underground burrows, small caves, piles of rock, amongst boulders, crevices in cliffs and in hollows in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Gray Fox climbs trees. *14 (042412 - subsp. *scottii* (Mearns), color presentation of species), 42 (061912), 55 (species: recorded as *Urocyon cinereoargenteus* (Schreber). Gray Fox. Statewide with the possible exception of the northeast portion (120 - 5,800 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (042412 - species), **118** (recorded as *Urocyon cinereoargenteus scottii* Mearns - Distribution: Probably statewide. Figure 90, Page 222), 148 (color presentation)*

Vulpes macrotis Merriam, 1888: Kit Fox

COMMON NAMES: Kit Fox; Desert Kit Fox (*V.m. arispus* Elliot, 1904 - Invalid?); Large-eared Kit Fox (*V.m. macrotis* Merriam, 1888 - Invalid); San Joaquin Kit Fox (*V.m. mutica* Merriam, 1902 - Invalid); Southern California Kit Fox (*V.m. macrotis* Merriam, 1888 - Invalid: extinct circa 1903); Swift-footed Fox (*V.m. arispus* Elliot, 1904 - Invalid?); Zorra del Desierto (Hispanic)[14]. HABITS: Feeds on berries, birds, cottontail rabbits, crickets, grasses, grasshoppers, ground squirrels, jack rabbits, kangaroo rats, lizards and pocket mice. The young are born in dens in underground burrows that have been excavated in soft soils. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Vulpes velox* (Say, 1823): The Swift Fox is generally considered a separate species by most authors. *14 (042412 - subsp. *macrotis* (Merriam); subsp. *neomexicanus* (Merriam)), 42 (061912), **55** (recorded as *Vulpes macrotis* Merriam. Kit Fox. Widely distributed at lower elevations throughout the southern part of the state (120 - 5,000 feet).), 65, 73, **78**, 100 (color photograph), 106 (042412 - color presentation), 118 (recorded as *Vulpes macrotis arispus* Elliot - Distribution: Lower elevations in western and southern part of the state; *Vulpes macrotis neomexicana* Merriam - Distribution: Extreme southeastern Arizona. Figure 89, Page 220), 148 (color presentation)*

***Vulpes macrotis* subsp. *arispus* Elliot - Invalid?, 1904: Kit Fox**

COMMON NAMES: Desert Kit fox; Kit Fox; Swift-footed Fox; Zorra del Desierto (Hispanic)[14]. HABITS: The species feeds on berries, birds, cottontail rabbits, crickets, grasses, grasshoppers, ground squirrels, jack rabbits, kangaroo rats, lizards and pocket mice. The young are born in dens in underground burrows that have been excavated in soft soils. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Vulpes velox* (Say, 1823): The Swift Fox is generally considered a separate species by most authors. *14 (042412 - subsp. *macrotis* (Merriam); subsp. *neomexicanus* (Merriam)), 42 (061912), 55 (species: recorded as *Vulpes macrotis* Merriam. Kit Fox. Widely distributed at lower elevations throughout the southern part of the state (120 - 5,800 feet).) 65 (species), 73 (species), 100 (color photograph of species), 106 (042412 - species, color presentation of species), **118** (recorded as *Vulpes macrotis arispus* Elliot - Distribution: Lower elevations in western and southern part of the state. Figure 89, Page 220), 148 (color presentation)*

Vulpes velox (see NOTE under *Vulpes macrotis*, *Vulpes macrotis arispus* and/or *Vulpes macrotis macrostis*)

Castoridae: The Beaver Family

***Castor canadensis* Kuhl, 1820: American Beaver**

COMMON NAMES: Admiralty Beaver (*C.c. phaeus* Heller, 1909 - Invalid?); Ahmeek' ('the Beaver' Longfellow's *Hiawatha*); American Beaver; Bank Beaver; Beaver; Canadian Beaver (*C.c. canadensis* Kuhl, 1820 - Invalid?); Carolina Beaver (*C.c. carolinensis* Rhoads, 1898 - Invalid?); Castor (French)[42]; Castor (Hispanic)[14]; Castor Americano (Spanish)[42]; Castor Cat; Colorado Beaver (*C.c. concisor* Warren and Hall, 1939 - Invalid?); Cook Inlet Beaver (*C.c. belugae* Taylor, 1916 - Invalid?); Flat Tail; Missouri River Beaver (*C.c. missouriensis* Bailey, 1919 - Invalid?); New England Beaver (*C.c. acadicus* Bailey, 1942 - Invalid?); North American Beaver; Pacific Beaver (*C.c. leucodonta* Gray, 1869 - Invalid?); Rio Grande Beaver (*C.c. mexicanus* Bailey, 1913 - Invalid?); Sonora Beaver (*C.c. frondator* Mearns, 1897 - Invalid?); Texas Beaver (*C.c. texensis* Bailey, 1905 - Invalid?); Washington Beaver (*C.c. pacificus* Rhoads, 1898 - Invalid?); Woods Beaver (*C.c. michiganensis* Bailey, 1913 - Invalid?). HABITS: Feeds on bark, branches, buds, leaves or needles and twigs of alder, aspen, birch, cattail, cottonwood, maple, mesquite, tamarix and willow, and the roots of pond lilies and other tuberous plants; kits are born in lodges or dens dug into banks, nest materials include stalks and leave of tules, sedges, herbs and fine rootlets. HABITAT: Within the range of this species it has been reported that riparian habitats are required with beaver reported from creeks, streams, rivers, marshes, ciénegas, ponds and lakes in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Donald F. Hoffmeister noted in Mammals of Arizona that "Beaver in Arizona attempt to colonize some streams that are exceedingly small or have a very limited flow of water."[145] Beaver dams help reduce erosion, collect and retain organic matter and sediment and raise water tables (Las Cienegas National Conservation Area, Appendix 1, Chapter 3). Beaver dams may help to reduce flooding and provide habitat for other animals including otters and waterfowl. The full moon in November was called the 'Beaver Moon' by the earliest native peoples of northeastern North America because the beaver used the light to this moon to strengthen their dams and lodges in preparation for winter. The extent of the historical distribution of the American Beaver in Pima County is unknown; however, it has been reported that the Tohono O'odham people hunted and ate beaver. *14 (042412 - subsp. *concisor* (Warren and Hall); subsp. *frondator* Mearns; subsp. *missouriensis* V. Bailey; subsp. *mexicanus* V. Bailey), 42 (061912 - no subspecies listed), 49, **55** (recorded as *Castor canadensis* Kuhle. Beaver. formerly widespread in all of the permanent streams of the state; now restricted in distribution), 73, 100 (color photograph), 106 (042412 - includes a listing of subspecies, color presentation. "Early American exploration of the San Pedro River, like most rivers in western North America, was driven by the pursuit of beaver pelts. James Ohio Pattie and his father led a party of fur trappers down the Gila River and then down the San Pedro River in 1826 which was so successful that he called the San Pedro the Beaver River. [2] In the 19th century the river was a meandering stream with fluvial marshlands, riparian forest, Sporobolus grasslands and extensive beaver ponds. As the beaver were removed by fur trapping and cattle denuded the riparian vegetation, the river down-cut and then widened in a process of arroyo formation observed on many rivers in the Southwest.[9] The beaver were finally extirpated by 1920's dynamiting of the beaver dams from soldiers from Fort Huachuca to prevent malaria. By the mid-20th century the once perennial river only flowed during the rainy season and beaver, fluvial marshlands and Sporobolus grasslands were

uncommon.[9][10] Physician naturalist Edgar Alexander Mearns' 1907 Mammals of the Mexican boundary of the United States reported beaver (*Castor canadensis*) on the San Pedro River and Babocomari Creek.[11] Mearns claimed that the San Pedro River beaver represented a new subspecies *Castor canadensis frondator* or "Sonora beaver" that ranged from Mexico up to Wyoming and Montana.[12]," from Wikipedia: San Pedro River, Arizona), 118 (recorded as *Castor canadensis repentinus* Goldman - Distribution: Formerly in the Colorado River from the Grand Canyon southward to Mexico and *Castor canadensis frondator* Mearns - Distribution: Formerly San Pedro and Gila River drainages. Figure 60, Page 155), 143 (note on the Tohono O'odham hunting beaver and included beaver in their diet), 148 (color presentation), 153, **ADS** (on-line September 9, 2012, reprint of a Tucson Citizen article dated August 14, 1969. Tucson Tails: Unfamiliar Critter is Beaver - included the following statement "A historian reports the Santa Cruz "was all of 10 feet deep in the early days when Father Kino was establishing the San Xavier Mission. And during days of drought, deep holes in the river provided enough water to prevent the beavers' extinction.""), WTK (The headwaters of the Babocomari River, Cienega Creek and Sonoita Creek are located near Sonoita, Arizona. With the Beaver being plentiful in the San Pedro and Babocomari Rivers it would seem possible that they were also present in the Cienega Creek, which flows into the Pantano and Rillito Creeks, and the Sonoita Creek, which flows into the Santa Cruz River, which in turn flow into the Gila and Salt Rivers.), MIX FM (94.9 MIX fm, November 28, 2012, Bobby Rich Morning Mix: Beaver Moon)*

Cervidae: The Deer and Allies Family

Odocoileus hemionus (Rafinesque, 1817): Mule Deer

COMMON NAMES: Black-tailed Deer (*O.h. columbianus* (Richardson, 1829) - Invalid?); *O.h. hemionus* (Rafinesque, 1817) - Valid; Blacktail Deer (*O.h. columbianus* (Richardson, 1829) - Invalid?); Burro (*Odocoileus hemionus crooki* Mearns, 1897 - Invalid?); Burro Mule Deer (*O.h. eremicus* Mearns, 1897 - Invalid?); California Mule Deer (*O.h. californicus* Caton, 1876 - Invalid?); Cedros Island Mule Deer (*O.h. cedrosensis* Merriam, 1898 - Invalid?); Cerros Island Mule Deer *O.h. cerrosensis* Merriam, 1898 - Valid); Columbian Black-tailed Deer (*O.h. columbianus* (Richardson, 1829) - Invalid?); Crook Black-tailed Deer (*O.h. crooki* Mearns, 1897 - Invalid?); Desert Mule Deer (*O.h. crooki* Mearns, 1897 - Invalid?); *O.h. eremicus* Mearns, 1897 - Invalid?); Inyo Mule Deer (*O.h. inyoensis* Cowan, 1933 - Invalid?); Mule Deer; Peninsula Mule Deer (*O.h. peninsulae* Lydekker, 1898 - Invalid?); Rocky Mountain Mule Deer (*O.h. hemionus* (Rafinesque, 1817) - Valid); Sitka Deer (*O.h. sitkensis* Merriam, 1898 - Invalid?); Sitka Black-tailed Deer (*O.h. sitkensis* Merriam, 1898 - Invalid?); Southern Mule Deer (*O.h. fuliginatus* Cowan, 1937 - Invalid?); Tiburon Island Mule Deer (*O.h. sheldoni* Goldman, 1939 - Invalid?); Venado Bura (Spanish)[42]; Venado Pardo (Hispanic)[14]. HABITS: Feeds on acorns, beans, branches, fruits, leaves or needles, nuts, seeds and/or twigs of aspen, barberry, bitterbrush, blackberry, buckbrush, buckwheat, calliandra, ceanothus, catclaw, cedar, cliffrose, dogwood, Douglas fir, huckleberry, joint fir, jojoba, juniper, mountain mahogany, mountainlover, oak, pinyon, ponderosa pine, poplar, sagebrush, saltbush, serviceberry, thimbleberry, white fir, wild cherry, willow and yew, and grasses lupines, mistletoe, moss, mushrooms, salal, sedges and spurges. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *hemionus*; subsp. *crooki* (Mearns), color presentation), 42 (061912), **55** (recorded as *Odocoileus hemionus* (Rafinesque). Black-tailed or Mule Deer. Statewide, but not of uniform distribution (250 - 9,000 feet).), 65, 73, 100 (color photograph), 106 (042412 - includes a listing of subspecies, color presentation), 118 (recorded as *Odocoileus hemionus crooki* (Mearns) - Distribution: Northeastern, central and southeastern part of the state. Figure 109, Page 252), 148 (color presentation)*

Odocoileus hemionus subsp. *crooki* Mearns, 1897 - Invalid?: Mule Deer

COMMON NAMES: Burro; Crook Black-tailed Deer; Desert Mule Deer; Mule Deer; Venado Pardo (Hispanic)[14]. HABITS: The species feeds on acorns, beans, branches, fruits, leaves or needles, nuts, seeds and/or twigs of aspen, barberry, bitterbrush, blackberry, buckbrush, buckwheat, calliandra, ceanothus, catclaw, cedar, cliffrose, dogwood, Douglas fir, huckleberry, joint fir, jojoba, juniper, mountain mahogany, mountainlover, oak, pinyon, ponderosa pine, poplar, sagebrush, saltbush, serviceberry, thimbleberry, white fir, wild cherry, willow and yew, and grasses lupines, mistletoe, moss, mushrooms, salal, sedges and spurges. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *hemionus*; subsp. *crooki* (Mearns), color presentation of species), 42 (061912 - no record of this subspecies), 55 (species: recorded as *Odocoileus hemionus* (Rafinesque) Black-tailed or Mule Deer. Statewide, but not of uniform distribution (250 - 9,000 feet).), 65, 73 (species), 100 (species, color photograph of species), 106 (042412 - species, color presentation of species), **118** (recorded as *Odocoileus hemionus crooki* (Mearns) - Distribution: Northeastern, central and southeastern part of the state. Figure 109, Page 252), 148 (color presentation)*

Odocoileus virginianus (Zimmermann, 1780): White-tailed Deer

COMMON NAMES: Acapulco White-tailed Deer (*O.v. acapulcensis* Caton, 1877 - Invalid?); Andean White-tailed Deer (*O.v. peruvianus* Gray, 1874 - Invalid?); Arizona White-tailed Deer (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Arizona Whitetail (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Avery Island White-tailed Deer (*O.v. mcilhennyi* F.W. Miller, 1928 - Invalid?); Blackbeard Island White-tailed Deer (*O.v. nigribarbis* Goldman and Kellogg, 1940 - Invalid?); Bulls Island White-tailed Deer (*O.v. taurinsulae* Goldman and Kellogg, 1940 - Invalid?); Carmen Mountains Jorge Deer (*O.v. carminis* Goldman and Kellogg, 1940 - Invalid?); Central American White-tailed Deer (*O.v. truei* Merriam, 1898 - Invalid?); Cerf de Virginie (French)[42]; Chiapas White-tailed Deer (*O.v. nelsoni* Merriam, 1898 - Invalid?); Chiriqui White-tailed Deer (*O.v. chiriquensis* J.A. Allen, 1904 - Invalid?); Coiba Island White-tailed Deer (*O.v. rothschildi* Thomas, 1902 - Invalid?); Columbian

White-tailed Deer (*O.v. leucurus* (Douglas, 1929) - Valid); Coues White-tailed (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Coues White-tailed Deer (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Coues' Deer (*O.v. couesi* Coues and Yarrow - Invalid?); Coues' White-tailed Deer (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Dakota White-tailed Deer (*O.v. dacotensis* Goldman and Kellogg, 1940 - Invalid?); Desert Whitetail (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Fantail (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Fantail Deer (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Florida Coastal White-tailed Deer (*O.v. osceola* Bangs, 1896 - Invalid?); Florida Keys White-tailed Deer (*O.v. clavium* Barbour and Allen, 1922 - Valid); Florida White-tailed Deer (*O.v. seminolus* Goldman and Kellogg, 1940 - Invalid?); Hilton Head Island White-tailed Deer (*O.v. hiltonensis* Goldman and Kellogg, 1940 - Invalid?); Hunting Island White-tailed Deer (*O.v. venatorius* Goldman and Kellogg, 1940 - Invalid?); Kansas White-tailed Deer (*O.v. macrourus* Rafinesque, 1817 - Invalid?); Key Deer (*O.v. clavium* Barbour and G.M. Allen, 1922 - Valid); Maso (Yaqui); Lichtenstein's White-tailed Deer (*O.v. mexicanus* Gmelin, 1788 - Invalid?); Mexican Lowland White-tailed Deer (*O.v. thomasi* Merriam, 1898 - Invalid?); Mexican White-tailed Deer (*O.v. mexicanus* Gmelin, 1788 - Invalid?); Miquihuan White-tailed Deer (*O.v. miquihuanensis* Goldman and Kellogg, 1940 - Invalid?); Nelson's White-tailed Deer (*O.v. nelsoni* Merriam, 1898 - Invalid?); Nicaragua White-tailed Deer (*O.v. truei* Merriam, 1898 - Invalid?); Northern Plains White-tailed Deer (*O.v. dacotensis* Goldman and Kellogg, 1940 - Invalid?); Northern Rocky Mountains White-tailed Deer (*O.v. ochrourus* Bailey, 1932 - Invalid?); Northern Vera Cruz White-tailed Deer (*O.v. veraecrucis* Goldman and Kellogg, 1940 - Invalid?); Northern (Woodland) White-tailed Deer (*O.v. borealis* Miller, 1900 - Invalid?); Northern Woodland White-tailed Deer (*O.v. borealis* Miller, 1900 - Invalid?); Northwest White-tailed Deer (*O.v. ochrourus* Bailey, 1932 - Invalid?); Oaxaca White-tailed Deer (*O.v. oaxacensis* Goldman and Kellogg, 1940 - Invalid?); Osceola's White-tailed Deer (*O.v. osceola* Bangs, 1896 - Invalid?); Peruvian Venado Deer (*O.v. peruvianus* Gray, 1874 - Invalid?); Plains White-tailed Deer (*O.v. macrourus* Rafinesque, 1817 - Invalid?); Rafinesque's White-tailed Deer (*O.v. macrourus* Rafinesque, 1817 - Invalid?); Rain Forest White-tailed Deer (*O.v. toltecus* Saussure, 1860 - Invalid?); Rothschild's White-tailed Deer (*O.v. rothschildi* Thomas, 1902 - Invalid?); Sandhill White-tailed Deer (*O.v. texanus* Mearns, 1898 - Invalid?); Sinaloa White-tailed Deer (*O.v. sinaloae* J.A. Allen, 1903 - Invalid?); Sonora White-tailed Deer (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Sonoran Fantail (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); South American White-tailed Deer (*O.v. gymnotis* Wiegmann, 1833 - Invalid?); *O.v. peruvianus* Gray 1874 - Invalid?); Southern White-tailed Deer (*O.v. virginianus* (Zimmermann, 1870) - Valid); Tamaulipas White-tailed Deer (*O.v. miquihuanensis* Goldman and Kellogg, 1940 - Invalid?); Tawny Northwest White-tailed Deer (*O.v. ochrourus* Bailey, 1932 - Invalid?); Texas White-tailed Deer (*O.v. texanus* Mearns, 1898 - Invalid?); Thomas's White-tailed Deer (*O.v. thomasi* Merriam, 1898 - Invalid?); True's White-tailed Deer (*O.v. truei* Merriam, 1898 - Invalid?); Venado Cola Blanca (Hispanic)[14]; Venado Cola Blanca (Spanish)[42]; Virginia Deer; Virginia White-tailed Deer (*O.v. virginianus* (Zimmermann, 1870) - Valid); Western White-tailed Deer (*O.v. macrourus* Rafinesque, 1817 - Invalid?); White-tailed Deer (*O.v. virginianus* (Zimmermann, 1870) - Valid); Whitetail; Whitetail Deer; Yucatán White-tailed Deer (*O.v. toltecus* Saussure, 1860 - Invalid?; *O.v. yucatanensis* Hays, 1872 - Invalid?). HABITS: The species feeds on fungi, grass and acorns, branches, buds, cones, fruits, leaves, mast, needles and /or twigs of alder, barberry, buckbrush, calliandra, catclaw acacia, Emory and scrub oaks and other evergreen oaks, hackberry, hemlock, holly-leaf buckthorn, juniper, mesquite, mountainlover, Oregon-grape, pinyon, ratany, sagebrush, skunkbush, spiderwort, spruce, willow, yellow-leaf silktassel. Young are generally dropped along ridges and hillsides. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *couesi* (Coues and Yarrow); subsp. *texana* (Mearns), color presentation), 42 (061912), **55** (recorded as *Odocoileus virginianus* (Zimmermann). White-tailed Deer. Southeastern Arizona (1,200 - 9,000 feet).), 65, 73, 100 (color photograph), 106 (042412 - includes a listing of subspecies, color presentation), 118 (recorded as *Odocoileus virginianus couesi* (Coues & Yarrow) - Distribution: Southern Arizona. Figure 110, Page 254), 148 (color presentation)*

***Odocoileus virginianus* subsp. *couesi* Coues & Yarrow, 1875 - Invalid?: Coues' White-tailed Deer**

COMMON NAMES: Arizona Whitetail; Arizona White-tailed Deer; Coues' Deer; Coues White-tailed; Coues' White-tailed Deer; Desert Whitetail; Fantail; Fantail Deer; Maso (Yaqui); Sonora White-tailed Deer; Sonoran Fantail; Venado Cola Blanca (Hispanic)[14]; Virginia Deer; Whitetail; White-tailed Deer; Whitetail Deer. HABITS: The species feeds on fungi, grass and acorns, branches, buds, cones, fruits, leaves, mast, needles and /or twigs of alder, barberry, buckbrush, calliandra, catclaw acacia, Emory and scrub oaks and other evergreen oaks, hackberry, hemlock, holly-leaf buckthorn, juniper, mesquite, mountainlover, Oregon-grape, pinyon, ratany, sagebrush, skunkbush, spiderwort, spruce, willow, yellow-leaf silktassel. Young are generally dropped along ridges and hillsides. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *couesi* (Coues and Yarrow); subsp. *texana* (Mearns), color presentation of species), 42 (061912 - no record of this subspecies), 55 (species: recorded as *Odocoileus virginianus* (Zimmermann). White-tailed Deer. Southeastern Arizona (1,200 - 9,000 feet).), 65, 73 (species), 100 (color photograph of species), 106 (042412 - color presentation), **118** (recorded as *Odocoileus virginianus couesi* (Coues & Yarrow) - Distribution: Southern Arizona. Figure 110, Page 254), 148 (color presentation)*

Erethizontidae: The Porcupine Family

Erethizon dorsatum (see *Erethizon dorsatus*)

Erethizon dorsatum subsp. *couesi* (see *Erethizon dorsatus* subsp. *couesi*)

***Erethizon dorsatus* (Linnaeus, 1758): Common Porcupine**

SYNONYMY: *Erethizon dorsatum* (Linnaeus, 1758). COMMON NAMES: American Porcupine; Arizona Porcupine (*E.d. couesi* Mearns, 1897 - Valid); Canadian Porcupine; Canadian Tree Porcupine; Common Porcupine; Coues' Tree Porcupine (*E.d. couesi* Mearns, 1897 - Valid); Kagh (? "Give me of your quills, O Hedgehog! All your quills, O Kagh, the Hedgehog!" Longfellow's *Hiawatha*); North American Porcupine; Porc-épic d'Amérique (French)[42]; Porcupine; Puerco Espin (Hispanic)[14]; Puercoespín Norteamericano (Spanish)[42]; Rocky Mountain Porcupine (*E.d. epixanthus* Brandt, 1835 - Valid); Western Porcupine (*E.d. epixanthus* Brandt, 1835 - Valid); Yellow-haired Porcupine (*E.d. epixanthus* Brandt, 1835 - Valid). HABITS: Feeds on the bark of cedar, fir, hemlock, mesquite and pine trees and ocotillo and on acorns, apple trees, ash leaves, aspen trees, basswood, young beech trees and beachnuts, buckbrush (Ceanothus sp.), buds, clover, dwarf mistletoe, fungi, grass (juveniles), herbs (juveniles), leaves, lupine, oak leaves, pine needles, fruits of pricklypear cacti, skunk cabbage, sugar maples and twigs. Shelter is sought in caves, hollow logs, mine shafts, piles of rocks, rocky slopes and rock walls. The young are born in dens (no nest structure) located in the cavities of dying tree, tree stumps, caves, under rocks and man-made structures. Dens may be used for many years and generations. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042512 - subsp. *couesi* (Mearns); subsp. *epixanthum* (Brandt)), 42 (061912), **55** (recorded as *Erethizon dorsatum* Linnaeus. Porcupine. Probably statewide but more common in wooded areas (3,000 - 9,000 feet).), 65, 73, 100 (color photograph), 106 (042512 - recorded as *Erethizon dorsatum* (Linnaeus, 1758), includes a listing of subspecies, color presentation), 118 (recorded as *Erethizon dorsatum couesi* Mearns - Distribution: Statewide in mountains and riparian situations. Figure 86, Page 215), 148 (color presentation), 153*

***Erethizon dorsatus* subsp. *couesi* Mearns, 1897: Common Porcupine**

SYNONYMY: *Erethizon dorsatum* subsp. *couesi* (Mearns, 1897). COMMON NAMES: American Porcupine; Arizona Porcupine; Canadian Porcupine; Common Porcupine; Coues' Tree Porcupine; North American Porcupine; Porcupine; Puerco Espin (Hispanic)[14]. HABITS: Feeds on the bark of cedar, fir, hemlock, mesquite and pine trees and ocotillo and on acorns, apple trees, ash leaves, aspen trees, basswood, young beech trees and beachnuts, buckbrush (Ceanothus sp.), buds, clover, dwarf mistletoe, fungi, grass (juveniles), herbs (juveniles), leaves, lupine, oak leaves, pine needles, fruits of pricklypear cacti, skunk cabbage, sugar maples and twigs. Shelter is sought in caves, hollow logs, mine shafts, piles of rocks, rocky slopes and rock walls. The young are born in dens (no nest structure) located in the cavities of dying tree, tree stumps, caves, under rocks and man-made structures. Dens may be used for many years and generations. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042512 - subsp. *couesi* (Mearns); subsp. *epixanthum* (Brandt)), 42 (061912), 55 (species: recorded as *Erethizon dorsatum* Linnaeus. Porcupine. Probably statewide but more common in wooded areas (3,000 - 9,000 feet).), 65 (species), 73 (species), 100 (color photograph of species, species record), 106 (042512 - species including a listing of subspecies, color presentation of species), **118** (recorded as *Erethizon dorsatum couesi* Mearns - Distribution: Statewide in mountains and riparian situations. Figure 86, Page 215), 148 (color presentation of species)*

Felidae: The Cat Family

***Felis catus* Linnaeus, 1758: Domestic Cat**

COMMON NAMES: Cat, Domestic Cat; Feral Cat; House Cat; Housecat. HABITS: Feeds on birds and small mammals and reptiles. Kittens are born in burrows or protected areas. HABITAT: Found around areas of human habitation. NOTES: EXOTIC (native to southeastern Asia). Feral cats pose a serious threat to wildlife. *14 (042512 - no record of species), 42 (072112), **78**, 100, 106 (042512 - color presentation), 148 (no record of species), **WTK** (May 18, 2010)*

Felis concolor (see *Puma concolor*)

Felis concolor subsp. *azteca* (see *Puma concolor* subsp. *couguar*)

Felis concolor subsp. *browni* (see *Puma concolor* subsp. *couguar*)

Felis onca (see *Panthera onca*)

Felis onca subsp. *arizonensis* (see footnote 118 under *Panthera onca* subsp. *arizonensis*)

Felis pardalis (see *Leopardus pardalis*)

Felis pardalis subsp *sonoriensis* (see *Leopardus pardalis* subsp *sonoriensis*)

Felis rufus (see *Lynx rufus*)

Felis rufus subsp. *baileyi* (see footnote 118 under *Lynx rufus* subsp. *baileyi*)

Felis yaguarondi (see *Puma yagouaroundi*)

Felis yaguarondi subsp. *cacomitli* (see footnote 118 under *Puma yagouaroundi*)

Herpailurus yaguarondi (see *Puma yagouaroundi*)

***Leopardus pardalis* (Linnaeus, 1758): Ocelot**

SYNONYMY: *Felis pardalis* (Linnaeus, 1758). COMMON NAMES: Dwarf Leopard; Leopard-cat; McKenney's Wildcat; Ocelot; Ocelote (Spanish)[42]; Painted Leopard; Sonoran Ocelot (*L.p. sonoriensis* (Goldman, 1925) - Valid); Tiger-cat; Tigrillo (Mexico)[145]. HABITS: (Feeds on amphibians, lesser anteaters, armadillos, birds, fish, insects, land crabs, small to medium-sized mammals (including mice, rats and rabbits among others) and reptiles (including lizards, snakes and land tortoises). Kittens are born in a nest lined with grass or other materials located in rocky bluffs, caves, rocky dens, hollow logs or dense thickets. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED. *8, 14 (042512 - subsp. *sonoriensis* is the subspecies reported as occurring in Arizona), 42 (061912), **55** (recorded as *Felis pardalis* Linnaeus. Ocelot. Formerly southeastern Arizona as far north as Fort Verde; no recent records.), 100 (color photograph), 106 (042512 - includes a listing of subspecies), 118 (recorded as *Felis pardalis sonoriensis* Goldman - Distribution: Formerly southeastern Arizona as far north as Ft. Verde. Figure 104, Page 244), 148 (color presentation)*

***Leopardus pardalis* subsp *sonoriensis* (Goldman, 1925): Sonoran Ocelot**

SYNONYMY: *Felis pardalis* subsp. *sonoriensis* Goldman, 1925. COMMON NAMES: Dwarf Leopard; McKenney's Wildcat; Ocelot; Ocelote (Spanish); Painted Leopard; Sonoran Ocelot. HABITS: (Feeds on amphibians, lesser anteaters, armadillos, birds, fish, insects, land crabs, small to medium-sized mammals (including mice, rats and rabbits among others) and reptiles (including lizards, snakes and land tortoises). Kittens are born in a nest lined with grass or other materials located in rocky bluffs, caves, rocky dens, hollow logs or dense thickets. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED. *8 (species), 14 (042512 - subsp. *sonoriensis* is the subspecies reported as occurring in Arizona), 42 (061912), 55 (species: recorded as *Felis pardalis* Linnaeus. Ocelot. Formerly southeastern Arizona as far north as Fort Verde; no recent records.), 100 (species, color photograph of species), 106 (042512 - includes a listing of subspecies), **118** (recorded as *Felis pardalis sonoriensis* Goldman - Distribution: Formerly southeastern Arizona as far north as Ft. Verde. Figure 104, Page 244), 148 (color presentation of species)*

***Lynx rufus* (Schreber, 1777): Bobcat**

SYNONYMY: *Felis rufus* Schreber, 1777. COMMON NAMES: Bailey Bobcat (*L.r. baileyi* Merriam, 1890 - Valid); Bailey's Lynx (*L.r. baileyi* Merriam, 1890 - Valid); Bobcat (*L.r. rufus* (Schreber, 1777) - Valid); Desert Bobcat (*L.r. baileyi* Merriam, 1890 - Valid); Gato Montes (Hispanic)[14]; Lince Americano (Spanish)[42]; Lynx Roux (French)[42]; Mexican Bobcat (*L.r. escuinapae* J.A. Allen, 1903 - Valid); Plateau Bobcat (*L.r. baileyi* Merriam, 1890 - Valid); Red Lynx; Wildcat. HABITS: Feeds on almost any meat source available including ground nesting birds, carrion, domestic cats, cottontail rabbits, deer, foxes, insects, jackrabbits, lizards, small mammals, opossums, porcupines, raccoons, reptiles, rodents, bighorn sheep, skunks and woodchucks. Shelter may be taken in a rock cleft, thickets or on the branches of trees. Young are born in dens located in rocky caves, rock shelters, recesses and protected areas with nests made of leaves and other dry plant material. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042512 - subsp. *baileyi* (Merriam), color presentation), 42 (061912), **55** (recorded as *Lynx rufus* (Schreber). Bobcat. Statewide (120 - 9,300 feet).), 65, 73, 100 (color photograph), 106 (042512 - includes a listing of subspecies, color presentation), 118 (recorded as *Lynx rufus baileyi* Merriam - Distribution: Statewide. Figure 106, Page 247), 148 (color presentation)*

***Lynx rufus* subsp. *baileyi* Merriam, 1890: Desert Bobcat**

COMMON NAMES: Bailey Bobcat; Bailey's Lynx; Bobcat; Desert Bobcat; Gato Montes (Hispanic)[14]; Plateau Bobcat; Wildcat. HABITS: Feeds on almost any meat source available including ground nesting birds, carrion, domestic cats, cottontail rabbits, deer, foxes, jackrabbits, lizards, small mammals, opossums, porcupines, raccoons, reptiles, rodents, bighorn sheep, skunks and woodchucks. Shelter may be taken in a rock cleft, thickets or on the branches of trees. Young are born in dens located in rocky caves, rock shelters, recesses and protected areas with nests made of leaves and other dry plant material. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042512 - subsp. *baileyi* (Merriam), color presentation), 42 (061912), 55 (species: recorded as *Lynx rufus* (Schreber). Bobcat. Statewide (120 - 9,300 feet).), 65, 73 (species), 100 (species, color photograph of species), 106 (042512 - species, includes a listing of subspecies, color presentation), **118** (recorded as *Lynx rufus baileyi* Merriam - Distribution: Statewide. Figure 106, Page 247), 148 (color presentation)*

***Panthera onca* (Linnaeus, 1758): Jaguar**

SYNONYMY: *Felis onca* Linnaeus, 1758. COMMON NAMES: Amazonian Jaguar (*P.o. onca* (Linnaeus, 1758) - Valid); Arizona Jaguar (*P.o. arizonensis* (Goldman, 1932) - Valid); American Leopard; Black Panther; Blank Panther; Central American Jaguar (*P.o. centralis* (Mearns, 1901) - Valid); Goldman's Jaguar (*P.o. goldmani* (Mearns, 1901) - Valid); Hernandez's Jaguar (*P.o. hernandesii* (J.E. Gray, 1857) - Valid); Jaguar; Jaguar (Hispanic)[14]; Jaguar (Spanish)[42]; Jaguarete (Spanish)[8];

Mexican Jaguar (*P.o. hernandesii* (J.E. Gray, 1857) - Valid); Mexican Tiger; Panther; Paraguayan Jaguar (*P.o. paraguensis* (Hollister, 1914) - Valid); Parana Jaguar (*P.o. palustris* (Ameghino, 1888) - Valid); Peruvian Jaguar (*P.o. peruviana* (de Blainville, 1843) - Valid); Tigre[65,145]; Veracruz Jaguar (*P.o. veraecrucis* (Nelson and Goldman, 1933) - Valid); West Mexican Jaguar (*P.o. hernandesii* (J.E. Gray, 1857) - Valid); Yaguar[8]; Yukatan Jaguar (*P.o. goldmani* (Mearns, 1901) - Valid). HABITS: Feeds on armadillos, birds, caiman, capybaras, deer, fish, frogs, livestock, pacas, peccaries (javelina), mice, rabbits, tapirs, turtles and other vertebrates. Young are born in dens located in caves, rocky areas, dense brush and thickets. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED from Arizona. *8, 14 (042512 - subsp. *arizonensis* (Goldman)), 42 (061912), **55** (recorded as *Felis onca* Linnaeus. Jaguar. Probably formerly rare throughout the state. Today an occasional individual is found in the southern part of the state.), 65, 100 (color photograph), 106 (042512 - includes a listing of subspecies, color presentation), 118 (recorded as *Felis onca arizonensis* Goldman - Distribution: Probably formerly rare throughout the state. Today an occasional individual found in the southern part of the state. Figure 104, Page 244), 148 (color presentation)*

Panthera onca subsp. *arizonensis* (Goldman, 1932): Arizona Jaguar

COMMON NAMES: Arizona Jaguar; Jaguar; Jaguar (Hispanic)[14]; Jaguar (Spanish)[42]. HABITS: Feeds on armadillos, birds, caiman, capybaras, deer, fish, frogs, livestock, pacas, peccaries (javelina), mice, rabbits, tapirs, turtles and other vertebrates. Young are born in dens located in caves, rocky areas, dense brush and thickets. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED from Arizona. *8, 14 (042512 - subsp. *arizonensis* Goldman), 42 (061912), 55 (species, recorded as *Felis onca* Linnaeus. Jaguar. Probably formerly rare throughout the state. Today an occasional individual is found in the southern part of the state.), 65 (species), 100 (species, color photograph of species), 106 (042512 - species, includes a listing of subspecies, color presentation), **118** (recorded as *Felis onca arizonensis* Goldman - Distribution: Probably formerly rare throughout the state. Today an occasional individual found in the southern part of the state. Figure 104, Page 244), 148 (color presentation)*

Puma concolor (Linnaeus, 1771): Cougar

SYNONYMY: *Felis concolor* Linnaeus, 1771. COMMON NAMES: Adirondack Cougar (*P.c. couguar* (Kerr, 1792) - Valid); Amazon Cougar (*P.c. discolor* (Schreber, 1777) - Invalid?; *P.c. puma* Molina, 1782 - Valid); American Lion; Andes Puma (*P.c. araucanus* (Osgood, 1943) - Invalid?; *P.c. puma* Molina, 1782 - Valid?); Argentine Puma (*P.c. cabrerae* Pocock, 1940 - Valid); Anthony's Puma (*P.c. anthonyi* (Nelson and Goldman, 1931) - Valid); Baja California Cougar (*P.c. improcera* (Phillips, 1912) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Bolivian Cougar (*P.c. osgoodi* (Nelson and Goldman, 1943) - Invalid?; *P.c. concolor* (Linnaeus, 1771) - Valid?); Brazilian Cougar (*P.c. concolor* (Linnaeus, 1771) - Valid); Brown Tiger; California Cougar (*P.c. californica* (May, 1896) - Invalid? ; *P.c. couguar* (Kerr, 1792) - Valid?); California Lion; California Mountain Lion (*P.c. californica* (May, 1896) - Invalid?; *P.c. couguar* (Kerr, 1792) - Valid?); Cat-a-Mountain; Catamount; Catamount Cat (a mountain Red Tiger); Central American Puma (*P.c. costaricensis* (Merriam, 1901) - Valid); Chilean Puma (*P.c. puma* (Molina, 1782) - Valid); Columbian Cougar (*P.c. bangsi* (Merriam, 1901) - Invalid?; *P.c. concolor* (Linnaeus, 1771) - Valid?); Costa Rican Puma (*P.c. costaricensis* (Merriam, 1901) - Valid); Cougar; Deer Tiger; Eastern Cougar (*P.c. couguar* (Kerr, 1792) - Valid); Eastern Puma (*P.c. couguar* (Kerr, 1792) - Valid); Eastern South American Cougar (*P.c. capricornensis* (Merriam, 1901) - Invalid?; *P.c. anthonyi* (Nelson and Goldman, 1931) - Valid?); El Leon (Mexico); Ecuador Cougar (*P.c. soderstromii* (Lömberg, 1913) - Invalid?; *P.c. concolor* (Linnaeus, 1771) - Valid?); Florida Cougar (*P.c. coryi* (Bangs, 1899) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Florida Panther (*P.c. coryi* (Bangs, 1899) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Ghost Cat; Indian Devil; Green's Puma (*P.c. greeni* (Nelson and Goldman, 1931) - Invalid?; *P.c. concolor* (Linnaeus, 1771) - Valid?); Hudson's Puma (*P.c. hudsoni* (Cabrera, 1958) - Invalid?; *P.c. cabrerae* Pocock, 1940 - Valid?); Incan Cougar (*P.c. incanum* (Nelson and Goldman, 1929) - Invalid?; *P.c. concolor* (Linnaeus, 1771) - Valid?); Kaibab Cougar (*P.c. kaibabensis* (Nelson and Goldman, 1931) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); King Cat; Leon de Montana (Hispanic); Louisiana Cougar (*P.c. arundivaga* (Hollister, 1911) - Invalid?; *P.c. couguar* (Kerr, 1792) - Valid?); Mato Grosso Cougar (*P.c. acrocodia* (Goldman, 1943) - Invalid?; *P.c. anthonyi* (Nelson and Goldman, 1931) - Valid?); Mayan Cougar (*P.c. mayensis* (Nelson and Goldman, 1929) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Mexican Cougar (*P.c. azteca* (Merriam, 1901) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Mexican Lion; Missoula Cougar (*P.c. missoulensis* (Goldman, 1943) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Mountain Lion (*P.c. concolor* (Linnaeus, 1771) - Valid); Mountain Screamer; North American Cougar (*P.c. couguar* (Kerr, 1792) - Valid); Northern South American Cougar (*P.c. concolor* (Linnaeus, 1771) - Valid); Northwestern Cougar (*P.c. oregonensis* (Rafinesque, 1832) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Olympic Mountains Cougar (*P.c. olympus* (Merriam, 1897) - Invalid?; *P.c. couguar* (Kerr, 1792) - Valid?); Oregon Cougar (*P.c. oregonensis* (Rafinesque, 1832) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Painted Cat; Painter; Panther; Patagonia Cougar (*P.c. patagonica* (Merriam, 1901) - Invalid?; *P.c. puma* Molina, 1782 - Valid?); Pearson's Puma (*P.c. pearsoni* (Thomas, 1901) - Invalid?; *P.c. puma* Molina, 1782 - Valid?); Puma; Puma (*P.c. concolor* (Linnaeus, 1771) - Valid); Puma (Spanish)[42]; Red Tiger (Belize); Rocky Mountain Cougar (*P.c. hippolestes* (Merriam, 1897) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Silver Lion; Sneak Cat; Southern South American Cougar (*P.c. puma* Molina, 1782 - Valid); Texas Mountain Lion (*P.c. stanleyana* (Goldman, 1938) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Vancouver Island Cougar (*P.c. vancouverensis* (Nelson and Goldman, 1932) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Wisconsin Cougar (*P.c. schorgeri* (Jackson, 1955) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Yuma Cougar (*P.c. browni* (Merriam, 1903) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Yuma Mountain Lion (*P.c. browni* (Merriam, 1903) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Yuma Puma (*P.c. browni* (Merriam, 1903) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid). HABITS: Feeds on beavers, bighorn sheep, birds, black bears, bobcats,

cottontail rabbits, coyotes, deer (its major prey species in Arizona), elk, jackrabbits, javelina, livestock, porcupines, pronghorn, raccoons, skunks and small mammals. Kittens are born in dens located in protected areas such as shallow caves, crevices, downed logs, rock shelters and impenetrable thickets. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Running should be curtailed in areas where Mountain Lions are known to frequent, a person running may elicit an attack response from a nearby Mountain Lion. Mountain Lions are extremely agile and have great jumping power and have been reported as being able to leap to a height of 18 feet into a tree. *8 (*Puma concolor* (Linnaeus)), 14 (042512 - subsp. *azteca* (Merriam); subsp. *kaibabensis* (Nelson and Goldman); subsp. *stanleyana* (Goldman), color presentation. The Yuma Mountain Lion (*Felis concolor browni*) is included as a separate record.), 42 (062012), **55** (recorded as *Felis concolor* Linnaeus. Mountain Lion. Statewide (200 - 8,000 feet).), 65, 73, 100 (color photograph), 106 (062012 - includes a listing of subspecies, color presentation. Taken from the "Cougar" page: As with many predators, a cougar may attack if cornered, if a fleeing human stimulates their instinct to chase, or if a person "plays dead". Standing still however may cause the cougar to consider a person easy prey.[109] Exaggerating the threat to the animal through intense eye contact, loud but calm shouting, and any other action to appear larger and more menacing, may make the animal retreat. Fighting back with sticks and rocks, or even bare hands, is often effective in persuading an attacking cougar to disengage.[5] [73] ... Preceding attacks on humans, cougars display aberrant behavior, such as activity during daylight hours, a lack of fear of humans, and stalking humans.[110]), 118 (recorded as *Felis concolor azteca* Merriam - Distribution: Statewide except extreme western and northwestern parts; *Felis concolor browni* (Merriam) - Distribution: Southwestern part of the state, and *Felis concolor kaibabensis* Nelson and Goldman - Distribution: Northwestern Arizona, north and west of the Colorado River. Figure 105, Page 245), 145, 148 (color presentation)*

Puma concolor subsp. *azteca* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *browni* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *coryi* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *cougar* (see *Puma concolor* subsp. *couguar*)

***Puma concolor* subsp. *couguar* (Kerr, 1792): North American Cougar**

SYNONYMY: *Felis concolor* subsp. *azteca* Merriam, 1901; *Felis concolor* subsp. *browni* Merriam, 1903; *P.c.* subsp. *azteca* (Merriam, 1901); *P.c.* subsp. *browni* (Merriam, 1903); *P.c. coryi* (Bangs, 1899); *P.c. cougar* (Kerr, 1792); *P.c. hippolestes* (Merriam, 1897); *P.c. improcera* (Phillips, 1912); *P.c. kaibabensis* (Nelson and Goldman, 1931); *P.c. mayensis* (Nelson and Goldman, 1929); *P.c. missoulensis* (Goldman, 1943); *P.c. oregonensis* (Rafinesque, 1832); *P.c. schorgeri* (Jackson, 1955); *P.c. stanleyana* (Goldman, 1938); *P.c. vancouverensis* (Nelson and Goldman, 1932). COMMON NAMES: Adirondack Cougar; American Lion; Baja California Cougar; Brown Tiger; California Lion; Cat-a-Mountain; Catamount; Catamount Cat (a mountain Red Tiger); Cougar; Deer Tiger; Eastern Cougar; Eastern Puma; El Leon (Mexico); Florida Cougar; Florida Panther; Ghost Cat; Indian Devil; Kaibab Cougar; King Cat; Leon de Montana (Hispanic); Mayan Cougar; Mexican Cougar; Mexican Lion; Missoula Cougar; Mountain Lion; Mountain Screamer; North American Cougar; Northwestern Cougar; Oregon Cougar; Painted Cat; Painter; Panther; Puma; Rocky Mountain Cougar; Silver Lion; Sneak Cat; Texas Mountain Lion (*P.c. couguar* (Kerr, 1792)); Vancouver Island Cougar; Wisconsin Cougar; Yuma Cougar; Yuma Mountain Lion; Yuma Puma. HABITS: Feeds on beavers, bighorn sheep, birds, black bears, bobcats, cottontail rabbits, coyotes, deer (its major prey species in Arizona), elk, jackrabbits, javelina, livestock, porcupines, pronghorn, raccoons, skunks and small mammals. Kittens are born in dens located in protected areas such as shallow caves, crevices, downed logs, rock shelters and impenetrable thickets. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Running should be curtailed in areas where Mountain Lions are known to frequent, a person running may elicit an attack response from a nearby Mountain Lion. Mountain Lions are extremely agile and have great jumping power and have been reported as being able to leap to a height of 18 feet into a tree. *8 (*Puma concolor* (Linnaeus)), 14 (042512 - subsp. *azteca* (Merriam); subsp. *kaibabensis* (Nelson and Goldman); subsp. *stanleyana* (Goldman), color presentation. The Yuma Mountain Lion (*Felis concolor browni*) is included as a separate record.), 42 (062012), 55 (species: recorded as *Felis concolor* Linnaeus. Mountain Lion. Statewide (200 - 8,000 feet).), 65 (species), 73 (species), 85 (052906 - species), 100 (color photograph of species, species record), 106 (062012 - species, includes a listing of subspecies, color presentation of species. Taken from the "Cougar" page: As with many predators, a cougar may attack if cornered, if a fleeing human stimulates their instinct to chase, or if a person "plays dead". Standing still however may cause the cougar to consider a person easy prey.[109] Exaggerating the threat to the animal through intense eye contact, loud but calm shouting, and any other action to appear larger and more menacing, may make the animal retreat. Fighting back with sticks and rocks, or even bare hands, is often effective in persuading an attacking cougar to disengage.[5] [73] ... Preceding attacks on humans, cougars display aberrant behavior, such as activity during daylight hours, a lack of fear of humans, and stalking humans.[110]), **118** (recorded as *Felis concolor azteca* Merriam - Distribution: Statewide except extreme western and northwestern parts. Figure 105, Page 245 and *Felis concolor browni* (Merriam) - Distribution: Southwestern part of the state. Figure 105, Page 245), 145, 148 (color presentation)*

Puma concolor subsp. *hippolestes* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *improcera* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *kaibabensis* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *mayensis* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *missoulensis* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *oregonensis* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *schorgeri* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *stanleyana* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *vancouverensis* (see *Puma concolor* subsp. *couguar*)

***Puma yagouaroundi* (É. Geoffroy Saint-Hilaire, 1803): Jaguarundi**

SYNONYMY: *Felis yaguarondi* Lacépède, 1809; *Herpailurus yaguarondi* (Lacépède, 1809). COMMON NAMES: Eyra (a name given to the red phase)[106]; Gato Colorado (Spanish)[106]; Gato Moro (Spanish)[106]; Geoffroy's Jaguarundi (*P.y. yagouaroundi* (E. Geoffroy Saint-Hilaire, 1803) - Valid); Guatemalan Jaguarundi (*P.y. fossata* (Mearns, 1901) - Valid); Gulf Coast Jaguarundi (*P.y. cacomitli* (Berlandier, 1859) - Valid; Jaguarundi (a name given to the gray phase, Spanish)[106]; Jaguarundi Cat; Panamanian Jaguarundi (*P.y. panamensis* (J.A. Allen, 1904) - Valid); León Brenero (Spanish)[106]; Leoncillo ("Little Lion", Spanish)[106]; Onza (Spanish)[106]; Sinaloan Jaguarundi (*P.y. tolteca* (Thomas, 1898) - Valid); Tigrillo (Spanish)[106]. HABITS: Feeds on birds, fish, fruits, small to medium-size mammals, and reptiles. Dens are located in brush, thickets and under downed trees. HABITAT: Within the range of this species it has been reported from woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (*Herpailurus yaguarondi tolteca*), 14 (042512 - *Herpailurus yaguarondi* subsp. *tolteca* (AZ), 42 (062112), **55** (recorded as *Felis yaguarondi* Fischer. Jaguarundi. Rare in the southern part of the state; no recent records.), 100 (color photograph), 106 (042512 - includes a listing of subspecies, color presentation), **118** (recorded as *Felis yaguarondi cacomitli* Berlandier - Distribution: Rare in southern part of the state. Pages 246-247), 148 (recorded as *Herpailurus yaguarondi*, color presentation)*

Geomyidae: The Pocket Gopher Family

***Thomomys bottae* (Eydoux & Gervais, 1836): Botta's Pocket Gopher**

COMMON NAMES: Bailey's Pocket Gopher (*T.b. lachuguilla* Bailey, 1902 - Invalid?); Botta's Pocket Gopher; Cebolleta Pocket Gopher (*T.b. paguatae* - Invalid?); Cervine Pocket Gopher (*T.b. cervinus* J.A. Allen, 1895 - Invalid?); Desert Pocket Gopher (*T.b. desertorum* Merriam, 1901 - Invalid?); Espanola Pocket Gopher (*T.b. pervagus* Merriam, 1901 - Invalid?); Faw-colored Pocket Gopher (*T.b. cervinus* J.A. Allen, 1895 - Invalid?); Fulvous Pocket Gopher (*T.b. fulvus* Woodhouse, 1852 - Invalid?); Golden Pocket Gopher (*T.b. aureus* J.A. Allen, 1893 - Invalid?); Graham Mountains Pocket Gopher (*T.b. grahamensis* Goldman, 1931 - Invalid?); Guadalupe Pocket Gopher (*T.b. guadalupensis* Goldman, 1936 - Invalid?); Guadalupe Southern Pocket Gopher (*T.b. guadalupensis* Goldman, 1936 - Invalid?); Harquahala Pocket Gopher (*T.b. subsimilus* Goldman, 1933 - Invalid?); Harquahala Southern Pocket Gopher (*T.b. subsimilus* Goldman, 1933 - Invalid?); Hualapai Pocket Gopher (*T.b. hualpaiensis* Goldman, 1936 - Invalid?); Juarez Pocket Gopher (*T.b. toltecus* J.A. Allen, 1893 - Invalid?); Lachuguilla Pocket Gopher (*T.b. lachuguilla* Bailey, 1902 - Invalid?); Mearns' Pocket Gopher (*T.b. mearnsi* Baily, 1914 - Invalid?); Mearns' Southern Pocket Gopher (*T.b. mearnsi* Baily, 1914 - Invalid?); Phoenix Pocket Gopher (*T.b. cervinus* J.A. Allen, 1895 - Invalid?); Pinal Mountains Pocket Gopher (*T.b. pinalensis* Goldman, 1938 - Invalid?); Prospect Valley Pocket Gopher (*T.b. muralis* Goldman, 1936 - Invalid?); Reddish Brown Pocket Gopher (*T.b. fulvus* Woodhouse, 1852 - Invalid?); Roaming Pocket Gopher (*T.b. pervagus* Merriam, 1901 - Invalid?); Ruidosa Pocket Gopher (*T.b. ruidosae* Hall, 1932 - Invalid?); Santa Catalina Southern Pocket Gopher (*T.b. catalinae* Goldman, 1931 - Invalid?; Searchlight Pocket Gopher (*T.b. suboles* Goldman, 1928 - Invalid?); Southwestern Pocket Gopher; Toltec Pocket Gopher (*T.b. toltecus* J.A. Allen, 1893 - Invalid?); Tularosa Pocket Gopher (*T.b. tularosae* Hall, 1932 - Invalid?); Tuza de Botta (Hispanic)[14]; Tuza de Botta (Spanish)[42]; Valley Pocket Gopher; White Pocket gopher (*T.b. albatus* Grinnell, 1912 - Invalid?); Yellow Pocket Gopher (*T.b. aureus* J.A. Allen, 1893 - Invalid?). HABITS: Feeds on bulbs, grasses, herbaceous plants, roots and tubers. Young are born in nests in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *actuosus*; subsp. *albatus*; subsp. *alexandrae*; subsp. *alienus*; subsp. *aureus*; subsp. *catalinae*; subsp. *cervinus*; subsp. *collis*; subsp. *connectens*; subsp. *cultellus*; subsp. *desertorum*; subsp. *fulvus*; subsp. *grahamensis*; subsp. *guadalupensis*; subsp. *hualpaiensis*; subsp. *lachuguilla*; subsp. *mearnsi*; subsp. *modicus*; subsp. *morulus*; subsp. *muralis*; subsp. *opulentus*; subsp. *paguatae*; subsp. *pectoralis*; subsp. *peramplus*; subsp. *pervagus*; subsp. *pinalensis*; subsp. *planirostris*; subsp. *planorum*; subsp. *pusillus*; subsp. *rufidulus*; subsp. *ruidosae*; subsp. *suboles*; subsp. *subsimilus*; *toltecus*; subsp. *tularosae*), 42 (062112), **55** (recorded as *Thomomys bottae* (Eydoux and Gervais). Valley Pocket Gopher. Widely distributed throughout the state at all elevations.), 65, 73, 100 (color photograph), 106 (042612 - color presentation), 118

(Distribution: mapping and records show numerous varieties throughout Arizona, only those shown as occurring in Pima County are listed here. *Thomomys bottae catalinae* Goldman - Distribution: Known only from the higher elevations of the Santa Catalina Mountains, Pima County. *Thomomys bottae comobabiensis* Huey - Distribution: Slopes of Comobabi Mountains, Pima County. *Thomomys bottae growlerensis* Huey - Distribution: Known from southwestern Pima County. *Thomomys bottae hueyi* Goldman - Distribution: Known only from the higher elevations in the Rincon Mountains, Pima County. *Thomomys bottae modicus* Goldman - Distribution: Known from the Santa Cruz and Altar Valleys. *Thomomys bottae phasma* Goldman - Distribution: Known from southeastern Yuma County. *Thomomys bottae proximus* Burt & Campbell - Distribution: Oak Zone of the Santa Rita and Huachuca Mountains. *Thomomys bottae pusillus* Goldman - Distribution: Known only from the region of the type locality [Coyote Mountains, 3,000 feet, Pima County, Arizona]. Figure 46, Page 107), 148 (color presentation)*

***Thomomys bottae* subsp. *modicus* Goldman, 1931 - Invalid?: Botta's Pocket Gopher**

COMMON NAMES: Botta's Pocket Gopher; Southwestern Pocket Gopher; Tuza de Botta (Hispanic)[14]; Valley Pocket Gopher. HABITS: The species feeds on bulbs, grasses, herbaceous plants, roots and tubers. Young are born in nests in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *actuosus*; subsp. *albatus*; subsp. *alexandrae*; subsp. *alienus*; subsp. *aureus*; subsp. *catalinae*; subsp. *cervinus*; subsp. *collis*; subsp. *connectens*; subsp. *cultellus*; subsp. *desertorum*; subsp. *fulvus*; subsp. *grahamensis*; subsp. *guadalupensis*; subsp. *hualpaiensis*; subsp. *lachuguilla*; subsp. *mearnsi*; subsp. *modicus*; subsp. *morulus*; subsp. *muralis*; subsp. *opulentus*; subsp. *paguatae*; subsp. *pectoralis*; subsp. *peramplus*; subsp. *pervagus*; subsp. *pinalensis*; subsp. *planirostris*; subsp. *planorum*; subsp. *pusillus*; subsp. *rufidulus*; subsp. *ruidosae*; subsp. *suboles*; subsp. *subsimilus*; *toltecus*; subsp. *tularosae*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Thomomys bottae* (Eydoux and Gervais). Valley Pocket Gopher. Widely distributed throughout the state at all elevations.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (042612 - species, color presentation of species), **118** (recorded as *Thomomys bottae modicus* Goldman - Distribution: Known from the Santa Cruz and Altar Valleys. Figure 46, Page 107), 148 (color presentation of species)*

Heteromyidae: The Kangaroo Rat and Pocket Mouse Family

***Chaetodipus baileyi* (Merriam, 1894): Bailey's Pocket Mouse**

SYNONYMY: *Perognathus baileyi* Merriam, 1894. COMMON NAMES: Bailey Pocket Mouse; Bailey's Pocket Mouse; Raton de Bailey (Hispanic)[14]; Ratón-de Abazones Sonorense (Spanish)[42]. HABITS: The species feeds on vegetation, and fruits and seeds of cacti, grasses and other herbs. Nests are located underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, and desertscrub ecological formations. *14 (042612 - subsp. *baileyi* (Merriam)), 42 (062112), **55** (recorded as *Perognathus baileyi* Merriam. Bailey's Pocket Mouse. Widely distributed in the southern part of the state (900 - 4,700 feet).), 65 (genus), 73, 100 (color photograph), 106 (042612 - color presentation), 118 (recorded as *Chaetodipus baileyi baileyi* Merriam - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 133), 148 (color presentation)*

***Chaetodipus baileyi* subsp. *baileyi* (Merriam, 1894) - Invalid?: Bailey's Pocket Mouse**

SYNONYMY: *Perognathus baileyi* subsp. *baileyi* Merriam, 1894 - Invalid?. COMMON NAMES: Bailey Pocket Mouse; Bailey's Pocket Mouse; Bailey's Pocket Mouse; Raton de Bailey (Hispanic)[14]. HABITS: The species feeds on vegetation, and fruits and seeds of cacti, grasses and other herbs. Nests are located underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, and desertscrub ecological formations. *14 (042612 - subsp. *baileyi* (Merriam), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus baileyi* Merriam. Bailey's Pocket Mouse. Widely distributed in the southern part of the state (900 - 4,700 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (042612 - species, color presentation of species), **118** (recorded as *Chaetodipus baileyi baileyi* Merriam - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 133), 148 (color presentation of species)*

***Chaetodipus hispidus* (Baird, 1858): Hispid Pocket Mouse**

SYNONYMY: *Perognathus hispidus* Baird, 1858. COMMON NAME: Hispid Pocket Mouse; Ratón-de Abazones Crespo (Spanish)[42]. HABITS: Feeds on insects (grasshoppers), leaves and seeds. Nests are constructed of grasses and located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *hispidus*; subsp. *conditi*), 42 (062112), **55** (recorded as *Perognathus hispidus* Baird. Hispid Pocket Mouse. Locally common in grasslands of southeastern part of the state; an isolated population occurs near Camp Verde (3,200 - 5,000 feet).), 65 (genus), 73, 100, 106 (042612 - includes a listing of subspecies), 118 (recorded as *Perognathus hispidus conditi* Allen - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 132), 148 (color presentation)*

***Chaetodipus hispidus* subsp. *conditi* (J.A. Allen, 1894) - Invalid?: Hispid Pocket Mouse**

SYNONYMY: *Perognathus hispidus* subsp. *conditi* J.A. Allen, 1894 - Invalid?. COMMON NAME: Hispid Pocket Mouse. HABITS: The species feeds on insects (grasshoppers), leaves and seeds. Nests are constructed of grasses and located in

underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *hispidus*; subsp. *conditi*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus hispidus* Baird. Hispid Pocket Mouse. Locally common in grasslands of southeastern part of the state; an isolated population occurs near Camp Verde (3,200 - 5,000 feet).), 65 (genus), 73 (species), 100 (species), 106 (042612 - species, includes a listing of subspecies), **118** (recorded as *Perognathus hispidus conditi* Allen - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 132), 148 (color presentation of species)*

***Chaetodipus intermedius* (Merriam, 1889): Rock Pocket Mouse**

SYNONYMY: *Perognathus intermedius* Merriam, 1889. COMMON NAMES: Black Mountain Pocket Mouse (*C.i. nigrimontis* Blossom, 1933 - Invalid?); Gila Pocket Mouse (*C.i. phasma* Goldman, 1918 - Invalid?); Intermediate Pocket Mouse (*C.i. intermedius* Merriam, 1889 - Invalid?); Raton de Rocas de Bosla (Hispanic)[14]; Ratón-de Abazones de Roca (Spanish)[42;]; Rock Pocket Mouse. HABITS: Feeds on seeds. Burrows are dug in soil near to or under rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *atar* Dice; *beardi*; subsp. *crititus*; subsp. *intermedius*; subsp. *nigrimontis*; subsp. *phasma*; subsp. *rupestris* Benson; subsp. *umbrosus*), 42 (062112), **55** (recorded as *Perognathus intermedius* Merriam. Rock Pocket Mouse. Widely distributed in rocky areas in the Colorado River valley, western and southern Arizona (120 - 6,000 feet).”), 65 (genus), 73 (*Perognathus intermedius*), 100, 106 (042612), 118 (recorded as *Chaetodipus intermedius crinitis* Benson - Distribution: Known from south of the upper Colorado River. *Chaetodipus intermedius intermedius* Merriam - Distribution: Known from Mohave County southward and eastward, across most of the state to Cochise County. *Chaetodipus intermedius nigrimontis* Blossom - Distribution: Known only from the vicinity of the type locality (Black Mountain, 10 mi SW Tucson). *Chaetodipus intermedius phasma* Goldman - Distribution: Known from southern Yuma County and extreme southwestern Pima County. *Chaetodipus intermedius pinicate* Blossum - Distribution: Known from the Pinicate lava area in southern Yuma County. *Chaetodipus intermedius umbrosus* Benson - Distribution: Known from grassland area just south of the Mogollon Rim. Figure 54, Page 141), 148 (color presentation)*

***Chaetodipus intermedius* subsp. *intermedius* (Merriam, 1889) - Invalid?: Intermediate Pocket Mouse**

SYNONYMY: *Perognathus intermedius* subsp. *intermedius* Merriam, 1889 - Invalid?. COMMON NAMES: Intermediate Pocket mouse; Raton de Rocas de Bosla (Hispanic)[14;]; Rock Pocket Mouse. HABITS: The species feeds on seeds. Burrows are dug in soil near to or under rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *atar* Dice; *beardi*; subsp. *crititus*; subsp. *intermedius*; subsp. *nigrimontis*; subsp. *phasma*; subsp. *rupestris* Benson; subsp. *umbrosus*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus intermedius* Merriam. Rock Pocket Mouse. Widely distributed in rocky areas in the Colorado River valley, western and southern Arizona (120 - 6,000 feet).), 65 (genus), 73 (species, recorded as *Perognathus intermedius*), 100 (species), 106 (042612 - species), **118** (recorded as *Chaetodipus intermedius intermedius* Merriam - Distribution: Known from Mohave County southward and eastward, across most of the state to Cochise County. Figure 54, Page 141), 148 (color presentation of species)*

***Chaetodipus intermedius* subsp. *nigrimontis* (Blossom, 1933) - Invalid?: Black Mountain Rock Pocket Mouse**

SYNONYMY: *Perognathus intermedius* subsp. *nigrimontis* Blossom, 1933 - Invalid?. COMMON NAMES: Black Mountain Rock Pocket Mouse; Rock Pocket Mouse. HABITS: The species feeds on seeds. Burrows are dug in soil near to or under rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *atar* Dice; *beardi*; subsp. *crititus*; subsp. *intermedius*; subsp. *nigrimontis*; subsp. *phasma*; subsp. *rupestris* Benson; subsp. *umbrosus*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus intermedius* Merriam. Rock Pocket Mouse. Widely distributed in rocky areas in the Colorado River valley, western and southern Arizona (120 - 6,000 feet).), 65 (genus), 73 (species), 100 (species), 106 (042612 - species), **118** (recorded as *Chaetodipus intermedius nigrimontis* Blossom - Distribution: Known only from the vicinity of the type locality. (Black Mountain, 10 mi SW Tucson). Figure 54, Page 141), 148 (color presentation of species)*

***Chaetodipus penicillatus* (Woodhouse, 1852): Desert Pocket Mouse**

SYNONYMY: *Perognathus penicillatus* Woodhouse, 1852. COMMON NAMES: Desert Pocket Mouse; Price Pocket Mouse (*C.p. pricei* (J.A. Allen, 1894) - Invalid?); Raton del Desierto (Hispanic)[14]; Ratón-de abazones Desértico (Spanish)[42]; Sonoran Desert Pocket Mouse. HABITS: Feeds on insects, green vegetation and seeds (of broomweed, creosote bush, grasses, greythorn, herbs and mesquite). Nests are made in underground burrows. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (042712 - subsp. *pricei* (J.A. Allen)), 42 (062112), **55** (recorded as *Perognathus penicillatus* Woodhouse. Desert Pocket Mouse. Widely distributed in desert and low grasslands of southern and western Arizona (120 - 5,200 feet.).), 65 (genus), 73 (recorded as *Perognathus penicillatus*), **78**, 100 (color photograph), 106 (061412 - color presentation), 118 (recorded as *Perognathus penicillatus angustirostris* Osgood - Distribution: Known from southern Yuma County. *Perognathus penicillatus eremicus* Mearns - Distribution: Known from extreme southeastern Arizona. *Perognathus penicillatus penicillatus* Woodhouse - Distribution: Known from southern Mohave and northern Yuma Counties. *Perognathus penicillatus pricei* Allen - Distribution: Known from south-central Arizona and *Perognathus penicillatus sobrinus* Goldman - Distribution: Perhaps occurs in extreme northwestern Arizona. Figure 53, Page 137), 148 (color presentation)*

***Chaetodipus penicillatus* subsp. *pricei* (J.A. Allen, 1894) - Invalid?: Price Pocket Mouse**

SYNONYMY: *Perognathus penicillatus* subsp. *pricei* J.A. Allen, 1894 - Invalid?. COMMON NAMES: Desert Pocket Mouse; Price Pocket Mouse; Raton del Desierto (Hispanic)[14]; Sonoran Desert Pocket Mouse. HABITS: The species feeds on insects, green vegetation and seeds (of broomweed, creosote bush, grasses, greythorn, herbs and mesquite). Nests are made in underground burrows. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (042712 - subsp. *pricei* (J.A. Allen)), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus penicillatus* Woodhouse. Desert Pocket Mouse. Widely distributed in desert and low grasslands of southern and western Arizona (120 - 5,200 feet).), 65 (genus), 73 (species, recorded as *Perognathus penicillatus*), 100 (species, color photograph of species), 106 (061412 - species, color presentation of species), **118** (recorded as *Perognathus penicillatus pricei* Allen - Distribution: Known from south-central Arizona. Figure 53, Page 137), 148 (color presentation of species)*

***Dipodomys merriami* Mearns, 1890: Merriam's Kangaroo Rat**

COMMON NAMES: Merriam Kangaroo Rat; Merriam's Kangaroo Rat; Rata de Nopalera Merriam (Hispanic)[14]; Rata-canguro de Merriam (Spanish)[42]. HABITS: Feeds on ants, green plant material and seeds (of creosote bush, grama grass, mesquite, ocotillo and purselane). Nests are made in underground burrows often located under bushes. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042712 - subsp. *ambiguus* (Merriam); subsp. *olivaceus* (Swarth), color presentation), 42 (062112), **55** (recorded as *Dipodomys merriami* Mearns. Merriam's Kangaroo Rat. Widely distributed in western and southern parts of the state (120 - 5,000 feet).), 65 (color photograph), 73, **78**, 100 (color photograph), 106 (061412 - includes a listing of subspecies, color presentation), 118 (recorded as *Dipodomys merriami merriami* Mearns - Distribution: Occurs throughout most of the western and southern part of the state. *Dipodomys merriami regillus* Goldman - Distribution: Known from extreme southern Yuma County and *Dipodomys merriami vulcani* Benson - Distribution: Known from northern Arizona north of the Colorado River. Figure 56, Page 145), 148 (color presentation)*

***Dipodomys merriami* subsp. *merriami* Mearns, 1890: Merriam's Kangaroo Rat**

COMMON NAMES: Merriam Kangaroo Rat; Merriam's Kangaroo Rat; Rata de Nopalera Merriam (Hispanic)[14]; Rata-canguro de Merriam (Spanish)[42]. HABITS: The species feeds on ants, green plant material and seeds (of creosote bush, grama grass, mesquite, ocotillo and purselane). Nests are made in underground burrows often located under bushes. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042712 - subsp. *ambiguus* (Merriam); subsp. *olivaceus* (Swarth), color presentation of species), 42 (062112), 55 (species: recorded as *Dipodomys merriami* Mearns. Merriam's Kangaroo Rat. Widely distributed in western and southern parts of the state (120 - 5,000 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (061412 - includes a listing of subspecies, color presentation of species), **118** (recorded as *Dipodomys merriami merriami* Mearns - Distribution: Occurs throughout most of the western and southern part of the state. Figure 56, Page 145), 148 (color presentation)*

***Dipodomys ordii* Woodhouse, 1853: Ord's Kangaroo Rat**

COMMON NAMES: Five-toed Kangaroo Rat; Long-footed Kangaroo Rat (*D.o. longipes* Merriam, 1890 - Invalid?); Mountain Kangaroo Rat (*D.o. montanus* Baird, 1855 - Invalid?); Ord's Kangaroo Rat (*D.o. ordii* Woodhouse, 1853 - Invalid?); Painted Desert Kangaroo Rat (*D.o. longipes* Merriam, 1890 - Invalid?); Rata de Nopalera Ord (Hispanic)[14]; Rata-canguro Común (Spanish)[42]; Richardson's Kangaroo Rat (*D.o. richardsoni* J.A. Allen, 1891 - Invalid?). HABITS: Feeds on fruits, subterranean fungi, insects (grasshoppers and moths), leaves, mosses, needles and seeds. The nest is made in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *longipes* (Merriam); subsp. *medius* (Setzer); subsp. *montanus* (Baird); subsp. *ordii*; subsp. *richardsoni* (J.A. Allen)), 42 (062112), **55** (recorded as *Dipodomys ordii* Woodhouse. Ord's Kangaroo Rat. Widely distributed in grasslands in northern and eastern parts of the state (2,700-7,000 feet).), 85 (082608), 100 (color photograph), 106 (042812 - color presentation), 118 (recorded as *Dipodomys ordii ordii* Woodhouse - Distribution: Grasslands of southeastern Arizona. Figure 57, Page 149), 148 (color presentation)*

***Dipodomys ordii* subsp. *ordii* Woodhouse, 1853 - Invalid?: Ord's Kangaroo Rat**

COMMON NAMES: Five-toed Kangaroo Rat; Ord's Kangaroo Rat; Rata de Nopalera Ord (Hispanic)[14]. HABITS: The species feeds on fruits, subterranean fungi, insects (grasshoppers and moths), leaves, needles and seeds. The nest is made in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *longipes* (Merriam); subsp. *medius* (Setzer); subsp. *montanus* (Baird); subsp. *ordii*; subsp. *richardsoni* (J.A. Allen)), 42 (062112 - no subspecies listed), 55 (species: recorded as *Dipodomys ordii* Woodhouse. Ord's Kangaroo Rat. Widely distributed in grasslands in northern and eastern parts of the state (2,700-7,000 feet).), 73 (species), 100 (species, color photograph), 106 (042812 - species, color presentation of species), **118** (recorded as *Dipodomys ordii ordii* Woodhouse - Distribution: Grasslands of southeastern Arizona. Figure 57, Page 149), 148 (color presentation of species)*

***Dipodomys spectabilis* Merriam, 1890: Banner-tailed Kangaroo Rat**

COMMON NAMES: Bailey Kangaroo Rat (*D.s. baileyi* Goldman, 1923 - Invalid?); Banner-tailed Kangaroo Rat; Kangaroo Rat; Large Kangaroo Rat (*D.s. spectabilis* Merriam, 1890 - Invalid?); Notable Kangaroo Rat; Rata de Nopalera (Hispanic)[14]; Rata-canguro Cola de Bandera (Spanish)[42]. HABITS: Feeds on grasses, forbs, succulent plants, insects, rodents and seeds. Nests are made up of chaff, stems and leaves of grass located in underground burrows in firm soils. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *baileyi* (Goldman, 1923); subsp. *perblandus*; subsp. *spectabilis*), 42 (062112), **55** (recorded as *Dipodomys spectabilis* Merriam. Banner-tailed Kangaroo Rat. Locally common in grasslands of southeastern Arizona (1,300 - 5,000 feet).), 65 (color photograph), 85 (052906), 100 (color photograph), 106 (042812), 118 (recorded as *Dipodomys spectabilis perblandus* Goldman - Distribution: Known from the grasslands of southern Pinal and Pima County and *Dipodomys spectabilis spectabilis* Merriam - Distribution: Known from the grasslands of Cochise County. Figure 55, Page 143), 148 (color presentation)*

***Dipodomys spectabilis* subsp. *perblandus* Goldman, 1933 - Invalid?: Banner-tailed Kangaroo Rat**

COMMON NAMES: Banner-tailed Kangaroo Rat; Kangaroo Rat; Rata de Nopalera (Hispanic)[14]. HABITS: The species feeds on grasses, forbs, succulent plants, insects, rodents and seeds. Nests are made up of chaff, stems and leaves of grass located in underground burrows in firm soils. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *baileyi* (Goldman, 1923); subsp. *perblandus*; subsp. *spectabilis*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Dipodomys spectabilis* Merriam. Banner-tailed Kangaroo Rat. Locally common in grasslands of southeastern Arizona (1,300 - 5,000 feet).), 65 (species, color photograph), 100 (species, color photograph), 106 (042812 - species), **118** (recorded as *Dipodomys spectabilis perblandus* Goldman - Distribution: Known from the grasslands of southern Pinal and Pima County. Figure 55, Page 143), 148 (color presentation of species)*

***Perognathus amplus* Osgood, 1900: Arizona Pocket Mouse**

COMMON NAME: Arizona Pocket Mouse; Coconino Arizona Pocket Mouse (*P.a. ammodytes* Benson, 1933 - Invalid?); Loring Pocket Mouse; Ratón-de Abazones de Arizona (Spanish)[42]; Sonoran Pocket Mouse (*P.a. taylori* Goldman, 1932 - Invalid?); Wupatki Arizona Pocket Mouse (*P.a. cineris* Benson, 1933 - Invalid?); Yavapai Arizona Pocket Mouse (*P.a. amplus* Osgood, 1900 - Invalid?). HABITS: The species feeds on green plants, insects and seeds. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *ammodytes*; subsp. *amplus*; subsp. *cineris*), 42 (062112), **55** (recorded as *Perognathus amplus* Osgood. Arizona Pocket Mouse. Locally common in desert areas on south-central, western and north-central parts of the state (500 - 5,100 feet).), 65 (genus), 73, 100 (color photograph), 106 (042812), 118 (recorded as *Perognathus amplus ammodytes* Benson - Distribution: Known only from the upper part of the Colorado River; *Perognathus amplus amplus* - Distribution: Known only from the vicinity of Fort Verde, Yavapai County; *Perognathus amplus cineris* Benson - Distribution: Known only from the region of the Wupatki National Monument; *Perognathus amplus jacksoni* Goldman - Distribution: known from central Arizona; *Perognathus amplus pergracilis* Goldman - Distribution: Known from Mojave County south of the Colorado and extreme northern Yuma County [now La Paz County]; *Perognathus amplus rotundus* Goldman - Distribution: Southwestern Yuma County, and *Perognathus amplus taylori* Goldman - Distribution: Known from south central Arizona. Figure 50, Page 129), 148 (color presentation)*

***Perognathus amplus* subsp. *taylori* Goldman, 1932 - Invalid?: Arizona Pocket Mouse**

COMMON NAME: Arizona Pocket Mouse. HABITS: The species feeds on green plants, insects and seeds. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *ammodytes*; subsp. *amplus*; subsp. *cineris*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus amplus* Osgood. Arizona Pocket Mouse. Locally common in desert areas on south-central, western and north-central parts of the state (500 - 5,100 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (042812 - species), **118** (recorded as *Perognathus amplus taylori* Goldman. Distribution: Known from south central Arizona. Figure 50, Page 129), 148 (color presentation of species)*

Perognathus baileyi (see *Chaetodipus baileyi*)

Perognathus baileyi subsp. *baileyi* (see *Chaetodipus baileyi* subsp. *baileyi*)

***Perognathus flavus* Baird, 1855: Silky Pocket Mouse**

COMMON NAME: Baird's Pocket Mouse (*P.f. flavus* Baird, 1855 - Invalid?); Baird's Pocket Mouse; Goodpaster's Silky Pocket Mouse (*P.f. goodpasteri* Hoffmeister, 1956 - Invalid?); Hopi Silky Pocket Mouse (*P.f. hopiensis* Goldman, 1932 - Invalid?); Ratón-de Abazones Sedoso (Spanish)[42]; Silky Pocket Mouse; Springerville Pocket Mouse (*P.f. goodpasteri* Hoffmeister, 1956 - Invalid?). HABITS: Feeds on seeds, nuts and invertebrates (though very few are taken). Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (061412 - subsp. *flavus* (Baird); subsp. *gilvus* (Osgood); subsp. *goodpasteri* (Hoffmeister); subsp. *hopiensis* (Goldman)), 42 (062112), **55** (recorded as *Perognathus flavus* Baird. Silky Pocket Mouse. Locally common in grasslands throughout the state (2,900 - 6,500 feet).), 65 (genus), 73, 100 (color photograph), 106 (061412),

118 (recorded as *Perognathus flavus flavus* Baird - Distribution: Southeastern part of the state. Figure 48, Page 124), 148 (color presentation)*

***Perognathus flavus* subsp. *flavus* Baird, 1855 - Invalid?: Silky Pocket Mouse**

COMMON NAME: Silky Pocket Mouse. HABITS: The species feeds on seeds, nuts and invertebrates (though very few are taken). Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (061412 - subsp. *flavus* (Baird); subsp. *gilvus* (Osgood); subsp. *goodpasteri* (Hoffmeister); subsp. *hopiensis* (Goldman), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus flavus* Baird. Silky Pocket Mouse. Locally common in grasslands throughout the state (2,900 - 6,500 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (061412 - species), **118** (recorded as *Perognathus flavus flavus* Baird - Distribution: Southeastern part of the state. Figure 48, Page 124), 148 (color presentation of species)*

Perognathus hispidus (see *Chaetodipus hispidus*)

Perognathus hispidus subsp. *conditi* (see *Chaetodipus hispidus* subsp. *conditi*)

Perognathus intermedius (see *Chaetodipus intermedius*)

Perognathus intermedius subsp. *intermedius* (see *Chaetodipus intermedius* subsp. *intermedius*)

Perognathus intermedius subsp. *nigrimontis* (see *Chaetodipus intermedius* subsp. *nigrimontis*)

***Perognathus longimembris* (Coues, 1875): Little Pocket Mouse**

COMMON NAME: Arizona Little Pocket Mouse (*P.l. arizonensis* Goldman, 1931 - Invalid?); Little Pocket Mouse; Pima Little Pocket Mouse (*P.l. pimensis* Huey, 1937 - Invalid?); Ratón-de Abazones Menor (Spanish)[42]; Virgin Valley Pocket Mouse (*P.l. virginis* Huey, 1939 - Invalid?); Yuma Pocket Mouse (*P.l. bombycinus* Osgood, 1907 - Invalid?). HABITS: Feeds on greens and seeds. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (042812), 42 (062112), **55** (recorded as *Perognathus longimembris* (Coues). Little Pocket Mouse. Known from scattered localities in the western part of the state (500 - 4,500 feet).), 65 (genus), 73, 100 (color photograph), 106 (042812 - color presentation), 118 (recorded as *Perognathus longimembris arizonensis* Goldman - Distribution: Known from north-central Arizona north of the Colorado River; *Perognathus longimembris bombycinus* Osgood - Distribution: Known only in western Yuma County; *Perognathus longimembris pimensis* Huey - Distribution: Southcentral part of the state, and *Perognathus longimembris virginis* Huey - Distribution: Known only from northwestern Mohave County. Figure 49, Page 127), 148 (color presentation)*

***Perognathus longimembris* subsp. *pimensis* Huey, 1937 - Invalid?: Pima Little Pocket Mouse**

COMMON NAME: Little Pocket Mouse; Pima Little Pocket Mouse. HABITS: Feeds on greens and seeds. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - species), 42 (062112 - no record of this subspecies), 55 (recorded as *Perognathus longimembris* (Coues). Little Pocket Mouse. Known from scattered localities in the western part of the state (500 - 4,500 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (042812 - species), **118** (recorded as *Perognathus longimembris pimensis* Huey - Distribution: Southcentral part of the state. Figure 49, Page 127), 148 (color presentation of species)*

Perognathus penicillatus (see *Chaetodipus penicillatus*)

Perognathus penicillatus subsp. *pricei* (see *Chaetodipus penicillatus* subsp. *pricei*)

Leporidae: The Hare and Rabbit Family

***Lepus alleni* Mearns, 1890: Antelope Jackrabbit**

COMMON NAME: Allen's Jack Rabbit (*L.a. alleni* Mearns, 1890); Allen's Jackrabbit (*L.a. alleni* Mearns, 1890); Antelope Jack Rabbit; Antelope Jackrabbit; Liebre Antilope (Spanish)[42]. HABITS: Feeds on cacti, Catclaw Acacia, grasses, herbs and the bark, buds and leaves of mesquite. Young are born in a nest that is usually located above ground. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912), 42 (062112), **55** (recorded as *Lepus alleni* (Mearns). Antelope Jack Rabbit. Occurs in the central third of the southern half of the state.), 65, 73, 100 (color photograph), 106 (042912 - includes a listing of subspecies, color presentation), 118 (recorded as *Lepus alleni* subsp. *alleni* Mearns - Distribution: Occurs in the central third of the southern half of the state. Figure 31, Page 68), 148 (color presentation)*

***Lepus alleni* subsp. *alleni* Mearns, 1890: Allen's Jackrabbit**

COMMON NAME: Allen's Jack Rabbit; Allen's Jackrabbit; Antelope Jack Rabbit; Antelope Jackrabbit;. HABITS: The species feeds on cacti, Catclaw Acacia, grasses, herbs and the bark, buds and leaves of mesquite. Young are born in a nest that is usually located above ground. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912 - species), 42 (062112), 55 (species: recorded as *Lepus alleni* (Mearns). Antelope Jack Rabbit. Occurs in the central third of the southern half of the state.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (042912 - species, including a listing of subspecies, color presentation of species), **118** (recorded as *Lepus alleni* subsp. *alleni* Mearns - Distribution: Occurs in the central third of the southern half of the state. Figure 31, Page 68), 148 (color presentation)*

Lepus californicus Gray, 1837: Black-tailed Jackrabbit

COMMON NAMES: American Desert Hare; Arizona Jackrabbit (*L.c. eremicus* J.A. Allen, 1894 - Invalid?); Black-tailed Jack Rabbit; Black-tailed Jackrabbit; Blackeared Jackrabbit (*L.c. melanotis* Mearns, 1890 - Valid); Colorado Desert Jackrabbit (*L.c. deserticola* Mearns, 1896 - Valid); Desert Jackrabbit (*L.c. deserticola* Mearns, 1896 - Valid; *L.c. eremicus* J.A. Allen, 1894 - Invalid?); Great Plains Jackrabbit (*L.c. melanotis* Mearns, 1890 - Valid); "Jackass Rabbit"; Liebre Cola Negra (Hispanic)[14]; Liebre Cola Negra (Spanish)[42]; Texas Jackrabbit (*L.c. texianus* Waterhouse, 1848 - Valid); Western Desert Jackrabbit (*L.c. deserticola* Mearns, 1896 - Valid). HABITS: Feeds on grasses, mesquite leaves and prickly-pear cacti. Young are born in nests located either above or below ground in forms that have been lined with breast hair, after birth the young are moved to separate nests and cared for individually by the female. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912 - subsp. *melanotis* (Mearns); subsp. *texianus* (Waterhouse), color presentation), 42 (062112), **55** (recorded as *Lepus californicus* Gray. Black-tailed Jack Rabbit. Statewide.), 65, 73, **78**, 100 (color photograph), 106 (042912 - includes a listing of subspecies, color presentation), 118 (recorded as *Lepus californicus deserticola* Mearns - Distribution: Occurs in the western half of the state; *Lepus californicus eremicus* J.A. Allen - Distribution: Southeastern Arizona, and *Lepus californicus texianus* Waterhouse - Distribution: Occurs in the northeastern quarter of the state. Figure 32, Page 69), 148 (color presentation)*

Lepus californicus subsp. *eremicus* J.A. Allen, 1894 - Invalid: Desert Jackrabbit

COMMON NAMES: Arizona Jackrabbit; Black-tailed Jack Rabbit; Desert Jackrabbit; "Jackass Rabbit". HABITS: The species feeds on grass, mesquite leaves and prickly-pear cacti. Young are born in nests located either above or below ground in forms that have been lined with breast hair, after birth the young are moved to separate nests and cared for individually by the female. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912 - subsp. *melanotis* (Mearns); subsp. *texianus* (Waterhouse), color presentation), 42 (062112 - no record of this subspecies), 55 (species: recorded as *Lepus californicus* Gray. Black-tailed Jack Rabbit. Statewide.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Lepus californicus eremicus* J.A. Allen - Distribution: Southeastern Arizona. Figure 32, Page 69), 148 (color presentation)*

Sylvilagus audubonii (Baird, 1858): Desert Cottontail

COMMON NAME: Arizona Cottontail (*S.a. arizonae* (Mearns, 1896) - Valid); Audubon's Cottontail; Cedar Belt Cottontail (*S.a. cedrophilus* (Nelson, 1907) - Invalid?); Colorado Cottontail (*S.a. warreni* Nelson, 1907 - Valid); Conejo del Desierto (Hispanic)[14]; Desert Cottontail; Desert Cottontail Rabbit; Lesser Deseert Cottontail (*S.a. minor* (Mearns, 1896) - Valid); Little Cottontail (*S.a. minor* (Mearns, 1896) - Valid); New Mexico Cottontail (*S.a. neomexicana* (Nelson, 1907) - Invalid?); Sacramento Valley Cottontail (*S.a. audubonii* (Baird, 1858) - Valid). HABITS: Feeds on green plants, cacti, bark and twigs. Young are born into nests lined with forbs, grasses and the female's fur which are located on the ground and in brush piles, piles of rocks, and burrows abandoned by other animals. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912 - subsp. *cedrophilus* (Nelson); subsp. *minor* (Mearns); subsp. *neomexicana* (Nelson), color presentation), 42 (062112), **55** (recorded as *Sylvilagus audubonii* (Baird). Desert Cottontail. Common at elevations below 6,000 feet throughout the state.), 65, 73, 100 (color photograph), 106 (042912 - color presentation), 118 (recorded as *Sylvilagus audubonii arizonae* (J.A. Allen) - Distribution: Widely distributed at elevations up to 6,000 feet in the western half of the state; *Sylvilagus audubonii minor* (Mearns) - Distribution: Known only from the southeastern part of the state, and *Sylvilagus audubonii warreni* Nelson - Distribution: Known only from the northeastern part of the state. Figure 34, Page 74), 148 (color presentation)*

Sylvilagus audubonii subsp. *arizonae* (Mearns, 1896): Arizona Cottontail

COMMON NAME: Arizona Cottontail. HABITS: The species feeds on green plants, cacti, bark and twigs. Young are born into nests lined with forbs, grasses and the female's fur which are located on the ground and in brush piles, piles of rocks, and burrows abandoned by other animals. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912 - subsp. *cedrophilus* (Nelson); subsp. *minor* (Mearns); subsp. *neomexicana* (Nelson), color presentation), 42 (062112), 55 (species: recorded as *Sylvilagus audubonii* (Baird). Desert Cottontail. Common at elevations below 6,000 feet throughout the state.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (042912 - species, color presentation of species), **118** (recorded as *Sylvilagus audubonii arizonae* (J.A. Allen) - Distribution: Widely distributed at elevations up to 6,000 feet in the western half of the state. Figure 34, Page 74), 148 (color presentation)*

***Conepatus leuconotus* (Lichtenstein, 1832): Common Hog-nosed Skunk**

COMMON NAMES: American Hog-nosed Skunk; Big Thicket Hog-nosed Skunk (*C.l. telmalestes* Bailey, 1905 - Valid: extinct); Common Hog-nosed Skunk; Eastern Hog-nosed Skunk; Hog-nosed Skunk; Hognose Skunk; Mexican Hog-nosed Skunk (*C.l. leuconotus* (Lichtenstein, 1832) - Valid); Rooter Skunk; White-spotted Skunk; Zorrillo Nariz de Puerco (Hispanic)[14]; Zorrillo-narigón Norteño (Spanish: applied to *C.l. leuconotus* (Lichtenstein, 1832) - Valid)[42]; Zorrillo-narigón Occidental (Spanish)[42]. HABITS: Feeds on arachnids, birds, insects, small mammals, mollusks, plant material, reptiles and worms. These skunks take refuge in caves, crevices in rocks and in the ground. Rocky areas are used for denning with the young born beneath rocks, grasses are used for nesting. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (043012 - subsp. *mearnsi* (Merriam); subsp. *venaticus* (Goldman)), 42 (062112), **55** (recorded as *Conepatus mesoleucus* Lichtenstein. Hog-nosed Skunk. Southeastern part of the state (2,000 - 6,000 feet).), 65, 73 (*Conepatus mesoleucus*), 100 (*Conepatus mesoleucus*, color photograph), 106 (043012 - includes a listing of subspecies, color presentation), 118 (recorded as *Conepatus mesoleucus venaticus* Goldman - Distribution: South central and southeastern Arizona. Figure 102, Page 241), 148 (color presentation), 149*

***Conepatus leuconotus* subsp. *leuconotus* (Lichtenstein, 1832): Common Hog-nosed Skun**k

SYNONYMY: *Conepatus leuconotus* subsp. *venaticus* (Goldman, 1922) - Invalid?; *Conepatus mesoleucus* (Lichtenstein, 1832) - Valid; *Conepatus mesoleucus* subsp. *venaticus* Goldman, 1922 - Invalid. COMMON NAMES: Common Hog-nosed Skunk; Hog-nosed Skunk; Hognose Skunk; Mexican Hog-nosed Skunk; Rooter Skunk (Texas); Zorrillo Nariz de Puerco (Hispanic)[14]; Zorrillo-narigón Norteño (Spanish applied to *Conepatus mesoleucus*)[42]. HABITS: The species feeds on arachnids, birds, insects, small mammals, mollusks, plant material, reptiles and worms. These skunks take refuge in caves, crevices in rocks and in the ground. Rocky areas are used for denning with the young born beneath rocks, grasses are used for nesting. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (043012 - subsp. *mearnsi* (Merriam); subsp. *venaticus* (Goldman)), 42 (062112), 55 (species, recorded as *Conepatus mesoleucus* Lichtenstein. Hog-nosed Skunk. Southeastern part of the state (2,000 - 6,000 feet).), 65 (species), 73 (species, *Conepatus mesoleucus*), 100 (species record (*Conepatus mesoleucus*), color photograph of species), 106 (043012 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Conepatus mesoleucus venaticus* Goldman - Distribution: South central and southeastern Arizona. Figure 102, Page 241), 148 (color presentation of species), 149*

Conepatus leuconotus subsp. *venaticus* (see *Conepatus leuconotus* subsp. *leuconotus*)

Conepatus mesoleucus (see *Conepatus leuconotus* subsp. *leuconotus*)

Conepatus mesoleucus subsp. *venaticus* (see *Conepatus leuconotus* subsp. *leuconotus*)

***Mephitis macroura* Lichtenstein, 1832: Hooded Skunk**

COMMON NAMES: Hooded Skunk; Miller's Skunk (*M.m. milleri* Mearns, 1897 - Valid); Mofeta Rayada (Spanish)[106]; Moufette à Capuchon (French)[106]; Northern Hooded Skunk (*M.m. milleri* Mearns, 1897 - Valid); Pay (Maya)[106]; Southern Skunk; White-sided Skunk; Zorrillo (Hispanic)[14,106]; Zorrillo-listado del Sur (Spanish). HABITS: Feeds on small birds (and bird eggs), insects and other invertebrates, rodents and plant material (including prickly-pear). The young are born in a dens located in burrows or among rocks. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (043012 - subsp. *milleri* (Mearns)), 42 (062112), **55** (recorded as *Mephitis macroura* (Lichtenstein). Hooded Skunk. Southeastern part of the state (2,000 - 6,000 feet).), 65, 73, 100 (color photograph), 106 (043012 - color presentation), 118 (recorded as *Mephitis macroura milleri* (Mearns) - Distribution: South central and southeastern Arizona. Figure 101, Page 240), 148 (color presentation)*

***Mephitis macroura* subsp. *milleri* Mearns, 1897: Hooded Skunk**

COMMON NAMES: Hooded Skunk; Millers Skunk; Northern Hooded Skunk; Zorrillo (Hispanic)[14]. HABITS: The species feeds on small birds (and bird eggs), insects and other invertebrates, rodents and plant material (including prickly-pear). The young are born in a dens located in burrows or among rocks. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (043012 - subsp. *milleri* (Mearns)), 42 (062112), 55 (species: recorded as *Mephitis macroura* (Lichtenstein). Hooded Skunk. Southeastern part of the state (2,000 - 6,000 feet).), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (043012 - color presentation), **118** (recorded as *Mephitis macroura milleri* (Mearns) - Distribution: South central and southeastern Arizona. Figure 101, Page 240), 148 (color presentation of species)*

***Mephitis mephitis* (Schreber, 1776): Striped Skunk**

COMMON NAMES: Arizona Skunk (*M.m. estor* Merriam, 1890 - Valid); Long-tailed Texas Skunk (*M.m. varians* Gray, 1837 - Valid); Mouffette Rayée (French)[42]; Northern Plains Skunk (*M.m. hudsonica* Richardson, 1829 - Valid); Striped

Skunk; Zorrillo Rayado (Hispanic)[14]; Zorrillo-listado del Norte (Spanish)[42]. HABITS: Feeds on amphibians, berries, the eggs of ground nesting birds, carrion, crayfish, earthworms, fishes, frogs, fruits, insects (ants, beetles, crickets, grasshoppers, honeybees, wasps), small mammals (mice, moles, rats, squirrels, voles), mollusks, plant material, reptiles, snails and spiders. The young are born in nests made of dried grasses and leaves located in dirt banks, underground burrows abandoned by other animals, downed logs, pits and rock outcrops. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Striped Skunk is most active dusk through dawn. This species is the chief carrier of rabies in the United States and those active during the daylight hours frequently being found to be rabid. *14 (043012 - subsp. *estor* (Merriam); subsp. *hudsonica* (Richardson); subsp. *varians* (Gray), color presentation), 42 (062112), **55** (recorded as *Mephitis mephitis* (Schreber). Striped Skunk. Statewide (300 - 9,000 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (043012 - includes a listing of subspecies, color presentation), 118 (recorded as *Mephitis mephitis estor* Merriam - Distribution: Statewide. Figure 100, Page 239), 148 (color presentation)*

Mephitis mephitis subsp. *estor* Merriam, 1890: Arizona Skunk

COMMON NAMES: Arizona Skunk; Striped Skunk; Zorrillo Rayado (Hispanic)[14]. HABITS: The species feeds on amphibians, berries, the eggs of ground nesting birds, carrion, crayfish, earthworms, fishes, frogs, fruits, insects (ants, beetles, crickets, grasshoppers, honeybees, wasps), small mammals (mice, moles, rats, squirrels, voles), mollusks, plant material, reptiles, snails and spiders. The young are born in nests made of dried grasses and leaves located in dirt banks, underground burrows abandoned by other animals, downed logs, pits and rock outcrops. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Striped Skunk is most active dusk through dawn. This species is the chief carrier of rabies in the United States and those active during the daylight hours frequently being found to be rabid. *14 (043012 - subsp. *estor* (Merriam); subsp. *hudsonica* (Richardson); subsp. *varians* (Gray), color presentation of species), 42 (062112), 55 (species: recorded as *Mephitis mephitis* (Schreber). Striped Skunk. Statewide (300 - 9,000 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (043012 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Mephitis mephitis estor* Merriam - Distribution: Statewide. Figure 100, Page 239), 148 (color presentation)*

Spilogale gracilis Merriam, 1890: Western Spotted Skunk

SYNONYMY: *Spilogale putorius* subsp. *gracilis* Merriam, 1890 - Invalid?. COMMON NAMES: Channel Islands Spotted Skunk (*S.g. amphialus* Dickey, 1929 - Valid); Spotted Skunk; Western Spotted Skunk; Zorillo Pinto (Hispanic)[14]. HABITS: Feeds on arachnids, berries, birds and bird eggs, carrion, fruits, insects, small mammals, scorpions and seeds. Dens are made in rock crevices and hollow logs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (043012 - considers *Spilogale putorius gracilis* Merriam is a synonym for *Spilogale gracilis* the Western Spotted Skunk, and *Spilogale putorius leucoparia* is a synonym for *Spilogale putorius* the Eastern Spotted Skunk), 42 (062112), **55** (recorded as *Spilogale putorius* (Linnaeus). Spotted Skunk. Probably statewide (120 - 7,000 feet).), 65 (recorded as *Spilogale putorius*), 73 (recorded as *Spilogale gracilis*), 100 (recorded as *Spilogale gracilis*, color photograph), 106 (043012 - includes a listing of subspecies, color presentation), **118** (recorded as *Spilogale putorius gracilis* Merriam - Distribution: Probably statewide. Figure 99, Page 237), 148 (color presentation)*

Spilogale putorius (see footnotes 14, 55, 65 and 85 under *Spilogale gracilis*)

Spilogale putorius subsp. *gracilis* (see *Spilogale gracilis*)

Molossidae: The Free-tailed Bat Family

Eumops perotis (Schinz, 1821): Western Mastiff Bat

COMMON NAMES: Bonnet Bat; California Mastiff Bat (*E.p. californicus* Merriam, 1890); Greater Bonneted Bat; Greater Mastiff Bat; Greater Western Bonneted Bat; Greater Western Mastiff Bat (*E.p. californicus* Merriam, 1890); Mastiff Bat; Murcielago Mastiff (Hispanic); Murciélago-con bonete Mayor (Spanish); Western Bonneted Bat; Western Mastiff Bat. HABITS: Feeds on crickets, long-horned grasshoppers, moths and other small insects. Roosts in crevices and shallow caves in cliffs and rock walls at lower elevations. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (*Eumops perotis californicus*), 14 (050112 - subsp. *californicus*), 42 (062112), **55** (recorded as *Eumops perotis* (Schinz). Western Mastiff Bat. Rare; in small colonies in rock crevices at lower elevations in the western and southern part of the state.), 65, 73, 92, 100 (color photograph), 106 (050112 - color presentation), 118 (recorded as *Eumops perotis californicus* (Merriam) - Distribution: Probably throughout southern Arizona in the Lower Sonoran Life Zone.), 148 (color presentation)*

Eumops perotis subsp. *californicus* Merriam, 1890 - Invalid?: Greater Western Mastiff Bat

COMMON NAMES: Bonnet Bat; California Mastiff Bat; Greater Mastiff Bat; Greater Western Bonneted Bat; Greater Western Mastiff Bat; Mastiff Bat; Murcielago Mastiff (Hispanic)[14]; Western Mastiff Bat. HABITS: The species feeds on crickets, long-horned grasshoppers, moths and other small insects. Roosts in crevices and shallow caves in cliffs and rock walls at lower elevations. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland,

desertscrub and wetland ecological formations. *8, 14 (050112 - subsp. *californicus*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Eumops perotis* (Schinz). Western Mastiff Bat. Rare; in small colonies in rock crevices at lower elevations in the western and southern part of the state.), 65 (species), 73 (species), 92 (species), 100 (species, color photograph of species), 106 (050112 - color presentation), **118** (recorded as *Eumops perotis californicus* (Merriam) - Distribution: Probably throughout southern Arizona in the Lower Sonoran Life Zone. Figure 29, Page 65), 148 (color presentation)*

***Nyctinomops femorosaccus* (Merriam, 1889): Pocketed Free-tailed Bat**

SYNONYMY: *Tadarida femorosacca* (Merriam) - Invalid?. COMMON NAMES: Palm Springs Free-tailed Bat; Pocketed Free-tailed Bat; Murcielago Cola Libra en Bolsa (Hispanic)[14]; Murciélago-cola Suelta de Bolsa (Spanish)[42]. HABITS: Feeds on ants, leafhoppers, moths, wasps and other insects. Roosts in rocky crevices. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050112), 42 (062112), 55 (recorded as *Tadarida femorosacca* (Merriam). Pocketed Free-tailed Bat. Rare; found at lower elevations in the western and southern part of the state.), 100, 106 (050112 - color presentation), **118** (recorded as *Tadarida femorosacca* (Merriam) - Distribution: Probably occurs throughout the Lower Sonoran Life Zone of southern Arizona. Figure 27, Page 63), 148 (color presentation)*

***Nyctinomops macrotis* (Gray, 1840): Big Free-tailed Bat**

SYNONYMY: *Tadarida macrotis* (Gray, 1840) - Invalid?; *Tadarida molossa* (Pallas) - Invalid?. COMMON NAMES: Big Free-tailed Bat; Cuban Free-tailed Bat; Murcielago Cola Libre (Hispanic)[14]; Murciélago-cola Suelta Mayor (Spanish)[42]; Greater Broad-eared Free-tailed Bat. HABITS: Feeds on insects. Roosts in rocky cliffs, crevices, fissures, caves and holes in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations ecological formations. *8, 14 (050112), 42 (062112), **55** (recorded as *Tadarida molossa* (Pallas). Big Free-tailed Bat. Rare; statewide, mainly at elevations below 5,000 feet.), 73, 100 (color photograph), 106 (050112 - color presentation), **118** (recorded as *Tadarida molossa* (Pallas) - Distribution: Probably occurs throughout the Lower Sonoran Life Zone of Arizona. Figure 28, Page 64), 148 (color presentation), 149*

***Tadarida brasiliensis* (I. Geoffroy, 1824) (subsp *mexicana* (Saussure, 1860 - Invalid?) is the only subspecies reported as occurring in Arizona): Brazilian Free-tailed Bat**

COMMON NAMES: Brazilian Free-tailed Bat; Guano Bat; Mexican Free-tail Bat; Mexican Free-tailed Bat; Mexican Freetail Bat; Murcielago Braziliano (Hispanic)[14]; Murciélago-cola Suelta Brasileño (Spanish)[42]. HABITS: Feeds on small insects (ants, beetles, dragonflies, flies, leafhoppers, moths, true bugs, wasps). Roosts in caverns; caves; crevices in rocks; fissures in cliffs; buildings; mines, and under bridges. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Bacardi rum features the Mexican free-tailed bat as its icon because of the species pollination of sugar cane as well as for their consumption of insects that damage the sugar cane crop. *8, 14 (050112 - subsp. *mexicana*), 42 (062112), **55** (recorded as *Tadarida brasiliensis* (I.Geof. St.-Hilaire). Mexican Free-tailed Bat. Locally abundant throughout the state, especially at elevations below 5,000 feet.), 65, 73, 92, 100 (color photograph), 106 (050112 - includes a listing of subspecies, color presentation), 118 (recorded as *Tadarida brasiliensis mexicana* (Saussure) - Distribution: Probably statewide in some part of the year. Figure 26, Page 62), 148 (color presentation)*

***Tadarida brasiliensis* subsp *mexicana* (Saussure, 1860) - Invalid?: Brazilian Free-tailed Bat**

COMMON NAMES: Brazilian Free-tailed Bat; Guano Bat; Mexican Free-tail Bat; Mexican Free-tailed Bat; Mexican Freetail Bat; Murcielago Braziliano (Hispanic)[14]. HABITS: The species feeds on small insects (ants, beetles, dragonflies, flies, leafhoppers, moths, true bugs, wasps). HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050112 - subsp. *mexicana*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Tadarida brasiliensis* (I.Geof. St.-Hilaire). Mexican Free-tailed Bat. Locally abundant throughout the state, especially at elevations below 5,000 feet.), 65 (species), 73 (species), 92 (species), 100 (species, color photograph of species), 106 (050112 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Tadarida brasiliensis mexicana* (Saussure) - Distribution: Probably statewide in some part of the year. Figure 26, Page 62), 148 (color presentation)*

Tadarida femorosacca (see *Nyctinomops femorosaccus*)

Tadarida macrotis (see *Nyctinomops macrotis*)

Tadarida molossa (see *Nyctinomops macrotis*)

Muridae: The Mouse and Rat Family

***Mus musculus* Linnaeus, 1758: House Mouse**

COMMON NAMES: House Mouse; Raton Comun (Hispanic)[14]; Souris Commune (French)[42]. HABITS: Feeds on insects, plants and seeds almost anything edible. Nests are made up of down, feathers, grass, hair, trash and other soft materials

and are located in man-made structures. HABITAT: Within the range of this species it has been reported from areas of human habitation and in lower elevations along roadsides, floodplains, fencerows, ditchbanks, agricultural fields and orchards in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXOTIC (native to southern Asia), a destructive animal and a carrier of disease. "Gough Island in the South Atlantic is used by 20 species of seabird for breeding, including almost all of the world's Tristan Albatross (*Diomedea dabbenena*) and Atlantic Petrel (*Pterodroma incerta*). Until house mice arrived on the island in the 19th century with seamen, the birds did not have any mammalian predators. The mice have since grown unusually large and have learned to attack albatross chicks, which can be nearly 1 m tall, but are largely immobile, by working in groups and gnawing on them until they bleed to death. The estimated 700,000 mice on the island kill over one million bird chicks per year.[30],,106 *14 (010512), 42 (062112), 55 (recorded as *Mus musculus* (Linnaeus). House Mouse. Introduced; often around dwellings and occassionally occurring as feral populations.), 73, **78**, 100, 106 (010512 - includes a listing of subspecies, color presentation), **118** (recorded as *Mus musculus* subsp. - Distribution: Throughout the state in association with human habitations; many feral populatons are established in various areas. Page 213), 148 (color presentation)*

Neotoma albigula Hartley, 1894: White-throated Wood Rat

COMMON NAMES: Colorado Valley Woodrat (*N.a. venusta* True, 1894 - Invalid?); La Plata White-throated Wood Rat (*N.a. laplataensis* F.W. Miller, 1933 - Invalid?); Packrat; Rata-cambalachera Garganta Blanca (Spanish)[42]; Trade Rat; White-throated Packrat; White-throated Wood Rat. HABITS: Feeds on ants, beetles, cacti (flowers, fruits, stems), flowers, forbs, fruits, grasses, juniper, leaves, mesquite (bark, flowers, leaves, seeds), green plant material, reptiles, seeds and yucca leaves. Nests are built under mesquite, cholla and prickly-pear cacti, or in rocky crevices using sticks, pieces of cholla and prickly-pear cacti, and rubbish, sometimes with underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *albigula*; subsp. *laplataensis* F.W. Miller; subsp. *melas* (Dice); subsp. *mearnsi*; subsp. *warreni* (Merriam); subsp. *venusta*, color presentation), 42 (062112), **55** (recorded as *Neotoma albigula* Hartley. White-throated Wood Rat. Widely distributed at elevations below 7,000 feet throughout all of the state south of the Colorado River (120 - 8,000 feet).), 65 (color photograph), 73, **78**, 100 (color photograph), 106 (050112 - includes a listing of subspecies, color presentation), 118 (recorded as *Neotoma albigula albigula* Hartley - Distribution: Occurs commonly south of the Mogollon Rim; *Neotoma albigula mearnsi* Goldman - Distribution: Know from southern Yuma County; *Neotoma albigula laplataensis* F.W. Miller - Distribution: Known from northeastern Arizona, and *Neotoma albigula venusta* True - Distribution: Known from western Arizona. Figure 76, Page 193), 148 (color presentation)*

Neotoma albigula subsp. *albigula* Hartley, 1894 - Invalid?: White-throated Wood Rat

COMMON NAMES: Packrat; Trade Rat; White-throated Packrat; White-throated Wood Rat. HABITS: The species feeds on ants, beetles, cacti (flowers, fruits, stems), flowers, forbs, fruits, grasses, juniper, leaves, mesquite (bark, flowers, leaves, seeds), green plant material, reptiles, seeds and yucca leaves. Nests are built under mesquite, cholla and prickly-pear cacti, or in rocky crevices using sticks, pieces of cholla and prickly-pear cacti, and rubbish, sometimes with underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *albigula*; subsp. l*aplataensis* (F.W. Miller); subsp. *melas* (Dice); subsp. *mearnsi*; subsp. *warreni* (Merriam); subsp. *venusta*, color presentation), 42 (062112 - no subspecies listed), 55 (species: recorded as *Neotoma albigula* Hartley. White-throated Wood Rat. Widely distributed at elevations below 7,000 feet throughout all of the state south of the Colorado River (120 - 8,000 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (050112 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Neotoma albigula albigula* Hartley - Distribution: Occurs commonly south of the Mogollon Rim. Figure 76, Page 193), 148 (species, color presentation of species)*

Onychomys torridus (Coues, 1874): Southern Grasshopper Mouse

COMMON NAMES: Raton Chapulinero del Sur (Hispanic)[14]; Ratón-saltamontes Sureño (Spanish)[42]; Scorpion Mouse; Southern Grasshopper Mouse. HABITS: Feeds on arthropods, beetles, grasshoppers, insects, lizards, scorpions, seeds and small vertebrates including other species of mice. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *torridus* (Coues)), 42 (062112), **55** (recorded as *Onychomys torridus* (Coues). Southern Grasshopper Mouse. Widely distributed in the western and southern parts of the state (120 - 5,000 feet).), 65 (genus), 73, 100 (color photograph), 106 (050112), 118 (recorded as *Onychomys torridus longicaudus* Merriam - Distribution: Extreme northwestern Arizona; *Onychomys torridus perpallidus* Mearns - Distribution: Wesern Arizona, and *Onychomys torridus torridus* (Coues) - Distribution: Southeastern quarter of the state. Figure 62, Page 161), 148 (color presentation)*

Onychomys torridus subsp. *torridus* (Coues, 1874) - Invalid?: Southern Grasshopper Mouse

COMMON NAMES: Raton Chapulinero del Sur (Hispanic)[14]; Scorpion Mouse; Southern Grasshopper Mouse. HABITS: The species feeds on arthropods, beetles, grasshoppers, insects, lizards, scorpions, seeds and small vertebrates including other species of mice. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *torridus* (Coues)), 42 (062112 - no subspecies listed), 55 (species: recorded as *Onychomys torridus* (Coues). Southern Grasshopper Mouse. Widely distributed in the western and southern parts of the state (120 - 5,000 feet).), 65 (genus), 73

(species), 100 (species, color photograph of species), 106 (050112 - species), **118** (recorded as *Onychomys torridus torridus* (Coues) - Distribution: Southeastern quarter of the state. Figure 62, Page 161), 148 (color presentation of species)*

***Peromyscus eremicus* (Baird, 1858): Cactus Mouse**

COMMON NAMES: Anthony Desert Mouse (*P.e. anthonyi* Merriam, 1887 - Invalid?); Anthony's Cactus Mouse (*P.e. anthonyi* Merriam, 1887 - Invalid?); Apache Desert Mouse (*P.e. anthonyi* Merriam, 1887 - Invalid?); Black Mountain Cactus Mouse (*P.e. pullus* Blossom, 1933 - Invalid?); Cactus Mouse; Desert Mouse; Desert White-footed Mouse (*P.e. eremicus* Baird, 1858 - Invalid?); Pinacate Cactus Mouse (*P.e. papagensis* Goldman, 1917 - Invalid?); Raton de Cactaceas (Hispanic)[14]; Ratón de Cactus (Spanish)[42]. HABITS: Feeds on flowers, small fruits, insects, green plant material and seeds. Nests are made within the abandoned burrows of other animals, clumps of cacti and among rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *anthonyi* Merriam; subsp. *eremicus*; subsp. *pullus*, color presentation), 42 (062112), **55** (recorded as *Peromyscus eremicus* (Baird). Cactus Mouse. Widely distributed in western and southern Arizona (120 - 6,000 feet).), 65 (genus), 73, 100 (color photograp), 106 (050112 - color presentation), 118 (recorded as *Peromyscus eremicus anthonyi* (Merriam) - Distribution: Southeastern part of the state; *Peromyscus eremicus eremicus* (Baird) - Distribution: Almost all of the western and southern part of the state; *Peromyscus eremicus papagensis* Goldman - Distribution: Known only from the Pinacate lava in southern Yuma County, and *Peromyscus eremicus pullus* Blossum - Distribution: Known only from Black Mountain 10 mi. SSW Tucson, Pima County, Arizona. Figure 67, Page 171), 148 (color presentation)*

***Peromyscus eremicus* subsp. *anthonyi* Merriam, 1887 - Invalid?: Anthony's Cactus Mouse**

COMMON NAMES: Anthony Desert Mouse; Anthony's Cactus Mouse; Apache Desert Mouse; Raton de Cactaceas (Hispanic)[14]. HABITS: The species feeds on flowers, small fruits, insects, green plant material and seeds. Nests are made within the abandoned burrows of other animals, clumps of cacti and among rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - species, subsp. *anthonyi* Merriam; subsp. *eremicus*; subsp. *pullus*, color presentation of species), 42 (062112 - no subspecies listed), 55 (species: recorded as *Peromyscus eremicus* (Baird). Cactus Mouse. Widely distributed in western and southern Arizona (120 - 6,000 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (050112 - species, color presentation of species), 118 (recorded as *Peromyscus eremicus eremicus* (Baird) - Distribution: Almost all of the western and southern part of the state. Figure 67, Page 171), 148 (color presentation of species), **150** (Specimens of *Peromyscus eremicus* from the dark-colored lava of Tumamoc Hill near Tucson are somewhat intermediate in color between *pullus* and *anthonyi,* but are nearer *anthonyi*.)*

***Peromyscus eremicus* subsp. *eremicus* (Baird, 1858) - Invalid?: Desert Mouse**

COMMON NAMES: Cactus Mouse; Desert White-footed Mouse; Raton de Cactaceas (Hispanic)[14]. HABITS: The species feeds on flowers, small fruits, insects, green plant material and seeds. Nests are made within the abandoned burrows of other animals, clumps of cacti and among rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - species, subsp. *anthonyi* Merriam; subsp. *eremicus*; subsp. *pullus*, color presentation of species), 42 (062112 - no subspecies listed), 55 (species: recorded as *Peromyscus eremicus* (Baird). Cactus Mouse. Widely distributed in western and southern Arizona (120 - 6,000 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (050112 - species, color presentation of species), **118** (recorded as *Peromyscus eremicus eremicus* (Baird) - Distribution: Almost all of the western and southern part of the state. Figure 67, Page 171), 148 (color presentation of species)*

***Peromyscus leucopus* (Rafinesque, 1818): White-footed Mouse**

COMMON NAME: Apache Wood Mouse (*P.l. arizonae* J.A. Allen, 1894 - Invalid?); Arizona White-footed Mouse (*P.l. arizonae* J.A. Allen, 1894 - Invalid?); Raton Patas Blancas (Hispanic)[14]; Souris à Pattes Blanches (French)[42]; White-footed Mouse; Wood Mouse; Woodmouse (Texas). HABITS: Feeds on berries, crustaceans, fungi, insects and other invertebrates, nuts, seeds and possibly small vertebrates. Nests are made of shredded bark, feathers, forbs, grasses, hair, leaves, mosses and plant fibers located in concealed places in banks, burrows, cavities in live and dead trees, holes in the ground, under rocks, in shrubs and tree stumps and logs. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The White-footed Mouse may live to be 8 years of age. *14 (061512 - subsp. *arizonae* (J.A. Allen); subsp. *tornillo* (Mearns)), 42 (062112), **55** (recorded as *Peromyscus leucopus* (Rafinesque. White-footed Mouse. Known from eastern and central parts of the state (2,300 - 6,500 feet).), 65 (genus), 73, **78**, 100 (color photograph), 106 (050112 - color presentation), 118 (recorded as *Peromyscus leucopus arizonae* (Allen) - Distribution: Southeastern part of the state and *Peromyscus leucopus ochraceus* Osgood - Distribution: Along the Little Colorado River and an isolated population on the south edge of the Mogollon Rim which probably represents an unnamed race. Figure 70, Page 180), 148 (color presentation)*

***Peromyscus leucopus subsp. arizonae* J.A. Allen, 1894 - Invalid?: Arizona White-footed Mouse**

COMMON NAME: Apache Wood Mouse; Arizona White-footed Mouse; Raton Patas Blancas (Hispanic)[14]; White-footed Mouse; Wood Mouse. HABITS: Feeds on berries, crustaceans, fungi, insects and other invertebrates, nuts, seeds and possibly small vertebrates. Nests are made of shredded bark, feathers, forbs, grasses, hair, leaves, mosses and plant fibers located in concealed places in banks, burrows, cavities in live and dead trees, holes in the ground, under rocks, in shrubs and tree stumps

and logs. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (061512 - subsp. *arizonae* (J.A. Allen); subsp. *tornillo* (Mearns)), 42 (062112 - no subspecies listed), 55 (species: recorded as *Peromyscus leucopus* (Rafinesque. White-footed Mouse. Known from eastern and central parts of the state (2,300 - 6,500 feet).), 65 (genus), 73 (species), 100 (color photograph of species, species), 106 (050112 - species, color presentation of species), **118** (recorded as *Peromyscus leucopus arizonae* (Allen) - Distribution: Southeastern part of the state. Figure 70, Page 180), 148 (color presentation of species)*

***Peromyscus maniculatus* (Wagner, 1845): Deer Mouse**

COMMON NAMES: Arizona Wood Mouse (*P.m. rufinus* Merriam, 1890 - Invalid?); Chihuahua Deer Mouse (*P.m. blandus* Osgood, 1904 - Invalid?); Chihuahua Plains Mouse (*P.m. blandus* Osgood, 1904 - Invalid?); Deer Mouse; Gentle Field Mouse (*P.m. blandus* Osgood, 1904 - Invalid?); Prairie Deer Mouse; Raton Venado (Hispanic); Ratón Norteamericano (Spanish)[42]; Sonoran Deer Mouse (*P.m. sonoriensis* Le Conte, 1853 - Invalid?); Sonoran White-footed Mouse (*P.m. sonoriensis* Le Conte, 1853 - Invalid?); Souris Sylvestre (French)[42]; Tawny Field Mouse (*P.m. rufinus* Merriam, 1890 - Invalid?); Tawny White-footed Mouse (*P.m. rufinus* Merriam, 1890 - Invalid?); Wagner's Field Mouse; White-footed Mouse. HABITS: Feeds on bark, berries, bones, centipedes, earthworms, small fruits, fungi, insects, leaves, nuts and snails. Nests are built in buildings, underground burrows, rock crevices debris, in and under logs, and clumps of vegetation. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *blandus* (Osgood); subsp. *rufinus* (Merriam)), 42 (062112), **55** (recorded as *Peromyscus maniculatus* (Wagner). Deer Mouse. Statewide (120 - 11,400 feet).), 65 (genus), 73, 100 (color photograph), 106 (050112 - color presentation), 118 (recorded as *Peromyscus maniculatus blandus* Osgood - Distribution: Extreme southeastern part of the state; *Peromyscus maniculatus rufinus* (Merriam) - Distribution: Higher elevations throughout the state, and *Peromyscus maniculatus sonoriensis* (Le Conte) - Distribution: Grasslands at lower elevations throughout the state. Figure 69, Page 177), 148 (color presentation)*

***Peromyscus maniculatus* subsp. *sonoriensis* Le Conte, 1853 - Invalid?: Sonoran Deer Mouse**

COMMON NAMES: Deer Mouse; Sonoran Deer Mouse; Sonoran White-footed Mouse. HABITS: The species feeds on bark, berries, bones, centipedes, earthworms, small fruits, fungi, insects, leaves, nuts and snails. Nests are built in buildings, underground burrows, rock crevices debris, in and under logs, and clumps of vegetation. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *blandus* (Osgood); subsp. *rufinus* (Merriam)), 42 (062112 - no subspecies listed), 55 (species, recorded as *Peromyscus maniculatus* (Wagner). Deer Mouse. Statewide (120 - 11,400 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (050112 - color presentation of species), **118** (recorded as *Peromyscus maniculatus sonoriensis* (Le Conte) - Distribution: Grasslands at lower elevations throughout the state. Figure 69, Page 177), 148 (color presentation of species)*

***Peromyscus merriami* Mearns, 1896: Merriam's Mouse**

COMMON NAMES: Merriam's Mouse; Mesquite Mouse; Ratón de Merriam (Spanish)[42]; Sonoyta Desert Mouse. HABITS: Probably feeds on invertebrates and seeds. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (050112), 42 (062112), **55** (recorded as *Peromyscus merriami* Mearns. Merriam's Mouse. Known from scattered localities is Pinal, Pima and Santa Cruz counties (1,600 - 3,600 feet).), 73 (note on species), 100, 106 (061512), 118 (recorded as *Peromyscus merriami merriami* Mearns - Distribution: Known from mesquite bosque situations in southern Arizona. Figure 68, Page 174), 148 (color presentation)*

***Peromyscus merriami* subsp. *merriami* Mearns, 1896: Merriam's Mouse**

COMMON NAMES: Merriam's Mouse; Mesquite Mouse. HABITS: The species probably feeds on invertebrates and seeds. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (050112), 42 (062112 - no subspecies listed), 55 (species, recorded as *Peromyscus merriami* Mearns. Merriam's Mouse. Known from scattered localities is Pinal, Pima and Santa Cruz counties (1,600 - 3,600 feet).), 73 (note on species), 100 (species), 106 (061512 - species), **118** (recorded as *Peromyscus merriami merriami* Mearns - Distribution: Known from mesquite bosque situations in southern Arizona. Figure 68, Page 174), 148 (color presentation of species)*

***Rattus norvegicus* (Berkenhout, 1769): Norway Rat**

COMMON NAMES: Brown Norway Rat; Brown Rat; Common Rat; Hanover Rat; Norway Rat; Norwegian Rat; Rat Surmulot (French)[42]; Rata Comun (Hispanic)[14]; Sewer Rat; Wharf Rat; Water Rat; 'White Rat' (bred albino strain used in laboratories). HABITS: Feeds on birds, fish, insects, meat (commonly feeds on the flesh of dead animals, will kill chickens and eat their eggs), mollusks, plants, seeds and grains. Nests are made up of down, forbs, feathers, grasses, hair and leaves and are located in logs, banks, underground burrows and man-made structures. HABITAT: Usually found in areas of human habitation (cities and farmyards), along ditches and riverbanks in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC (native to central Asia), a very destructive animal and a major carrier of diseases. *14 (010512), 42 (072112), **55** (recorded as *Rattus norvegicus* (Berkenhout): Norway Rat. Introduced but not common; found only around large towns and cities.), 73, 100, 106 (010512 - color presentation), 118 (recorded as *Rattus norvegicus* (Berkenhout) - Distribution: At

present known only from a few scattered populations in or near towns or cities. “Coues (1867) reported that this species was to be found n Arizona “not away from man’s dwellings.” Page 212), 148 (color presentation)*

***Rattus rattus* (Linnaeus, 1758): Black Rat**

COMMON NAMES: Alexandrine Rat; Asian Black Rat; Black Rat; House Rat; Old English Rat; Rat; Rata Negra (Hispanic)[14]; Rat Noir (French)[42]; Roof Rat; Ship Rat. HABITS: Feeds on cereals, fruits, grains and other vegetation and insects and other invertebrates. Nests may be made from leaves and sticks and located in burrows or vines and trees. HABITAT: Usually found near areas of human habitation, on agricultural land and sometimes in the wild in the forest, woodland, grassland, scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC (native to southeastern Asia). The Black Rat is a carrier of a number of diseases and is extremely destructive to crops, farms and fruit trees. *14 (050112), 42 (072112), 55 (recorded as *Rattus rattus* (Linnaeus). Black Rat. Introduced but not common; may not be established in the state at present.), 73, 100 (color photograph), 106 (050112 - color presentation), **118** (recorded as *Rattus rattus* - Distribution: Formerly known in association with human habitations but probably absent at present), 148 (color presentation)*

***Reithrodontomys fulvescens* J.A. Allen, 1894: Fulvous Harvest Mouse**

COMMON NAME: Fulvous Harvest Mouse; Oposura Harvest Mouse; Ratón-cosechero Leonado[42]; Sonoran Harvest Mouse. HABITS: Feeds on insects and other invertebrates and seeds; nests are made of grasses and sedges and can be located in burrows or up to 4 feet above ground level. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Reithrodontomys fulvescens* is native to south-central and southern North America and Central America. *14 (050112 - subsp. *canus*; subsp. *fulvescens*), 42 (072112 - no record of subspecies), **55** (recorded as *Reithrodontomys fulvescens* J.A. Allen. Fulvous Harvest Mouse. Known only from eastern Pima, western Cochise and Santa Cruz counties (2,700-5,300 feet).), 73, 100 (color photograph), 106 (050112), 118 (recorded as *Reithrodontomys fulvescens fulvescens* Allen - Distribution: Known only from southern Arizona. Figure 65, Page 166), 148 (color presentation)*

***Reithrodontomys fulvescens* subsp. *fulvescens* J.A. Allen, 1894: Fulvous Harvest Mouse**

COMMON NAME: Fulvous Harvest Mouse. HABITS: The species feeds on insects and other invertebrates and seeds; nests are made of grasses and sedges and can be located in burrows or up to 4 feet above ground level. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The species, *Reithrodontomys fulvescens*, is native to south-central and southern North America and Central America. *14 (050112 - subsp. *canus*; subsp. *fulvescens*), 42 (072112 - no record of subspecies), 55 (species, recorded as *Reithrodontomys fulvescens* J.A. Allen. Fulvous Harvest Mouse. Known only from eastern Pima, western Cochise and Santa Cruz counties (2,700-5,300 feet).), 73 (species), 100 (species, color photograph of species), 106 (050112 - species), **118** (recorded as *Reithrodontomys fulvescens fulvescens* Allen - Distribution: Known only from southern Arizona. Figure 65, Page 166), 148 (color presentation of species)*

***Reithrodontomys megalotis* (Baird, 1858): Western Harvest Mouse**

COMMON NAME: Arizona Harvest Mouse (*R.m. arizonensis* Allen, 1895 - Invalid?); Aztec Harvest Mouse (*R.m. aztecus* J.A. Allen, 1893 - Invalid?); Big-eared Harvest Mouse (*R.m. megalotis* (Baird, 1858) - Invalid?); Chiricahua Western Harvest Mouse (*R.m. arizonensis* Allen, 1895 - Invalid?); Ratón-cosechero Común (Spanish)[42]; Western Harvest Mouse. HABITS: Feeds on arachnids, grasses, insects (larvae and adults) and seeds of grasses, forbs and shrubs. Spherical nests are made of woven plant material and lined with plant fibers and can be located near the ground or above the ground in dense vegetation. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *arizonensis*; subsp. *aztecus* J.A. Allen; subsp. *megalotis*), 42 (062112), **55** (recorded as *Reithrodontomys megalotis* (Baird). Western Harvest Mouse. Statewide (120 - 8,000 feet).), 73, 100 (color photograph), 106 (050112 - color presentation), 118 (recorded as *Reithrodontomys megalotis arizonensis* (Allen) - Distribution: Known only from the region of the type locality (Chiricahua Mountains); *Reithrodontomys megalotis aztecus* (Allen) - Distribution: Extreme northeastern part of state, and *Reithrodontomys megalotis megalotis* (Baird) - Distribution: At medium and low elevations statewide except extreme northeastern part of the state. Figure 64, Page 164), 148 (color presentation)*

***Reithrodontomys megalotis* subsp. *megalotis* (Baird, 1858) - Invalid?: Chiricahua Western Harvest Mouse**

COMMON NAME: Big-eared Harvest Mouse; Western Harvest Mouse. HABITS: The species feeds on arachnids, grasses, insects (larvae and adults) and seeds of grasses forbs and shrubs. Spherical nests are made of woven plant material and lined with plant fibers and can be located near the ground or above the ground in dense vegetation. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *arizonensis*; subsp. *aztecus* J.A. Allen; subsp. *megalotis*), 42 - no subspecies listed), 55 (species, recorded as *Reithrodontomys megalotis* (Baird). Western Harvest Mouse. Statewide (120 - 8,000 feet).), 73 (species), 100 (species, color photograph of species), 106 (050112 - species, color presentation of species), **118** (recorded as *Reithrodontomys megalotis megalotis* (Baird) - Distribution: At medium and low elevations statewide except extreme northeastern part of the state. Figure 64, Page 164), 148 (color presentation of species)*

***Sigmodon arizonae* Mearns, 1890: Arizona Cotton Rat**

COMMON NAMES: Arizona Cotton Rat; Camp Verde Cotton Rat (*S.a. arizonae* Mearns, 1890 - Valid: extinct); Camp Verde Arizona Cotton Rat (*S.a. arizonae* Mearns, 1890 - Valid: extinct); Cienega Cotton Rat (*S.a. ciengae* Howell, 1919 - Invalid?); Colorado River Cotton Rat (*S.a. plenus* Goldman, 1928 - Valid); Cotton Rat; Jackson Cotton Rat (*S.a. jacksoni* Goldman, 1918 - Invalid?); Large Cotton Rat (*S.a. major* Bailey, 1902 - Invalid?); Rata-algodonera de Arizona (Spanish)[42]; Yavapai Arizona Cotton Rat (*S.a. jacksoni* Goldman, 1918 - Invalid?). HABITS: Possibly feeding on berries, carcasses, fruits, insects and seeds. The nests are made of grasses and other plant material. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *arizonae* (A.B. Howell); subsp. *cienegae* (A.B. Howell); subsp. *jacksoni* (A.B. Howell)), 42 (062112), 55 (no record of species, possibly recorded as *Sigmodon hispidus* Say and Ord. Hispid Cotton Rat. Known from scattered riparian and grassland areas in southern part of the state (120-5,000 feet).), 73 (note), **78**, 100, 106 (050112 - includes a listing of subspecies), 148 (color presentation)*

***Sigmodon arizonae* subsp. *ciengae* A.B. Howell, 1919 - Invalid?: Cienega Cotton Rat**

SYNONYMY: *Sigmodon hispidus* subsp. *cienegae* A.B. Howell, 1919 - Invalid?. COMMON NAMES: Arizona Cotton Rat; Cienega Cotton Rat; Cotton Rat. HABITS: Possibly feeding on berries, carcasses, fruits, insects and seeds. The nests are made of grass. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *arizonae* (A.B. Howell); subsp. *cienegae* (A.B. Howell); subsp. *jacksoni* (A.B. Howell)), 42 (062112 - no record of this subspecies), 55 (no record of subspecies or species, possibly recorded as *Sigmodon hispidus* Say and Ord. Hispid Cotton Rat. Known from scattered riparian and grassland areas in southern part of the state (120-5,000 feet).), 73 (note on species), 100 (species), 106 (050112 - species, includes a listing of subspecies), **118** (recorded as *Sigmodon hispidus* subsp. *cienegae* A.B. Howell - Distribution: Locally common in southeastern Arizona. Figure 74, Page 188), 148 (color presentation of species)*

Sigmodon hispidus subsp. *cienegae* (see *Sigmodon arizonae* subsp. *ciengae*)

Mustelidae: The Weasel and Allies Family

***Lontra canadensis* (Schreber, 1777): North American River Otter**

SYNONYMY: *Lutra canadensis* (Schreber, 1777). COMMON NAMES: Arizona Otter (*L.c. sonora* (Rhoads, 1898) - Valid); Arizona River Otter (*L.c. sonora* (Rhoads, 1898) - Valid); California Otter (*L.c. brevipilosus* (Grinnell, 1914) - Invalid?); Canadian River Otter (*L.c. canadensis* (Schreber, 1777) - Valid); Carolina Otter (*L.c. lataxina* (Cuvier, 1823) - Valid); Common Otter; Degenerate Otter (*L.c. degener* (Bangs, 1898) - Invalid?); Florida Otter (*L.c. vaga* (Bangs, 1898) - Invalid?); Interior Otter (*L.c. interior* (Swenk, 1920) - Invalid?); Island Otter (*L.c. periclyzomae* (Elliot, 1905) - Valid); Kodiak River Otter (*L.c. kodiacensis* (Goldman, 1935)) - Valid; Loutre de Rivière (French)[42], Mexican Otter (*L.c. sonora* (Rhoads, 1898) - Valid); Nearctic River Otter (*L.c. lataxina* (Cuvier, 1823) - Valid; *L.c. sonora* (Rhoads, 1898) - Valid); Newfoundland Otter (*L.c. degener* (Bangs, 1898) - Invalid?); North American River Otter; Northeastern Otter (*L.c. hudsonica* (Merriam, 1899 / Desmarest, 1803) - Invalid?); Northern River Otter; Nutria-de Río Norteamericana (Spanish)[42]; Pacific Otter (*L.c. pacifica* (J.A. Allen, 1898) - Valid); Pah-hua-pe'na (Tewa - Taos Indians)[14]; Queen Charlotte Otter (*L.c. periclyzomae* (Elliot, 1905) - Valid); River Otter; Sonora Otter (*L.c. sonora* (Rhoads, 1898) - Valid); Sea-Girt Otter (*L.c. periclyzomae* (Elliot, 1905) - Valid); South East Canadian River Otter (*L.c. lataxina* (Cuvier, 1823) - Valid); South West Canadian River Otter (*L.c. sonora* (Rhoads, 1898) - Valid); Southeastern River Otter (*L.c. lataxina* (Cuvier, 1823) - Valid); Southwestern River Otter (*L.c. sonora* (Rhoads, 1898) - Valid); Texas River Otter (*L.c. texensis* (Goldman, 1935) - Invalid?); Vancouver River Otter (*L.c. vancouverensis* (Goldman, 1935) - Invalid?); Yukon River Otter (*L.c. yukonensis* (Goldman, 1935) - Invalid?). HABITS: Feeds on amphibians, birds, crustaceans, fishes, large aquatic insects, small mammals, aquatic plants and turtles. Nests are made of grasses, leaves, reeds and sticks located in dens dug in banks or within abandoned beaver and nutria dens and man-made structures. HABITAT: Within the range of this species it has been reported from permanently flowing water of streams and rivers, ponds, including beaver ponds, lakes, marshes and cienegas in areas where there is overhanging bank vegetation and haul-out and slide sites for access and where dens can be established in banks in wetland ecological formations within the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: It is believed that it formerly inhabited the Black river, Colorado River, Gila River and Salt River. The historical presence of the River Otter in Pima County is unknown. *Lontra canadensis lataxina* (Cuvier) was introduced into central Arizona during 1981 - 1983. *8 (*Lontra canadensis sonora* Rhoads), 14 (050112 - subsp. *sonora* (Rhoads); subsp. *lataxina* (Cuvier) color presentation), 42 (062112), **55** (recorded as *Lutra canadensis* (Schreber) "Formerly in all of the larger permanent river systems; now rare."), 73 (recorded as *Lutra canadensis*), 100 (recorded as *Lutra canadensis*, color photograph), 106 (050112 - includes a listing of subspecies, color presentation), 118 (recorded as *Lontra canadensis sonora* Rhoads - Distribution: Formerly occurred in the Colorado and Gila rivers and their major tributaries. Today greatly reduced in numbers. Figure 103, Page 242), 148 (color presentation)*

***Lontra canadensis* subsp. *sonora* (Rhoads, 1898): Southwestern River Otter**

SYNONYMY: *Lutra canadensis* subsp. *sonorae* Rhoads, 1898 - Invalid?. COMMON NAMES: Arizona Otter; Arizona River Otter; Common Otter; Mexican Otter; Nearctic River Otter; Pah-hua-pe'na (Tewa - Taos Indians)[14]; River Otter; Sonora Otter; South West Canadian River Otter; Southwestern River Otter. HABITS: Feeds on amphibians, birds, crustaceans, fishes, large aquatic insects, small mammals, aquatic plants and turtles. Nests are made of grasses, leaves, reeds and sticks

located in dens dug in banks or within abandoned beaver and nutria dens and man-made structures. HABITAT: Within the range of this species it has been reported from permanently flowing water of streams and rivers, ponds, including beaver ponds, lakes, marshes and ciénegas in areas where there is overhanging bank vegetation and haul-out and slide sites for access and where dens can be established in banks in wetland ecological formations within the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: It is believed that it formerly inhabited the Black river, Colorado River, Gila River and Salt River. The historical presence of the River Otter in Pima County is unknown. *Lontra canadensis lataxina* (Cuvier) was introduced into central Arizona during 1981 - 1983. *8 (*Lontra canadensis sonora* Rhoads), 14 (050112 - subsp. *sonora* (Rhoads); subsp. *lataxina* (Cuvier) color presentation), 42 (062112), 55 (species, recorded as *Lutra canadensis* (Schreber) "Formerly in all of the larger permanent river systems; now rare."), 73 (species, recorded as *Lutra canadensis*), 100 (species, recorded as *Lutra canadensis*, color photograph), 106 (050112 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Lontra canadensis sonora* Rhoads - Distribution: Formerly occurred in the Colorado and Gila rivers and their major tributaries. Today greatly reduced in numbers. Figure 103, Page 242), 148 (color presentation)*

Lutra canadensis (see *Lontra canadensis*)

Lutra canadensis subsp. *sonorae* (see *Lontra canadensis* subsp. *sonora*)

***Taxidea taxus* (Schreber, 1777): American Badger**

COMMON NAMES: American Badger; Badger; Berlandier's Badger (*T.t. berlandieri* Baird, 1758 - Valid); North American Badger; Mexican Badger (*T.t. berlandieri* Baird, 1758 - Valid); Tejon (Hispanic)[14]; Tejón ("Badger", a name also applied to the Coati, Spanish)[106]; Texas Badger (*T.t. berlandieri* Baird, 1758 - Valid); Tlalcoyote (Spanish)[42,106]. HABITS: Feeds on amphibians, ground dwelling birds (and eggs), carrion, fish, insects, burrowing rodents (moles, voles, gophers, ground squirrels, mice, woodrats, pack rats, prairie dogs, marmots, groundhogs), cottontails, pikas, jackrabbits, skunks, snakes and some plant material such as corn, peas, beans and mushrooms and fungi. Temporary shelter is taken in burrows. The young are born in natal dens in underground burrows. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *berlandieri* (Baird), color presentation), 42 (062112), **55** (recorded as *Taxidea taxus* (Schreber). Badger. Statewide (120 - 7,000 feet).), 65, 73, 100 (color photograph), 106 (050212 - includes a listing of subspecies, color presentation), **118** (recorded as *Taxidea taxus* - Distribution: Statewide. Figure 98, Page 235), 145, 148 (color presentation)*

***Taxidea taxus* subsp. *berlandieri* Baird, 1858: Berlandier's Badger**

COMMON NAMES: Berlandier's Badger; Mexican Badger; Tejon (Hispanic)[14]; Texas Badger. HABITS: The species feeds on amphibians, ground dwelling birds (and eggs), carrion, fish, insects, burrowing rodents (moles, voles, gophers, ground squirrels, mice, woodrats, pack rats, prairie dogs, marmots, groundhogs), cottontails, pikas, jackrabbits, skunks, snakes and some plant material such as corn, peas, beans and mushrooms and fungi. Temporary shelter is taken in burrows. The young are born in natal dens in underground burrows. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *berlandieri* (Baird), color presentation), 42 (062112), 55 (species, recorded as *Taxidea taxus* (Schreber). Badger. Statewide (120 - 7,000 feet).), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (050212 - species, includes a listing of subspecies, color presentation of species), 118 (recorded as *Taxidea taxus* - Distribution: Statewide. Figure 98, Page 235), **145** (described the range of *Taxidea taxus berlandieri* Baird as being throughout the state but absent from higher elevations), 148 (color presentation)*

Phyllostomidae: The Leaf-nosed Bat Family

***Choeronycteris mexicana* Tschudi, 1844: Mexican Long-tongued Bat**

COMMON NAMES: Hognose Bat; Hog-nosed Bat; Long-tongued Bat; Mexican Hog-nosed Bat; Mexican Long-tongued Bat; Murcielago Lengua Larga Mexicano (Hispanic)[14]; Murciélago Trompudo (Spanish)[42]. HABITS: Feeds on fruits, insects, nectar and pollen. Roosts are located under bridges, and in shallow caves, rock fissures and mine tunnels. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050212), 42 (062112), 55 (recorded as *Choeronycteris mexicana* Tschudi. Mexican Long-tailed Bat. Uncommon; usually found near the fronts of shallow caves and mine tunnels. Known from Pima, Santa Cruz and Cochise counties.), 73, 92, 100 (color photograph), 106 (050212 - color presentation), **118** (recorded as *Choeronycteris mexicana* Tschudi - Distribution: Known only from the southeastern part of the state. Figure 8, Page 33), 148 (color presentation)*

Leptonycteris curasoae subsp. *yerbabuenae* (see *Leptonycteris yerbabuenae*)

Leptonycteris nivalis (see footnote 55 under *Leptonycteris yerbabuenae*)

Leptonycteris nivalis subsp. *nivalis* (see footnote 118 under *Leptonycteris yerbabuenae*)

Leptonycteris nivalis subsp. *sanborni* (see *Leptonycteris yerbabuenae*)

Leptonycteris nivalis subsp. *yerbabuenae* (see *Leptonycteris yerbabuenae*)

Leptonycteris sanborni (see *Leptonycteris yerbabuenae*)

***Leptonycteris yerbabuenae* Martinez and Villa, 1940: Lesser Long-nosed Bat**

SYNONYMY: *Leptonycteris curasoae* subsp. *yerbabuenae* Martinez and Villa, 1940; *Leptonycteris nivalis* subsp. *sanborni* Hoffmeister, 1957 - Invalid?; *Leptonycteris nivalis* subsp. *yerbabuenae* Martinez and Villa, 1940; *Leptonycteris sanborni* Hoffmeister, 1957. COMMON NAMES: "Leptos" (a name applied by bat enthusiasts); Lesser Long-nosed Bat; Little Long-nosed Bat; Mexican Long-nosed Bat; Murcielago de Sanborn (Hispanic)[14]; North American Long-nosed Bat; Sanborn's Long-nosed Bat; Sanborn's Southern Long-nosed Bat; Southern Long-nosed Bat; Yerba Buena Long-nosed Bat. HABITS: Feeds on insects, nectar, pollen and the nectar and soft-bodied fruits of agaves and cacti. Roosts are located in caves, rock crevices, abandoned mines and tunnels. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Long-nosed bats are pollinators of Agaves, Cardons, Organ Pipe Cacti and Saguaros. *8, 14 (0502-12 - Populations may be compromised by roost-site disturbance, loss of food sources and direct killing by humans.), 35 (This species is vulnerable to disturbances at roosting sites by cave explorers.), 42 (062112), 55 (species, recorded as *Leptonycteris nivalis* (Saussure). Long-nosed Bat. Locally common in moist caves. Known from Pinal, Pima, Santa Cruz and Cochise Counties.), 92 (recorded as *Leptonycteris sanborni*), 100 (species, recorded as *Leptonycteris curasoae* and *Leptonycteris nivalis*, color photographs), 106 (050212 - color presentation), 110 (recorded as *Leptonycteris sanborni*), **118** (recorded as *Leptonycteris nivalis nivalis* (Saussure) - Distribution: Known only from the southeastern part of the state. Figure 9, Page 35), 148 (color presentation)*

***Macrotus californicus* Baird, 1857: California Leaf-nosed Bat**

COMMON NAMES: California Big-eared Bat; California Large-eared Bat; California Leaf-nosed Bat; Leaf-nosed Bat; Leafnose Bat; Murciélago-orejón Californiano (Spanish)[42]. HABITS: Feeds on beetles, butterflies, caterpillars, cicadas, crickets, dragonflies, grasshoppers, leafhoppers, moths and other insects. Roosts are located in caves, deep grottos and abandoned mine tunnels. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. NOTE: Human disturbance of roosting caves is a major threat. *8, 14 (050212), 42 (062112), **55** (recorded as *Macrotus californicus* Baird. Leaf-nosed Bat. Locally common in shallow caves, mine tunnels and under bridges. Occurs widely at lower elevations in the western and southern parts of the state."), 73, 92, 100 (color photograph), 106 (061612 - color presentation), **118** (recorded as *Macrotus californicus* Baird - Distribution: Known from lower elevations in the southern and western parts of the state. Figure 7, Page 32), 148 (color presentation)*

Procyonidae: The Raccoon and Allies Family

***Bassariscus astutus* (Lichtenstein, 1830): Ringtail**

COMMON NAMES: Arizona Ringtail (*B.a. arizonensis* Goldman, 1932 - Valid); Arizona Ring-tailed Cat (*B.a. arizonensis* Goldman, 1932 - Valid); Band-tailed Cat; Cacomistle; Cacomixtle Norteño (Spanish)[42]; Cat Squirrel; Civet Cat; Common Raccoon-fox; Coon Cat; Gato Minero (Hispanic)[14]; Mexican Ring-tailed Cat (*B.a. yumanensis* Huey, 1937 - Valid); Miner's Cat; Nevada Ring-tailed Cat (*B.a. nevadensis* Miller, 1913 - Valid); Ringtail; Ringtail Cat; Ring-tailed Cat; Tawny Raccoon-fox (*B.a. flavus* Rhoads, 1893 - Valid); Texas Ring-tailed Cat (*B.a. flavus* Rhoads, 1893 - Valid); Yuma Ringtail (*B.a. yumanensis* Huey, 1937 - Valid); Yuma Ring-tailed Cat (*B.a. yumanensis* Huey, 1937 - Valid). HABITS: Feeds on berries, birds, fruits, carrion, crickets, eggs, insects, lizards, small mammals, snakes and spiders. Nests are made of grass located in dens in underground burrows, caves, cliffs, rocky outcrops, cavities in logs, stumps and trees and man-made structures. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (subsp. *arizonensis*; subsp. *nevadensis*; subsp. *yumanensis*), 14 (050212- subsp. *arizonensis* (Goldman); subsp. *flavus* (Rhoads), color presentation), 42 (062112), **55** (recorded as *Bassariscus astutus* (Lichenstein). Ringtail. Statewide (120 - 6,500 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (050212 - includes a listing of subspecies, color presentation), 118 (recorded as *Bassariscus astutus arizonensis* Goldman - Distribution: Statewide except extreme southeastern and southwestern parts; *Bassariscus astutus flavus* Rhoads - Distribution: Extreme southeastern part of the state, and *Bassariscus astutus yumanensis* Huey - Distribution: Southwestern Arizona. Figure 93, Page 227), 148 (color presentation)*

***Bassariscus astutus* subsp. *arizonensis* Goldman, 1932: Arizona Ringtail**

COMMON NAMES: Arizona Ring-tailed Cat; Band-tailed Cat; Cacomistle; Civet Cat; Coon Cat; Gato Minero (Hispanic)[14]; Miner's Cat; Ringtail; Ringtail Cat; Ring-tailed Cat. HABITS: The species feeds on berries, birds, fruits, carrion, crickets, eggs, insects, lizards, small mammals, snakes and spiders. Nests are made of grass located in dens in underground burrows, caves, cliffs, rocky outcrops, cavities in logs, stumps and trees and man-made structures. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050212- subsp. *arizonensis* (Goldman); subsp. *flavus* (Rhoads), color presentation), 42 (062112), 55 (species, recorded as *Bassariscus astutus* (Lichenstein). Ringtail. Statewide (120 - 6,500 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (050212 - species, includes a listing of subspecies, color presentation of species),

118 (recorded as *Bassariscus astutus arizonensis* Goldman - Distribution: Statewide except extreme southeastern and southwestern parts. Figure 93, Page 227), 148 (color presentation)*

Nasua narica (Linnaeus, 1766): White-nosed Coati

COMMON NAMES: Antoon[106]; Boqueron Coati (*N.n. panamensis* Allen, 1904 - Invalid?); Chula[14,65]; Chulo[14]; Coati (Indian Name)[14]; Coatí Norteño (Spanish)[42]; Coatimundi (generally applied to roving male Coati)[106]; Cozumel Island Coati (*N.n. nelsoni* Merriam, 1901 - Valid); Dark Coati (*N.n. molaris* Merriam, 1902 - Valid); El Gato Solo (Los Gatos en Familia)[14]; Manzanillo Coati (*N.n. molaris* Merriam, 1902 - Valid); Nelson's Coati (*N.n. nelsoni* Merriam, 1901 - Valid); Pallid Coati (*N.n. molaris* Merriam, 1902 - Valid); Panamanian Coati (*N.n. panamensis* Allen, 1904 - Invalid?); Pizote[14,106]; Red Coati (*N.n. rufus* Goldman, 1932 - Invalid?); Tamaulipas Coati (*N.n. molaris* Merriam, 1902 - Valid); Tejón (means Badger, but is a name that is also applied to the Coati, Spanish)[106]; White-nosed Coati; Yucatan Coati (*N.n. yucatanica* J.A. Allen, 1904 - Valid); Yucatanian Coati (*N.n. yucatanica* J.A. Allen, 1904 - Valid). HABITS: Feeds on the berries of juniper and manzanita, birds, carrion, eggs, fruits, insects (including among others crickets and grasshoppers) and other invertebrates, prickly pear fruit, lizards, small mammals, nuts, snakes, tubers, worms and yucca fruits. Young are born in dens located in caves, crevices in rocks, mines shafts and cavities among tree roots. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - color presentation), 42 (062112), **55** (recorded as *Nasua narica* (Linnaeus). Coati. In woodland situations in the Graham, Chiricahua, Huachuca, Patagonia and Pena Blanca mountains (5,000 to 7,500 feet).), 65 (Reported that "eyewitness accounts by ranchers established that they (*Nasua narica*) were in the Rincon Mountains in what is now part of the Saguaro National Monument in the very early 1900s." Page 42), 73, 100 (color photograph), 106 (050212 - includes a listing of subspecies, color presentation), 118 (recorded as *Nasua narica pallida* Allen - Distribution: Mountains of southern and southeastern part of the state. Figure 95, Page 230), 148 (color presentation), 149*

Nasua narica subsp. *molaris* Merriam, 1902: Manzanillo Coati

SYNONYMY: *Nasua narica* subsp. *pallida* J.A. Allen, 1904 - Invalid?. COMMON NAMES: Coati (Indian Name)[14]; Coatimundi (applied to roving male Coati)[106]; Dark Coati; Manzanillo Coati; Pallid Coati; Tamaulipas Coati; Tejón (means Badger, but is a name that is also applied to the Coati, Spanish). HABITS: The species feeds on the berries of juniper and manzanita, birds, carrion, eggs, fruits, insects (including among others crickets and grasshoppers) and other invertebrates, prickly pear fruit, lizards, small mammals, nuts, snakes, tubers, worms and yucca fruits. Young are born in dens located in caves, crevices in rocks, mines shafts and cavities among tree roots. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - species, color presentation), 42 (062112), 55 (species, recorded as *Nasua narica* (Linnaeus). Coati. In woodland situations in the Graham, Chiricahua, Huachuca, Patagonia and Pena Blanca mountains (5,000 to 7,500 feet).), 65 (species, reported that "eyewitness accounts by ranchers established that they (*Nasua narica*) were in the Rincon Mountains in what is now part of the Saguaro National Monument in the very early 1900s." Page 42), 73 (species), 100 (species, color photograph), 106 (050212 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Nasua narica pallida* Allen - Distribution: Mountains of southern and southeastern part of the state. Figure 95, Page 230), 148 (color presentation), 149*

Nasua narica subsp. *pallida* (see *Nasua narica* subsp. *molaris*)

Procyon lotor (Linnaeus, 1758): Common Raccoon

COMMON NAMES: Ahrah-koon-em ("[the] One Who Rubs, Scrubs, and Scratches with Its Hands", Proto-Algonquian)[106]; Alabama Raccoon (*P.l. varius* Nelson and Goldman, 1930 - Invalid?); Araiguma (transcribed Japanese)[106]; Arathkone (transcribed Powhatan)[106]; Aroughcun (transcribed Powhatan)[106]; Bahama Raccoon (*P.l. maynardi* Bangs, 1898 - Valid); Bahamas Raccoon (*P.l. maynardi* Bangs, 1898 - Valid); Bahamian Raccoon (*P.l. maynardi* Bangs, 1898 - Valid); Baja California Raccoon (*P.l. grinnelli* Nelson and Goldman, 1930 - Valid); Barbados Raccoon (*P.l. gloveralleni* Nelson and Goldman, 1930 - Valid: extinct); California Raccoon (*P.l. psora* Gray, 1842 - Valid); Campeche Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Coastal Marsh Raccoon (*P.l. lotor* (Linnaeus, 1758) - Valid); Colorado Desert Raccoon (*P.l. pallidus* Merriam, 1900 - Valid); Common Raccoon; Coon (colloquial abbreviation)[106]; Costa Rican Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Desert Raccoon (*P.l. pallidus* Merriam, 1900 - Valid); Dickey's Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Eastern Raccoon (*P.l. lotor* (Linnaeus, 1758) - Valid); Florida Raccoon (*P.l. elucus* Bangs, 1898 - Valid); Guadeloupe Raccoon (*P.l. minor* Miller, 1911 - Invalid?); Hernandez Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Hilton Head Island Raccoon (*P.l. solutus* Nelson and Goldman, 1931 - Invalid?); Isthmian Raccoon (*P.l. pumilus* Miller, 1911 - Valid); Key Vaca Raccoon (*P.l. auspicatus* Nelson, 1930 - Valid); Key West Raccoon (*P.l. incautus* Nelson, 1930 - Valid); Mapache (Spanish: from the Uto-Aztecan, Náhuatl [Aztec] word Mapachitli "[the] One Who Takes Everything in Its Hands")[106]; Mapache Común (Spanish)[42]; Matecumbe Key Raccoon (*P.l. inesperatus* Nelson, 1930 - Valid); Mexican Plateau Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Mexican Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Mississippi Delta Raccoon (*P.l. megalodous* Lowery, 1943 - Valid); Mosómedve (Hungarian)[106]; North American Raccoon; Northern Raccoon; Orsetto Lavatore (Italian)[106]; Pacific Raccoon (*P.l. pacificus* Merriam, 1899 - Valid); Pacific Northwest Raccoon (*P.l. pacificus* Merriam, 1899 - Valid); Pale Raccoon (*P.l. pallidus* Merriam, 1900 - Valid); Pallid Raccoon (*P.l. pallidus* Merriam, 1900 - Valid); Raccoon; Racoon; Racuno (Hispanic)[14]; Ratão-lavadeiro (Portuguese: Portugal)[106]; Raton Laveur (French)[42,106]; Saint Simon Island Raccoon (*P.l. litoreus* Nelson and Goldman, 1930 - Valid); Salvadore Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); San Diego Raccoon (*P.l. psora* Gray, 1842 - Valid); Sleepy Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Snake River Valley Raccoon (*P.l. excelsus* Nelson

and Goldman, 1930 - Valid); Southwestern Raccoon (*P.l. psora* Gray, 1842 - Valid); Ten Thousand Islands Raccoon (*P.l. marinus* Nelson, 1930 - Valid); Texas Raccoon (*P.l. fuscipes* Mearns, 1914 - Valid); Thousand Island Raccoon (*P.l. marinus* Nelson, 1930 - Valid); Torch Key Raccoon (*P.l. incautus* Nelson, 1930 - Valid); Tres Marias Raccoon (*P.l. insularis* Merriam, 1898 - Valid); Upper Mississippi Valley Raccoon (*P.l. hirtus* Nelson & Goldman, 1930 - Valid); Vancouver Raccoon (*P.l. vancouverensis* Nelson and Goldman, 1930 - Valid); Waschbär (German)[106]. HABITS: Feeds on annelid worms, berries, birds, nestlings and eggs, carrion, crayfishes, small fishes, frogs, fruits, insects, small mammals, nuts, shellfish, turtles and turtle eggs and vegetables. Nests are made of leaves located in dens in small caves, amongst boulders, rocky crevices in cliffs and cavities in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Racoons are never very far from permanent water. *14 (050212 - subsp. *hirtus* (Nelson & Goldman); subsp. *mexicanus* (Baird); subsp. *pallidus* (Merriam)), 42 (062112), **55** (recorded as *Procyon lotor* (Linnaeus). Raccoon. Riparian situations along the Colorado, Little Colorado and Gila river systems and in the grasslands of the southeastern portion of the state (120 - 6,900 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (050212 - includes a listing of subspecies, color presentation), 118 (recorded as *Procyon lotor* subsp. *mexicanus* Baird - Distribution: Southeastern Arizona; *Procyon lotor* subsp. *pallidus* Merriam - Distribution: Northern and Western Arizona. Figure 94, Page 229), 148 (color presentation), 149*

Procyon lotor subsp. *hernandezii* Wagler, 1831: Mexican Plateau Raccoon

SYNONYMY: *Procyon lotor* subsp. *mexicana* Baird, 1858 - Invalid?; *Procyon lotor* subsp. *mexicanus* Baird, 1858 - Invalid?. COMMON NAMES: Hernandez Raccoon; Mexican Plateau Raccoon; Mexican Raccoon; Raccoon; Racuno (Hispanic)[14]. HABITS: Feeds on annelid worms, berries, birds, nestlings and eggs, carrion, crayfishes, small fishes, frogs, fruits, insects, small mammals, nuts, shellfish, turtles and turtle eggs and vegetables. Nests are made of leaves located in dens in small caves, amongst boulders, rocky crevices in cliffs and cavities in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Racoons are never very far from permanent water. *14 (050212 - subsp. *hirtus* (Nelson & Goldman); subsp. *mexicanus* (Baird); subsp. *pallidus* (Merriam)), 42 (062112), 55 (species, recorded as *Procyon lotor* (Linnaeus). Raccoon. Riparian situations along the Colorado, Little Colorado and Gila River systems and in the grasslands of the southeastern portion of the state (120 - 6,900 feet).), 65 (color photograph), 73 (species), 100 (species, color photograph of species), 106 (050212 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Procyon lotor mexicanus* Baird - Distribution: Southeastern Arizona. Figure 94, Page 229), 148 (color presentation), 149*

Procyon lotor subsp. *mexicana* (see *Procyon lotor* subsp. *hernandezii*)

Procyon lotor subsp. *mexicanus* (see *Procyon lotor* subsp. *hernandezii*)

Sciuridae: The Squirrel and Allies Family

Ammospermophilus harrisii (Audubon and Bachman, 1854): Harris' Antelope Squirrel

SYNONYMY: *Citellus harrisii* (Audubon and Bachman, 1854) - Invalid?. COMMON NAMES: Ardilla de Tierra Harris (Hispanic)[14]; Ardilla-antilope de Sonora (Spanish)[42]; Bahia Kino Antelope Squirrel (*A.h. saxicolus* (Mearns, 1896) - Invalid?); Gray-tailed Antelope Squirrel (*A.h. harrisii* (Audubon and Bachman, 1854) - Invalid?); Harris Antelope Squirrel; Harris' Antelope Squirrel; Harris' Antelope-squirrel; Harris's Antelope Squirrel; Rock Spermophile (*A.h. saxicolus* (Mearns, 1896) - Invalid?); Yuma Antelope Squirrel (*A.h. saxicolus* (Mearns, 1896) - Invalid?). HABITS: Feeds on fruits, insects, plants and seeds. Dens are located in underground burrows. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *harrisii*), 42 (062112), **55** (recorded as *Citellus harrisii* (Audubon & Bachman). Harris Antelope Squirrel. Southern and western parts of the state at elevations below 6,500 feet.), 65 (color photograph), 73, **78**, 100 (color photograph), 106 (050212 - color presentation), 118 (recorded as *Citellus harrisii harrisii* (Audubon & Bachman) - Distribution: Southern and western Arizona except for most of Yuma County. *Citellus harrisii saxicola* (Mearns) - Distribution: Southwestern Arizona. Figure 38, Page 85), 148 (color presentation), 149*

Ammospermophilus harrisii subsp. *harrisii* (Audubon and Bachman, 1854) - Invalid?: Harris' Antelope Squirrel

SYNONYMY: *Citellus harrisii* subsp. *harrisii* (Audubon & Bachman, 1854) - Invalid?. COMMON NAMES: Ardilla de Tierra Harris (Hispanic)[14]; Gray-tailed Antelope Squirrel; Harris Antelope Squirrel; Harris' Antelope Squirrel; Harris' Antelope-squirrel; Harris's Antelope Squirrel;. HABITS: The species feeds on fruits, insects, plants and seeds. Dens are located in underground burrows. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *harrisii*), 42 (062112 - no subspecies listed), 55 (species, recorded as *Citellus harrisii* (Audubon & Bachman). Harris Antelope Squirrel. Southern and western parts of the state at elevations below 6,500 feet.), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (050212 - color presentation), **118** (recorded as *Citellus harrisii harrisii* (Audubon & Bachman) - Distribution: Southern and western Arizona except for most of Yuma County, Page 85), 148 (color presentation), 149*

Citellus harrisii (see *Ammospermophilus harrisii*)

Citellus harrisii subsp. *harrisii* (see *Ammospermophilus harrisii* subsp. *harrisii*)

Citellus tereticaudus (see *Spermophilus tereticaudus*)

Citellus tereticaudus subsp. *neglectus* (see footnote 118 under *Spermophilus tereticaudus*)

Citellus variegatus (see *Spermophilus variegatus*)

Citellus variegatus subsp. *grammurus* (see *Spermophilus variegatus* subsp. *grammurus*)

Otospermophilus variegatus (see *Spermophilus variegatus*)

Otospermophilus variegatus subsp. *grammurus* (see *Spermophilus variegatus* subsp. *grammurus*)

***Spermophilus tereticaudus* Baird, 1858: Round-tailed Ground Squirrel**

SYNONYMY: *Citellus tereticaudus* Baird - Invalid?. COMMON NAMES: Ardillón Cola Redonda (Spanish)[42,106]; Arizona Round-tailed Ground Squirrel (*S.t. neglectus* Merriam, 1889 - Invalid?); Coachella Valley Round-tailed Ground Squirrel (*S.t. chlorus* (Elliot, 1904) - Valid); Dolan Spring Ground Squirrel (*S.t. neglectus* Merriam, 1889 - Invalid?); Neglected Spermophile (*S.t. neglectus* Merriam, 1889 - Invalid?); Round-tailed Ground Squirrel. HABITS: Feeds on the buds of burroweed and mesquite; the leaves of shrubs; the flowers of ocotillo, palo verde, plantain, and saltbush; on the seeds of creosote bush and mesquite, and cacti, grasses, insects (ants, grasshoppers, termites), observed taking Gambel's Quail chicks and visiting road kill. Nests are made of plant fibers and stems and located in dens in underground burrows. HABITAT: Within the range of this species it has been reported from the desertscrub ecological formation. *14 (050212), 42 (062112), **55** (recorded as *Citellus tereticaudus* Baird. Round-tailed Ground Squirrel. Lower Sonoran Life-zone of the western part of the state (below 3,200 feet).), 65, 73, **78**, 100 (color photograph), 106 (050212 - includes a listing of subspecies, color presentation), **118** (recorded as *Citellus tereticaudus neglectus* (Merriam) - Distribution: Lower Sonoran Life Zone of southwestern Arizona. Figure 39, Page 90), 148 (color presentation)*

***Spermophilus variegatus* (Erxleben, 1777): Rock Squirrel**

SYNONYMY: *Citellus variegatus* (Erxleben) - Invalid?; *Otospermophilus variegatus* (Erxleben, 1777) - Invalid?. COMMON NAMES: Ardilla Coluda (Hispanic)[14]; Ardillón de Roca (Spanish)[42]; Black-backed Rock Squirrel (*S.v. buckleyi* Slack, 1861 - Invalid?); Brown-headed Rock Squirrel (*S.v. rupestris*, (J. Allen, 1903) - Invalid?); Buckley's Spermophile (*S.v. buckleyi* Slack, 1861 - Invalid?); Bushy-tailed Spermophile (*S.v. grammurus* (Say, 1823) - Invalid?); Malapais Rock Squirrel (*S.v. tularosae* (Benson, 1932) - Invalid?); Mexican Rock Squirrel (*S.v. variegatus* (Erxleben, 1777 - Invalid?); Rock Squirrel; Say's Rock Squirrel (*S.v. grammurus* (Say, 1823) - Invalid?); Tiburon Rock Squirrel (*S.v. tiburonensis* Jones and Manning, 1989 - Invalid?); Tularosa Rock Squirrel (*S.v. tularosae* (Benson, 1932) - Invalid?); Utah Rock Squirrel (*S.v. utah* (Merriam, 1903) - Invalid?); Varied Squirrel; Walnut Rock Squirrel (*S.v. juglans* (V. Bailey, 1913) - Invalid?). HABITS: Feeds on acorns, berries, small birds, chicks and eggs, carrion, insects, fruits, small mammals, nuts and seeds. Nests are made of leaves, pine needles and plant fibers and located in dens in underground burrows between boulders, rock crevices and talus. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *grammurus* (Say); *tularosae* (Benson), color presentation), 42 (062112), **55** (recorded as *Citellus variegatus* (Erxleben). Rock Squirrel. Statewide, especially at elevations below 6,000 feet.), 65 (color photograph), 73, **78**, 100 (color photograph), 106 (050212 - color presentation), 118 (recorded as *Citellus variegatus grammurus* (Say) - Distribution: Statewide, especially common below 6000 feet. Figure 37, Page 82), 148 (color presentation), 149*

***Spermophilus variegatus* subsp. *grammurus* Say, 1823** - Invalid?**: Say's Rock Squirrel**

SYNONYMY: *Citellus variegatus* subsp. *grammurus* - Invalid?; *Otospermophilus variegatus* subsp. *grammurus* Say, 1823 - Invalid?. COMMON NAMES: Ardilla Coluda (Hispanic); Bushy-tailed Spermophile; Rock Squirrel; Say's Rock Squirrel. HABITS: The species feeds on acorns, berries, small birds, chicks and eggs, carrion, insects, fruits, small mammals, nuts and seeds burrows. Nests are made of leaves, pine needles and plant fibers and located in dens in underground burrows between boulders, rock crevices and talus. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *grammurus* (Say); *tularosae* (Benson), color presentation), 42 (062112 - no subspecies listed), 55 (species, recorded as *Citellus variegatus* (Erxleben). Rock Squirrel. Statewide, especially at elevations below 6,000 feet.), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (050212 - species, color presentation of species), **118** (recorded as *Citellus variegatus grammurus* (Say) - Distribution: Statewide, especially common below 6000 feet. Figure 37, Page 82), 148 (color presentation), 149*

***Notiosorex crawfordi* (Coues, 1877): Desert Shrew**

COMMON NAMES: Crawford's Desert Shrew (*N.c. crawfordi* (Coues, 1877) - Invalid?); Crawford's Gray Shrew; Desert Shrew; Gray Shrew; Musarana del Deseirto Crawford (Hispanic)[14]; Musaraña-desértica Norteña (Spanish)[42]. HABITS: Feeds on centipedes, insects, lizards, small mice, scorpions, sowbugs and spiders. Nests are made of shredded bark and leaves and located in packrat dens or under dead agaves. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *crawfordi*, color presentation), 42 (061712), **55** (recorded as *Notiosorex crawfordi* (Coues). Desert Shrew. Locally common, widely distributed statewide at elevations below 6,000 feet, especially in riparian situations.), 65, 73, 100 (color photograph), 106 (050212 - color presentation), 118 (recorded as *Notiosorex crawfordi crawfordi* (Coues) - Distribution: Probably occurs statewide at elevations below 6000 feet. Figure 5, Page 30), 148 (color presentation)*

***Notiosorex crawfordi* subsp. *crawfordi* (Coues, 1877) - Invalid?: Crawford's Desert Shrew**

COMMON NAMES: Crawford's Desert Shrew; Crawford's Gray Shrew; Desert Shrew; Gray Shrew; Musarana del Deseirto Crawford (Hispanic)[14]. HABITS: The species feeds on centipedes, insects, lizards, small mice, scorpions, sowbugs and spiders. Nests are made of shredded bark and leaves and located in packrat dens or under dead agaves. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *crawfordi*, color presentation of species), 42 (061712 - no subspecies listed), 55 (species, recorded as *Notiosorex crawfordi* (Coues). Desert Shrew. Locally common, widely distributed statewide at elevations below 6,000 feet, especially in riparian situations.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (050212 - color presentation of species), **118** (recorded as *Notiosorex crawfordi crawfordi* (Coues) - Distribution: Probably occurs statewide at elevations below 6000 feet. Figure 5, Page 30), 148 (color presentation of species)*

Tayassuidae: The Javelina Family

Dicotyles tajacu (see *Pecari tajacu*)

Dicotyles tajacu subsp. *sonoriensis* (see *Pecari tajacu* subsp. *sonoriensis*)

Pecari angulatus (see footnote 65 under *Pecari tajacu* and/or *Pecari tajacu* subsp. *sonoriensis*)

***Pecari tajacu* (Linnaeus, 1758): Collared Peccary**

SYNONYMY: *Dicotyles tajacu* (Linnaeus, 1758) - Invalid; *Tayassu tajacu* (Linnaeus, 1758). COMMON NAMES: Báquiro[106]; Collared Peccary; Jabalina (Hispanic)[14]; Javelina; Mexican Hog; Musk Hog; Pecari de Collar (Spanish)[42]; Peccary; Pigelina (Arizona); Quenk (Trinidad)[106]; Saíno[106]; Sonoran Collared Peccary (*P.t. sonoriensis* (Mearns, 1897) - Invalid?); Sonora Peccary (*P.t. sonoriensis* (Mearns, 1897) - Invalid?); Texan Collard Peccary (*P.t. angulatus* (Cope, 1889) - Invalid?); Wild Hog; Wild Pig. HABITS: Feeds on agaves, amphibians, berries, bulbs, fruits, fungi, grasses, insects, mesquite beans, nuts, roots, palm nuts, succulent plants, prickly-pear and other cacti, reptiles, rodents, roots, sotol, tubers and worms. Javelina bed down during the day in thick brush and prickly-pear thickets and at night in burrows usually under the roots of trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050312 - subsp. *sonoriensis* (Mearns), color presentation), 42 (061712), **55** (recorded as *Tayassu tajacu* (Linnaeus), Javelina. Southeastern and central parts of the state (1,200 - 6,000 feet).), 65 (recorded as *Pecari angulatus*), 73 (recorded as *Dicotyles tajacu*), 100 (recorded as *Tayassu tajacu*, color photograph), 106 (050312 - color presentation), 118 (recorded as *Tayassu tajacu sonoriensis* (Mearns) - Distribution: Southern part of the state. Figure 107, Page 249), 148 (color presentation), 149*

***Pecari tajacu* subsp. *sonoriensis* (Mearns, 1897) - Invalid?: Sonoran Collared Peccary**

SYNONYMY: *Dicotyles tajacu* subsp. *sonoriensis* (Mearns, 1897) - Invalid?; *Tayassu tajacu* subsp. *sonoriensis* (Mearns, 1897) - Invalid?. COMMON NAMES: Collared Peccary; Jabalina (Hispanic)[14]; Javelina; Musk Hog; Peccary; Pigelina (Arizona); Sonora Peccary; Sonoran Collared Peccary. HABITS: The species feeds on agaves, amphibians, berries, bulbs, fruits, fungi, grasses, insects, mesquite beans, nuts, roots, palm nuts, succulent plants, prickly-pear and other cacti, reptiles, rodents, roots, sotol, tubers and worms. Javelina bed down during the day in thick brush and prickly-pear thickets and at night in burrows usually under the roots of trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050312 - subsp. *sonoriensis* (Mearns), color presentation), 42 (061712 - no subspecies listed), 55 (species, recorded as *Tayassu tajacu* (Linnaeus). Javelina. Southeastern and central parts of the state (1,200 - 6,000 feet).), 65 (species, recorded as *Pecari angulatus*), 73 (species, recorded as *Dicotyles tajacu*), 100 (species, recorded as *Tayassu tajacu*, color photograph of species), 106 (050312 - color presentation of species), **118** (recorded as *Tayassu tajacu sonoriensis* (Mearns) - Distribution: Southern part of the state. Figure 107, Page 249), 148 (color presentation), 149*

Tayassu tajacu (see *Pecari tajacu*)

Tayassu tajacu subsp. *sonoriensis* (see see *Pecari tajacu* subsp. *sonoriensis*)

Ursidae: The Bear Family

Euarctos americanus (see *Ursus americanus*)

Euarctos americanus subsp. *amblyceps* (see *Ursus americanus* subsp. *amblyceps*)

***Ursus americanus* Pallas, 1780: Black Bear**

SYNONYMY: *Euarctos americanus* (Pallas, 1780) - Invalid?. COMMON NAMES: Alexander Black Bear (*U.a. pugnax* Swarth, 1911 - Valid); American Black Bear (*U.a. americanus* Pallas, 1780 - Valid); Awasos (Algonquian: Abenaki)[106]; 'Baribal' (French, Italian, Spanish)[106]; Black Bear; Blue Bear (*U.a. emmonsii* Dall, 1895 - Valid); British Columbia Bear (*U.a. altifrontalis* Elliot, 1903 - Valid); California Black Bear (*U.a. californiensis* Miller, 1900 - Valid); Cinnamon Bear (*U.a. cinnamomum* Audubon and Bachman, 1854 - Valid); Dall Black Bear (*U.a. pugnax* Swarth, 1911 - Valid); Dall Island Black Bear (*U.a. pugnax* Swarth, 1911 - Valid); Daxpitchée (Siouan: Crow)[106]; Desert Black Bear (*U.a. eremicus* Merriam, 1904 - Valid); Eastern Black Bear (*U.a. americanus* Pallas, 1780 - Valid); Emmons Bear (*U.a. emmonsii* Dall, 1895 - Valid); Emmons's Glacier Bear (*U.a. emmonsii* Dall, 1895 - Valid); Everglades Bear (*U.a. floidanus* Merriam, 1896 - Valid); Fighting Bear (*U.a. machetes* Elliot, 1903 - Valid); Florida Black Bear (*U.a. floidanus* Merriam, 1896 - Valid); Floridan Bear (*U.a. floidanus* Merriam, 1896 - Valid); Glacier Bear (*U.a. emmonsii* Dall, 1895 - Valid; *U.a. glacilis* Kells, 1897 - Invalid?); Gv-ni-ge-yo-na (Iroquoian: Tsalagi)[106]; Haida Gwaii Black Bear (*U.a. carlottae* Osgood, 1901 - Valid); Hoonaw (Uto-Aztecan: Hopi)[106]; Hunter's Bear (*U.a. perniger* J.A. Allen, 1910 - Valid [*U.a. hunteri* Anderson, 1944 - Invalid?]); Jóona (Uto-Aztecan: Mayo [Yoreme])[106]; Judumi (Uto-Aztecan: O'odham))[106] Kenai Peninsula Bear (*U.a. perniger* J.A. Allen, 1910 - Valid); Kermode Bear (*U.a. kermodei* Hornaday, 1905 - Valid); Kenai Black Bear (*U.a. perniger* J.A. Allen, 1910 - Valid); Kiááyo (Algonquian: Blackfoot)[106]; Kmákan (Yuman: Kiliwa)[106]; Louisiana Black Bear (*U.a. luteolus* Griffith, 1821 - Valid); Mahkwa (Algonquian: Kickapoo)[106]; Makwa (Algonquian)[106]; Makwaa (Algonquian: Ojibwe)[106]; Maskwa (Algonquian: Cree)[106]; Mato (Siouan: Lakota [Sioux])[106]; Mexican Black Bear (*U.a. eremicus* Merriam, 1904 - Valid); Minnesota Black Bear(*U.a. americanus* Pallas, 1780 - Valid); Mishe-Mo'kwa (? 'the Great Bear' Longfellow's *Hiawatha*); New Mexico Black Bear (*U.a. amblyceps* Baird, 1859 - Valid); Newfoundland Black Bear (*U.a. hamiltoni* Cameron, 1957 - Valid); North American Black Bear; Northwestern Black Bear (*U.a. altifrontalis* Elliot, 1903 - Valid); Ohoí (Uto-Aztecan: Guarijío)[106]; Ojuí (Uto-Aztecan: Tarahumara)[106]; Olympic Black Bear (*U.a. altifrontalis* Elliot, 1903 - Valid); Oso Negro (Hispanic)[14]; Oso Negro (Spanish)[42]; Ours Noir (French)[42]; Queen Charlotte Black Bear (*U.a. carlottae* Osgood, 1901 - Valid); S'eek (Na-Dené: Tlingit)[106]; Shash [Łizhinígíí] (Athabaskan: Navajo)[106]; Shoot-zhraii (Athabaskan: Gwich'in)[106]; Sonborger's Black Bear (*U.a. americanus* Pallas, 1780 - Valid; *U.a. songborgeri* Bangs, 1898 - Invalid?); Spirit Bear (*U.a. kermodei* Hornaday, 1905 - Valid); S^S (Athabaskan: Carrier)[106]; Texan Black Bear (*U.a. luteolus* Griffith, 1821 - Valid); Tlācamāyeh (Uto-Aztecan: Náhuatl)[106]; Tsah (Athabaskan: Dene)[106]; Vancouver Bear (*U.a. vancouveri* Hall, 1928 - Valid); Vancouver Island Black Bear (*U.a. vancouveri* Hall, 1928); Weda' (Uto-Aztecan: Shoshone)[106]; West Mexico Black Bear (*U.a. machetes* Elliot, 1903 - Valid); Yáaka' (Plateau Penutian: Sahaptian [Nez Perce])[106]; Yáka (Plateau Penutian: Sahaptian [Sahaptin])[106]. HABITS: Feeds on acorns, ants, beetles, berries, buds, carrion, crickets, currants, fish, fruits, grapes, grubs, insects, leaves, pinyon nuts, prickly-pear fruit, raspberries, sprouts, small to medium-size mammals and other vertebrates and twigs. Shelter is taken in dense cover and they climb trees to escape danger. Nests are made of grasses leaves, mud and sticks located in a den. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Winnipeg (aka "Winnie" 1915-1934) of "Winnie the Pooh" fame was a female Black Bear cub, and Black Bear cubs were also involved in the naming of Smokey the Bear and the Teddy Bear. *14 (050312 - subsp. *amblyceps* (Baird), color presentation), 42 (061712), 55 (recorded as *Euarctos americanus* (Pallas). Black Bear. Formerly common throughout the mountainous areas of the state, now greatly reduced in numbers and distribution.), 73, 100 (color photograph), 106 (050312 - includes a listing of subspecies, color presentation), 118 (recorded as *Euarctos americanus amblyceps* (Baird) - Distribution: Probably formerly occurred throughout the state, at least in mountainous areas. Figure 91, Page 224), 148 (color presentation), 153, ADS (Bear killed in SaddleBrooke' relatively unafraid' of humans, Wednesday, June 6, 2012, Page A2)*

***Ursus americanus* subsp. *amblyceps* Baird, 1859: New Mexico Black Bear**

SYNONYMY: *Euarctos americanus* subsp. *amblyceps* (Baird, 1859) - Invalid?. COMMON NAMES: Black Bear; New Mexico Black Bear; Oso Negro (Hispanic)[14]. HABITS: The species feeds on acorns, ants, beetles, berries, buds, carrion, crickets, currants, fish, fruits, grapes, grubs, insects, leaves, pinyon nuts, prickly-pear fruit, raspberries, sprouts, small to medium-size mammals and other vertebrates and twigs. Shelter is taken in dense cover and they climb trees to escape danger. Nests are made of grasses leaves, mud and sticks located in a den. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050312 - subsp. *amblyceps* (Baird), color presentation), 42 (061712), 55 (species, recorded as *Euarctos americanus* (Pallas). Black Bear. Formerly common throughout the mountainous areas of the state, now greatly reduced in numbers and distribution.), 73 (species), 100 (species, color photograph of species), 106 (050312 - includes a listing of subspecies, color presentation), **118** (recorded as *Euarctos americanus amblyceps* (Baird) - Distribution: Probably formerly occurred throughout the state, at least in mountainous areas. Figure 91, Page 224), 148 (color presentation of species)*

Ursus arctos (see footnotes 14 and 100 under *Ursus arctos* subsp. *horribilis*)

***Ursus arctos* subsp. *horribilis* Ord, 1815: Grizzly Bear**

SYNONYMY: *U.a. apache* Merriam, 1916 - Invalid?; *U.a. arizonae* Merriam, 1916 - Invalid?; *U.a. bairdi* Merriam, 1914 - Invalid?; *U.a. horriaeus* Baird, 1858 - Invalid?; *U.a. kennerlyi* Merriam, 1914 - Invalid?; *U.a. navaho* Merriam, 1914 - Invalid?; *U.a. perturbans* Merriam, 1918 - Invalid?; *U.a. texensis* Merriam, 1914 - Invalid?; *Ursus horribilis* Ord, 1815 - Invalid?. COMMON NAMES: American Grizzly Bear (*U.a. horribilis* Ord, 1815 - Valid); Apache Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. apache* Merriam, 1916 - Invalid?); Arizona Brown Bear (*U.a. horribilis* Ord, 1815 - Valid; *U.a. arizonae* Merriam, 1916 - Invalid?); Arizona Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. arizonae* Merriam, 1916 - Invalid?); Baird Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. bairdi* Merriam, 1914 - Invalid?); Big Plains Grizzly (*U.a. horribilis* Ord, 1815 - Valid); Brown Bear (*Ursus arctos* Linnaeus, 1758 - Valid; *U.a. arctos* Linnaeus, 1758 - Valid; *U.a. horribilis* Ord, 1815 - Valid; *U.a. pruinosus* Blyth, 1854 - Invalid?); Grizzly; Grizzly Bear (*Ursus arctos* Linnaeus - Valid, 1758; *U.a. horribilis* Ord, 1815 - Valid); Mishe-Mo'kwa (? 'the Great Bear' Longfellow's *Hiawatha*); Navajo Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. navaho* Merriam, 1914 - Invalid?); New Mexico Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. bairdi* Merriam, 1914 - Invalid?); North American Brown Bear; Oso Gris (Hispanic)[14]; Silvertip (*U.a. horribilis* Ord, 1815 - Valid); Silvertip Bear; Sonora Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. kennerlyi* Merriam, 1914 - Invalid?); Texas Brown Bear (*U.a. horribilis* Ord, 1815 - Valid; *U.a. texensis* Merriam, 1914 - Invalid?); Texas Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. texensis* Merriam, 1914 - Invalid?). HABITS: The species feeds on berries, carrion, fish (bass, salmon and trout), fungi, grasses, insects (Army Cutworm moths), leaves, large mammals (Bison, Black Bear, Caribou, Deer, Elk, Moose and Mountain Goats) and small mammals (rodents), nuts (Whitebark Pine nuts), roots and sprouts. The Grizzly Bear beds down in depressions in thickets. Dens are excavated from under rocks or located in caves, crevices or hollow trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The last confirmed "kill" in Arizona was made on the slopes of Mount Baldy (Apache County) in the summer of 1939. Pad marks and two-colored, four inch long hairs of a Grizzly Bear were observed in the Sierra Madre of southwestern Chihuahua as late as 1959. Grizzly Bears were killed-off by American immigrants because of the risks posed to humans and livestock. The Grizzly Bear has been EXTIRPATED from Arizona. *14 (050312 - *Ursus arctos* subsp. *horriaeus* Baird, 1858 - Extinct; subsp. *perturbans* Merriam - Extinct), **39** (recorded as *Ursus horribilis* - included the following note when referring to Grizzly Bears in the Tucson Area "Jack O'Connor told us of a kill in the Catalinas in 1915. Up until 1912, there were quite a few grizzly bears in the Catalinas and also the Galiuros. The Santa Cruz River bottom was a favorite hangout of these bears, all the way from Nogales to the Tucson area. We have a few authentic reports of desert grizzlies, but Jack talked with some old timers who hunted them in the river bottom." It reported that the majority of grizzly bears in Arizona were found in the east-central part of the state. The bears entire range, however, stretched from Bill Williams Mountain southeast to Springerville, the Chuska Mountains of the Four Corners area, then south to the Chiricahuas, west to Nogales, north using the Santa Cruz River as a western boundary to the Tucson area. Also the Santa Ritas, Catalinas, Galiuros, the Pinals, Sierra Anchas, the Young country of Canyon and Cherry Creeks, the Mazatzals, Pine Mountain, the Bradshaws, Mingus Mountain, the Camp Wood area and Sycamore Canyon, south of Bill Williams Mountain. The following dates of last known "kills" were provided: Arizona on September 13, 1935 (however, there was a possible sighting in 1936); California in August 1922; New Mexico has two "last" kills one in the spring of 1923 and the other in 1933; Texas on November 2, 1890, and Utah on August 22, 1923. A grizzly bear was killed in the Sierra del Pinitos in Sonora Mexico, a few miles southeast of Nogales, Arizona, on June 18, 1955. This booklet included the listing of six subspecies taken in Arizona: *Ursus horribilis apache*, the Apache Grizzly; *Ursus horribilis arizonae* Merriam, the Arizona Grizzly; *Ursus horribilis baird*, the New Mexico Grizzly; *Ursus horribilis kennerlyi*, the Sonora Grizzly; *Ursus horribilis navajo*, the Navajo Grizzly, and *Ursus horribilis texensis*, the Texas Grizzly), **40** (recorded as *Ursus arctos* - Grizzly Bears were historically present in the Rincon and Santa Catalina Mountains and along the Santa Cruz River bottom from Nogales to Tucson.), 42 (061712), **55** (recorded as *Ursus horribilis* Ord. Grizzly Bear. Formerly throughout the mountainous areas of the state, now extinct in Arizona.), 73 (recorded as *Ursus horribilis*), 100 (species, recorded as *Ursus arctos*, color photograph), 106 (050312 - color presentation), **118** (recorded as *Ursus horribilis* - Distribution: Formerly statewide, now extinct in Arizona. Figure 92, Page 225), 139, ADS (Monday, January 30, 2012, Series reminds: Once grizzlies roamed nearby, Section A, Pages 1&4. This article reported that Grizzlies occurred in the Rincon Mountains until the 1920's. It also reported the trapping and killing of a grizzly in 1921 just south of Rincon Peak at 8,000 feet in elevation.), 148 (color presentation), 149, 153*

Ursus horribilis (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. apache (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. arizonae (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. bairdi (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. kennerlyi (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. navaho (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. texensis (see *Ursus arctos* subsp. *horribilis*)

Vespertilionidae: The Plain-nosed Bat Family

***Antrozous pallidus* (Le Conte, 1856): Pallid Bat**

COMMON NAMES: Big-eared Pale Bat; Desert Bat; Desert Palid Bat (*A.p. pallidus* Le Conte, 1856 - Invalid?); Le Conte's Palid Bat (*A.p. pallidus* Le Conte, 1856 - Invalid?); Murcielago Palid (Hispanic)[14]; Murciélago-desértico Norteño (Spanish)[42]; Pale Bat (*A.p. pallidus* Le Conte, 1856 - Invalid?); Pallid Bat. HABITS: Feeds on flightless arthropods on the ground, insects, scorpions, lizards and nectar. Roosts under bridges, buildings, in caves, crevices in cliffs, rocky outcrops, under slabs of rocks, hollow trees and tunnels. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. ***8**, 14 (050312 - subsp. *pallidus*), 42 (062212), **55** (recorded as *Antrozous pallidus* (Le Conte). Pallid Bat. Locally common throughout the state.), 73, 92 (color photograph), 100 (color photograph), 106 (050312 - color presentation), 118 (recorded as *Antrozous pallidus pallidus* (Le Conte) - Distribution: Statewide. Figure 25, Page 60), 148 (color presentation)*

***Antrozous pallidus* subsp. *pallidus* (LeConte, 1756) - Invalid?: Pallid Bat**

COMMON NAMES: Desert Palid Bat; LeConte's Palid Bat; Murcielago Pallid (Hispanic)[14]; Pale Bat; Pallid Bat. HABITS: The species feeds on flightless arthropods on the ground, insects, lizards and nectar. Roosts under bridges, buildings, in caves, crevices in cliffs, rocky outcrops, under slabs of rocks, hollow trees and tunnels. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050312 - subsp. *pallidus*), 42 (061712 - no subspecies listed), 55 (species, recorded as *Antrozous pallidus* (Le Conte). Pallid Bat. Locally common throughout the state.), 73 (species), 92 (species, color photograph of species), 100 (species, color photograph of species), 106 (050312 - species, color presentation of species), **118** (recorded as *Antrozous pallidus pallidus* (Le Conte) - Distribution: Statewide. Figure 25, Page 60), 148 (color presentation)*

Corynorhinus townsendii (see *Plecotus townsendii*)

Corynorhinus townsendii subsp. *pallescens* (see *Plecotus townsendii* subsp. *pallescens*)

Dasypterus ega (see *Lasiurus ega*)

***Eptesicus fuscus* (Beauvois, 1796): Big Brown Bat**

COMMON NAMES: Big Brown Bat; Grande Chauve-souris Brune (French)[42]; Murcielago Cafe' Grande (Hispanic)[14]; Murciélago-moreno Norteamericano (Spanish)[42]; Pallid Brown Bat (*E.f. pallidus* (Young, 1908) - Invalid?). HABITS: Feeds on insects (beetles, moths, mosquitoes, wasps). Roosts under bridges, in buildings, caves, crevices in cliff faces, mines and holes in saguaros and trees. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050312 - subsp. *pallidus* (Young)), 42 (062212), **55** (recorded as *Eptesicus fuscus* (Palisot de Beauvois). Big Brown Bat. Locally common throughout the state.), 73, 92 (color photograph), 100 (color photograph), 106 (050312 - includes a listing of subspecies, color presentation), 118 (recorded as *Eptesicus fuscus pallidus* (Young) - Distribution: Statewide. Figure 20, Page 52), 148 (color presentation)*

***Eptesicus fuscus* subsp. *pallidus* (Young, 1908) - Invalid?: Pallid Brown Bat**

COMMON NAMES: Big Brown Bat; Murcielago Cafe' Grande (Hispanic)[14]; Pallid Brown Bat. HABITS: The species feeds on insects (beetles, moths, mosquitoes, wasps). Roosts under bridges, in buildings, caves, crevices in cliff faces, mines and holes in saguaros and trees. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. ***8**, 14 (050312 - subsp. *pallidus* (Young)), 42 (061712 - no subspecies listed), 55 (species, recorded as *Eptesicus fuscus* (Palisot de Beauvois). Big Brown Bat. Locally common throughout the state.), 73 (species), 92 (species, color photograph of species), 100 (species, color photograph of species), 106 (050312 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Eptesicus fuscus pallidus* (Young) - Distribution: Statewide. Figure 20, Page 52), 148 (color presentation)*

Euderma maculata (see *Euderma maculatum*)

***Euderma maculatum* (J.A. Allen, 1891): Spotted Bat**

SYNONYMY: *Euderma maculata* (J.A. Allen, 1891) - Invalid?. COMMON NAMES: Death's Head Bat; Jackass Bat; Murcielago Pinto (Hispanic)[14]; Murciélago Pinto (Spanish)[42]; Pinto Bat; Spotted Bat; Spotted Great-eared Bat. HABITS: Feeds on insects (mainly grasshoppers and moths). Roosts in cracks and crevices in caves, cliffs and ledges, and under loose rock in rocky situations, possibly in close proximity to water. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This bat is rarely encountered. Riparian habitats seem to be important t o this species. *8, 14 (050312 - color presentation), 42 (061712), 55 (recorded as

Euderma maculata (J.A. Allen). Spotted Bat. Extremely rare; known from four specimens, Maricopa and Yuma counties.), 73, 92, 100 (color photograph), 106 (050312 - color presentation), **118** (recorded as *Euderma maculata* (J.A. Allen) - Distribution: Can be expected almost anywhere in the state although recorded from only four localities. Figure 23, Page 57), 148 (color presentation)*

***Lasionycteris noctivagans* (LeConte, 1831): Silver-haired Bat**

COMMON NAMES: Chauve-souris Argentée (French)[42]; Murcielago Plateado (Hispanic)[14]; Murciélago Pelo Plateado (Spanish)[42]; Night-wandering Bat; Silver-haired Bat; Silvery-haired Bat; Silverwings. HABITS: Feeds on caddis flies, flies, moths and other insects. Uncommon tree dwelling bat found under bark, in bird nests, dead trees, fissures in rock ledges, tree hollows, and woodpecker holes. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050312), 42 (061712), 55 (recorded as *Lasionycteris noctivagans* (Le Conte). Silver-haired Bat. Uncommon solitary tree-dwelling bat found throughout the state at elevations above 5,000 feet), 73, 92 (color photograph), 100 (color photograph), 106 (050312 - color presentation), **118** (recorded as *Lasionycteris noctivagans* (Le Conte) - Distribution: Probably statewide, at least during certain seasons of the year. Figure 18, Page 48), 148 (color presentation)*

***Lasiurus blossevillii* (Lesson and Garnot, 1826): Western Red Bat**

COMMON NAMES: California Red Bat (*L.b. teliotis* (H. Allen, 1891) - Invalid?); Desert Red Bat; Lesser Red Bat; Murcielago Rojo (Hispanic)[14]; Murciélago-cola Peluda de Blossevilli (Spanish)[42]; Red Bat; Western Red Bat (*L.b. teliotis* (H. Allen, 1891) - Invalid?). HABITS: Feeds on insects (ants, beetles, cicadas, crickets, flies, moths, true bugs). Roosts in the foliage of herbs, shrubs and trees, saguaro boots and sometimes under leaf litter on the ground. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grasslands, desertscrub and wetland ecological formations. NOTES: The Red Bat feeds on moths including many crop pests. In Arizona this bat is associated with riparian corridors and wooded areas. *8, 14 (050312), 42 (061712), **55** (recorded as *Lasiurus borealis* (Muller). Red Bat. Uncommon solitary tree bat throughout the state in the region of trees.), 73 (recorded as *Lasiurus borealis*), 92 (recorded as *Lasiurus borealis*, color photograph of *Lasiurus borealis*), 100 (recorded as *Lasiurus borealis*, color photograph of *Lasiurus borealis*), 106 (050312 - color presentation), 118 (recorded as *Lasiurus borealis teliotis* (H. Allen) - Distribution: Probably statewide in riparian communities of the Upper Sonoran and Transitional Life Zones. Figure 21, Page 54), 148 (color presentation), 149*

***Lasiurus blossevillii* subsp. *teliotis* (H. Allen, 1891) - Invalid?: Western Red Bat**

SYNONYMY: *Lasiurus borealis teliotis* (H. Allen, 1891) - Invalid?. COMMON NAMES: Desert Red Bat; Red Bat; Western Red Bat. HABITS: The species feeds on insects (ants, beetles, cicadas, crickets, flies, moths, true bugs). Roosts in the foliage of herbs, shrubs and trees, saguaro boots and sometimes under leaf litter on the ground. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grasslands, desertscrub and wetland ecological formations. NOTES: The Red Bat feeds on moths including many crop pests. In Arizona this bat is associated with riparian corridors and wooded areas. *8, 14 (050312), 42 (061712 - no subspecies listed), 55 (recorded as *Lasiurus borealis* (Muller). Red Bat. Uncommon solitary tree bat throughout the state in the region of trees.), 73 (recorded as *Lasiurus borealis*), 92 (recorded as *Lasiurus borealis*, color photograph of *Lasiurus borealis*), 100 (recorded as *Lasiurus borealis*, color photograph of *Lasiurus borealis*), 106 (050312 - species, color presentation of species), **118** (recorded as *Lasiurus borealis teliotis* (H. Allen) - Distribution: Probably statewide in riparian communities of the Upper Sonoran and Transitional Life Zones. Figure 21, Page 54), 148 (color presentation of species), 149*

Lasiurus borealis subsp. *teliotis* (see *Lasiurus blossevillii* subsp. *teliotis*)

***Lasiurus cinereus* (Beauvois, 1796): Hoary Bat**

COMMON NAMES: Chauve-souris Cendrée (French)[42]; Hawaiian Hoary Bat (*L.c. semotus* H. Allen, 1890); Hoary Bat; Murcielago (Hispanic); Murciélago-cola Peluda Canoso (Spanish)[42]. HABITS: Feeds primarily on moths. Roosts in buildings, caves, mines, in dense foliage in shrubs and trees and under leaves on the ground. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050412 - subsp. *cinereus* (Palisot de Beauvois)), 42 (061712), **55** (recorded as *Lasiurus cinereus* (Palisot de Beauvois). Hoary Bat. Uncommon tree dwelling bat found throughout the state in the region of trees.), 73, 92 (color photograph), 100 (color photograph), 106 (050412 - color presentation), 118 (recorded as *Lasiurus cinereus cinereus* (Beauvois) - Distribution: Statewide. Figure 22, Page 55), 148 (color presentation)*

***Lasiurus cinereus* subsp. *cinereus* (Beauvois, 1796): Northern Hoary Bat**

COMMON NAMES: Chauve-souris Cendrée (French)[42]; Hoary Bat; Murcielago (Hispanic)[14]; Northern Hoary Bat; Murciélago-cola Peluda Canoso (Spanish)[42]. HABITS: The species feeds primarily on moths. Roosts in buildings; caves; mines; in dense foliage in shrubs and trees, and under leaves on the ground. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050412 - subsp. *cinereus* (Palisot de Beauvois)), 42 (061712), 55 (species, recorded as *Lasiurus cinereus* (Palisot de Beauvois). Hoary Bat. Uncommon tree dwelling bat found throughout the state in the region of trees.), 73 (species), 92 (species, color photograph of

species), 100 (species, color photograph of species), 106 (050412 - color presentation of species), **118** (recorded as *Lasiurus cinereus cinereus* (Beauvois) - Distribution: Statewide. Figure 22, Page 55), 148 (color presentation)*

***Lasiurus ega* (Gervais, 1856): Western Yellow Bat**

SYNONYMY: *Dasypterus ega xanthinus* (Thomas, 1897) - Invalid?; *Lasiurus ega* subsp. *xanthinus* (Thomas, 1897) - Invalid?; *Lasiurus xanthinus* (Thomas, 1897). COMMON NAMES: Murcielago Amarillo (Hispanic)[14]; Murciélago-cola Peluda de La Laguna (Spanish)[42]; Southern Yellow Bat; Western Yellow Bat; Yellow Bat. HABITS: Feeds on insects. Roosts in within dead fronds (skirts) encircling palm trees, in shrubs and trees (Arizona White Oak [*Quercus arizonica*], Arizona Sycamore [*Platanus wrightii*] and Frémont Cottonwood [*Populus fremontii*]) and under vines. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. ***8**, 14 (050412 - recorded as *Lasiurus xanthinus* (Thomas)), 42 (061712), **55** (recorded as *Dasypterus ega* (Gervais). Yellow Bat. Rare; known only from two specimens from Tucson.), 73, 92 (color photograph), 100, 106 (050412 -color presentation), 118 (recorded in the Hypothetical List as *Dasypterus ega xanthinus* Thomas - possibly may occur in southwestern Arizona as it has been recorded from southern California to the west and from Sonora to the southward., Page 258), 148 (color presentation), 149 (recorded as *Lasiurus* (*Dasypterus*) ega Gervais, 1856, Southern Yellow Bat; *Lasiurus* (*Dasypterus*) *xanthinus* Thomas, 1897, Western Yellow Bat)*

Lasiurus ega subsp. *xanthinus* (see *Lasiurus ega*)

Lasiurus xanthinus (see *Lasiurus ega*)

***Myotis californicus* (Audubon and Bachman, 1842): California Myotis Bat**

COMMON NAMES: California Bat; California Myotis; California Myotis Bat; Little California Bat (*M.c. californicus* Audubon and Bachman, 1842 - Invalid?); Miotis Californiano (Spanish)[42]; Murcielago de California (Hispanic)[14]; Stephen's Brown Bat (*M.c. stephensi* Dalquest, 1946 - Invalid?). HABITS: Feeds on arachnids and insects. Roosts in crevices and cracks in cliffs and canyon walls, caves, mine shafts and manmade shelters. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (*Myotis californicus* N. Miller), 14 (050412 - subsp. *californicus*; subsp. *stephensi* (Dalquest)), 42 (061712), **55** (recorded as *Myotis californicus* Audubon & Bachman. California Myotis. Locally common throughout the state.), 73, 100 (color photograph), 106 (050412 - color presentation), 118 (recorded as *Myotis californicus californicus* (Audubon & Bachman) - Distribution: Eastern and southeastern Arizona, and *Myotis californicus stephensi* Dalquest - Distribution: Northern and western part of the state. Figure 16, Page 45), 148 (color presentation), 149*

***Myotis californicus* subsp. *californicus* Audubon and Bachman, 1842 - Invalid?: California Myotis Bat**

COMMON NAMES: California Bat; California Myotis; California Myotis Bat; Little California Bat; Murcielago de California (Hispanic)[14]. HABITS: The species feeds on arachnids and insects. Roosts in crevices and cracks in cliffs and canyon walls, caves, mine shafts and manmade shelters. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (species: *Myotis californicus* N. Miller), 14 (051007 - subspp. *californicus* (Audubon & Bachman) and stephensi (Dalquest)), 42 (061712 - no subspecies listed), 55 (species, recorded as *Myotis californicus* Audubon & Bachman. California Myotis. Locally common throughout the state.), 73 (species), 100 (species, color photograph of species), 106 (050412 - species, color presentation of species), **118** (recorded as *Myotis californicus californicus* (Audubon & Bachman) - Distribution: Eastern and southeastern Arizona. Figure 16, Page 45), 148 (color presentation), 149*

***Myotis velifer* (J.A. Allen, 1890): Cave Myotis Bat**

COMMON NAMES: Cave Bat; Cave Myotis; Cave Myotis Bat; Mexican Brown Bat; Miotis Mexicano (Spanish)[42]; Murcielago de Cueva (Hispanic)[14]; Southwestern Cave Myotis (*M.v. brevis* Vaughan, 1954 - Invalid?). HABITS: Feeds on small moths and other small insects. Roosts in holes and pockets in caves, crevices, bridges, buildings, abandoned mine shafts, tunnels, and trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. ***8** (recorded as *Myotis velifer velifer* (J.A. Allen)), 14 (050412 - subsp. *brevis* (Vaughan); subsp. *incautus* (J.A. Allen)), 42 (061712 - no record of subspecies), **55** (recorded as *Myotis velifer* (J.A. Allen). Cave Myotis. Locally abundant in summer months at lower elevations (below 5,000 feet) throughout the southern and western parts of the state.), 73, 92, 100 (color photograph), 106 (050412 - color presentation), 118 (recorded as *Myotis velifer brevis* Vaughan - Distribution: Probably statewide. Figure 11, Page 37), 148 (color presentation)*

***Myotis velifer* subsp. *brevis* (Vaughan, 1954) - Invalid?: Southwestern Cave Myotis**

COMMON NAMES: Cave Bat; Cave Myotis; Cave Myotis Bat; Mexican Brown Bat; Murcielago de Cueva (Hispanic)[14]; Southwestern Cave Myotis. HABITS: The species feeds on small moths and other small insects. Roosts in holes and pockets in caves, crevices, bridges, buildings, abandoned mine shafts, tunnels, and trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050412 - subsp. *brevis* (Vaughan); subsp. *incautus* (J.A. Allen); subsp. *grandis* (Hayward)), 42 (061712 - no subspecies listed), 55 (species, recorded as *Myotis velifer* (J.A. Allen). Cave Myotis. Locally abundant in summer months at lower elevations (below 5,000 feet) throughout the southern and western parts of the state.), 73 (species), 92 (species), 100 (species, color photograph of

species), 106 (050412 - species, color presentation of species), **118** (recorded as *Myotis velifer brevis* Vaughan - Distribution: Probably statewide. Figure 11, Page 37), 148 (color presentation of species)*

***Myotis yumanensis* (H. Allen, 1864): Yuma Myotis Bat**

COMMON NAMES: Fort Yuma Bat; Miotis de Yuma (Spanish)[42]; Murcielago de Yuma (Hispanic)[14]; Yuma Myotis; Yuma Myotis Bat. HABITS: Feeds on small soft-bodied insects (mainly moths). Roosts in caves, crevices and swallow nests in cliffs and rocky walls, tree cavities, under bridges and in buildings in close proximity to water. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050412 - subsp. *yumanensis* (H. Allen), color presentation), 42 (061812), **55** (recorded as *Myotis yumanensis* (H. Allen). Yuma Myotis. Locally common, statewide in distribution.), 73, 100 (color photograph), 106 (050412), 118 (recorded as *Myotis yumanensis yumanensis* (H. Allen) - Distribution: Probably statewide at low and medium elevation. Figure 10, Page 36), 148 (color presentation)*

***Myotis yumanensis* subsp. *yumanensis* (H. Allen) - Invalid?: Yuma Myotis Bat**

COMMON NAMES: Murcielago de Yuma (Hispanic)[14]; Yuma Bat; Yuma Myotis; Yuma Myotis Bat. HABITS: The species feeds on small soft-bodied insects (mainly moths). Roosts in caves, crevices and swallow nests in cliffs and rocky walls, tree cavities, under bridges and in buildings in close proximity to water. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050412 - subsp. *yumanensis* (H. Allen), color presentation), 42 (061812 - no subspecies listed), 55 (species, recorded as *Myotis yumanensis* (H. Allen). Yuma Myotis. Locally common, statewide in distribution.), 73 (species), 100 (species, color photograph of species), 106 (050412), **118** (recorded as *Myotis yumanensis yumanensis* (H. Allen) - Distribution: Probably statewide at low and medium elevation. Figure 10, Page 36), 148 (color presentation of species)*

***Pipistrellus hesperus* (H. Allen, 1864): Western Pipistrelle Bat**

COMMON NAMES: Canyon Bat (*P.h. hesperus* H. Allen, 1864 - Invalid?); Flittermouse; Murcielago del Poniente (Hispanic)[14]; Pipistrelo del Oeste Americano (Spanish)[42]; Swift Bat (*P.h. apus* Elliot, 1904 - Invalid?); Western Bat (*P.h. hesperus* H. Allen, 1864 - Invalid?); Western Pipistrelle; Western Pipistrelle Bat. HABITS: Feeds on insects. Roosts in buildings, rock crevices in canyon walls, caves, cliffs, rocky outcrops, under rocks and in mine shafts. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050412 - subsp. *hesperus*; subsp. *maximus* (Hatfield)), 42 (061812), **55** (recorded as *Pipistrellus hesperus* (H. Allen). Western Pipistrelle. Common throughout the state.), 73, 100 (color photograph), 106 (050412 - color presentation), 118 (recorded as *Pipistrellus hesperus apus* Elliot - Distribution: Southeastern Arizona, and *Pipistrellus hesperus hesperus* (H. Allen) - Distribution: Northern and western Arizona. Figure 19, Page 49), 148 (color presentation)*

Pipistrellus hesperus subsp. *apus* (see *Pipistrellus hesperus* subsp. *hesperus*)

***Pipistrellus hesperus* subsp. *hesperus* H. Allen, 1864 - Invalid?: Western Pipistrelle Bat**

SYNONYMY: *Pipistrellus hesperus* subsp. *apus* Elliot, 1904 - Invalid?. COMMON NAMES: Canyon Bat; Flittermouse; Murcielago del Poniente (Hispanic)[14]; Western Bat; Western Pipistrelle; Western Pipistrelle Bat. HABITS: The species feeds on insects. Roosts in buildings, rock crevices in canyon walls, caves, cliffs, rocky outcrops, under rocks and in mine shafts. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This is the smallest of the western bats. *8, 14 (050412 - subsp. *hesperus*; subsp. *maximus* (Hatfield)), 42 (061812 - no subspecies listed), 55 (species, recorded as *Pipistrellus hesperus* (H. Allen). Western Pipistrelle. Common throughout the state.), 73 (species), 100 (species, color photograph of species), 106 (050412 - species, color presentation of species), **118** (recorded as *Pipistrellus hesperus apus* Elliot - Distribution: Southeastern Arizona. Figure 19, Page 49; *Pipistrellus hesperus hesperus* (H. Allen) - Distribution: Northern and western Arizona. Figure 19, Page 49), 148 (color presentation of species)*

***Plecotus townsendii* Cooper, 1837 (subsp. *pallescens* (Miller, 1897) is the subspecies reported as occurring in Arizona): Townsend's Big-eared Bat**

SYNONYMY: *Corynorhinus townsendii* (Cooper, 1837). COMMON NAMES: Lump-nosed Bat; Mule-eared Bat; Murcielago de Townsend (Hispanic)[14]; Ozark Big-eared Bat (*P.t. ingens* Handley, 1955 - Valid); Pale Lumped-nosed Bat (*P.t. pallescens* (Miller, 1897) - Valid); Pale Townsend's Big-eared Bat (*P.t. pallescens* (Miller, 1897) - Valid); Pallid Western Big-eared Bat (*P.t. pallescens* (Miller, 1897) - Valid); Townsend's Big-eared Bat (*P.t. townsendii* Cooper, 1837 - Valid); Virginia Big-eared Bat (*P.t. virginianus* Handley, 1955 - Valid); Western Big-eared Bat; Western Long-eared Bat; Western Lump-nosed Bat. HABITS: The species feeds on small moths and other small insects; roosts on open ceilings in caves and rock shelters, and under bridges and in water diversion tunnels, abandoned mines, mine tunnels and buildings. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Pale Townsend's Big-eared Bat is a rather sedentary species that is extremely sensitive to human disturbance and the vandalism of roost caves. *14 (061812 - recorded as *Corynorhinus townsendii* subsp. *pallescens* (Miller)), 42 (061812), **55** (recorded as *Plecotus townsendii* (Cooper). Lump-nosed Bat. Locally common throughout the state at elevations above 5,000 feet; rare at lower elevations.), 73, 92 (color photograph), 100 (color photograph), 106 (050512 - recorded as *Corynorhinus*

townsendii, includes a listing of subspecies, color presentation), 118 (recorded as *Corynorhinus townsendii pallescens* Miller - Distribution: Probably more or less state wide but more abundant in the Upper Sonoran and Transitional Life Zones. Figure 24, Page 58), 148 (recorded as *Corynorhinus townsendii*, color presentation)*

Plecotus townsendii subsp. *intermedius* (see *Plecotus townsendii* subsp. *pallescens*)

***Plecotus townsendii* subsp. *pallescens* (Miller, 1897): Pale Townsend's Big-eared Bat**

SYNONYMY: *Corynorhinus townsendii* subsp. *pallescens* Miller, 1897; *Plecotus townsendii* subsp. *intermedius* (H.W. Grinnell, 1914). COMMON NAMES: Lump-nosed Bat; Mule-eared Bat; Murcielago de Townsend (Hispanic)[14]; Pale Lumped-nosed Bat; Pale Townsend's Big-eared Bat; Pallid Western Big-eared Bat; Western Big-eared Bat; Western Long-eared Bat; Western Lump-nosed Bat. HABITS: The species feeds on small moths and other small insects; roosts on open ceilings in caves and rock shelters, and under bridges and in water diversion tunnels, abandoned mines, mine tunnels and buildings. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Pale Townsend's Big-eared Bat is a rather sedentary species that is extremely sensitive to human disturbance and the vandalism of roost caves. *14 (061812 - recorded as *Corynorhinus townsendii* subsp. *pallescens* (Miller)), 42 (061812), 55 (species, recorded as *Plecotus townsendii* (Cooper). Lump-nosed Bat. Locally common throughout the state at elevations above 5,000 feet; rare at lower elevations.), 73 (species), 92 (species, color photograph of species), 100 (species, color photograph of species), 106 (050512 - species, recorded as *Corynorhinus townsendii*, includes a listing of subspecies, color presentation of species), **118** (recorded as *Corynorhinus townsendii pallescens* Miller - Distribution: Probably more or less state wide but more abundant in the Upper Sonoran and Transitional Life Zones. Figure 24, Page 58), 148 (recorded as *Corynorhinus townsendii* subsp. *pallescens*, color presentation)*

CLASS OSTEICHTHYES: The BONY FISHES

Catostomidae: The Sucker Family

Catostomus clarki (see *Catostomus clarkii*)

***Catostomus clarkii* Baird and Girard, 1854: Desert Sucker**

SYNONYMY: *Catostomus clarki* Baird and Girard, 1854; *Pantosteus clarki* (Baird and Girard, 1854). COMMON NAMES: Desert Sucker; Gila Mountain Sucker; Gila Sucker; Matalote del Desierto (Spanish)[42]. HABITS: Freshwater bottom feeders feeding on diatoms, filamentous green algae, insects and plant detritus. Eggs are deposited in flowing water. HABITAT: Lives in small to medium rivers and streams, flowing pools, rapids, riffles and ripply water with rocky and gravelly bottoms. ***8**, 14 (050512), 42 (072212), 55, 61, 67, 73, **78**, 106 (050512 - includes a listing of subspecies, color presentation)*

***Catostomus insignis* Baird and Girard, 1854: Sonora Sucker**

COMMON NAMES: Gila Sucker; Matalote de Sonora (Spanish)[42]; Sonora Sucker. HABITS: Freshwater bottom feeder feeding on algae, crustaceans, insect larvae, mud, plant debris, protozoans and the seeds of cottonwood trees. Eggs are deposited in riffles. HABITAT: Lives in deep, quiet parts of creeks and small to medium rivers and around gravelly or rocky pools. ***8**, 14 (050512), 42 (072212), 55, 61, 67, 73, **78**, 106 (050512 - color presentation)*

Pantosteus clarki (see *Catostomus clarkii*)

Cyprinidae: The Minnow Family

***Agosia chrysogaster* Girard, 1856: Longfin Dace**

COMMON NAMES: Longfin Dace; Pupo Panzaverde (Spanish)[42]. HABITS: Feeds on algae, crustaceans, detritus, filamentous algae, insects and zooplankton. Eggs are laid in nests made in shallow depressions on stream bottoms. HABITAT: The Longfin Dace lives in shallow and sandy rocky runs, clear and cool mountain brooks, flowing pools of creeks, gravelly and sandy streams and small to medium rivers. ***8**, 14 (050512), 42 (072212), 55, 61, 67, 73, **78**, 106 (050512), **ADS** (Sunday, August 1, 2010, Section B, Page 6, Report: Native fish return to Santa Cruz)*

***Gila intermedia* (Girard, 1856): Gila Chub**

SYNONYMY: *Gila robusta* subsp. *intermedia* (Girard, 1856). COMMON NAMES: Carpa del Gila (Spanish)[42]; Gila Chub. HABITS: Feeds on algae, other small fish and insects. Eggs are laid over submerged aquatic vegetation. HABITAT: Lives in along banks (juveniles), deep pools of slow velocity water, small creeks, streams, riffles (juveniles), pools (juveniles), ciénegas, marshes, pool habitats of small streams and springs and artificial impoundments. *8, 14 (050512), 42 (061812), 55, 61, 73, **78**, 106 (050512)*

Gila robusta subsp. *intermedia* (see *Gila intermedia*)

Cyprinodontidae: The Killfish Family

***Cyprinodon macularius* Baird and Girard, 1853: Desert Pupfish**

COMMON NAMES: Cachorrito del Desierto (Spanish)[42]; Desert Pupfish, Quitobaquito Desert Pupfish (*C.m. eremus* Miller & Fuiman, 1987 - Invalid? and *C.m. macularis* Baird and Girard, 1853 - Invalid?). HABITS: Feeds on algae, detritus, insects and aquatic plants. Eggs are laid randomly (within an area defended by the male). HABITAT: Lives in the shallow water of springs, small streams, lakes, backwaters, marshes, and slow moving parts of creeks and small streams. NOTES: Subspecies *macularis* is EXTIRPATED from most of its natural range. *8, 14 (050512 - subsp. *eremus*; subsp. *macularis*), 35, 42 (072212 - no record of subspecies), 55, 61, 67, 73, **78**, 106 (050512 - color presentation)*

Poeciliidae: The Topminnow Family

***Gambusia affinis* (Baird and Girard, 1853) [subsp. *affinis* (Baird and Girard, 1853) - Invalid, is the subspecies reported as occurring in Arizona]: Western Mosquitofish**

COMMON NAMES: Gambusa; Guayacón Mosquito (Spanish)[2]; Mosquitofish; Western Mosquitofish. HABITS: Feeds on algae, crustaceans, diatoms, fish fry, insect larvae and zooplankton. Eggs are brooded by the female until hatching the young are then born live in warm, shallow standing or slow moving waters with some aquatic or submerged vegetation. HABITAT: Lives in brackish water and clear vegetated water, marshes, ponds, pools, springs, stream margins in backwater and side pool areas and stock tanks. NOTES: Introduced EXOTIC, poses a significant threat to native species. *14 (050512), 42 (072212 - subspecies *affinis* (Baird and Girard, 1853) and *speciosa* Girard, 1859 are invalid), 55, 61, 67, 73, **78**, 106 (050512), 106 (050512 - color presentation), 109*

***Poeciliopsis occidentalis* subsp. *occidentalis* (Baird and Girard, 1853) - Invalid?: Gila Topminnow**

COMMON NAMES: Gila Topminnow; Sonoran Topminnow. HABITS: The species feeds on algae, bottom debris, crustaceans, detritus, insects and plants. The eggs are fertilized in the female where the young develop and then born live. HABITAT: Lives in marshes; ponds; springs; vegetated backwaters; shallows of rivers and streams, and margins of larger bodies of water. *8, 14 (050512 - subsp. *occidentalis* (Baird and Girard); subsp. *sonorensis* (Baird and Girard)), 35, 42 (061812 - no subspecies listed), 55 (species), 61, 67, 73 (species), **78**, 106 (050512 - species, color presentation of species)*

CLASS REPTILIA: The REPTILES

Colubridae: The Colubrid Family

***Tantilla hobartsmithi* Taylor, 1937: Southwestern Blackhead Snake**

COMMON NAMES: Culebra-encapuchada del Suroeste (Spanish)[42]; Smith's Blackhead Snake; Southwestern Black-headed Snake; Southwestern Blackhead Snake; Western Black-headed Snake. HABITS: Feeds on caterpillars, soft-bodies insects, centipedes and millipedes. Takes shelter in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: A mildly venomous snake. Arizona's native rear-fanged of species of Colubrid Snakes are not considered to be dangerous to man. *14 (050512 - color presentation), 42 (072212), 54 (genus), **78**, 87, 106 (050512)*

Gekkonidae: The Gecko Family

***Coleonyx variegatus* subsp. *bogerti* Klauber, 1945: Tucson Banded Gecko**

COMMON NAMES: Banded Gecko, Tucson Banded Gecko, Western Banded Gecko. HABITS: Feeds on insects and spiders. Takes shelter in rodent burrows, under rocks and under plant debris. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050512 - color presentation), 37 (species), 42 (072212), 55 (species), 73, **78**, 87, 106 (050512 - species, includes a listing of subspecies, color presentation of species), **WTK** (October 19, 2012)*

Phrynosomatidae: The Horned Lizard Family

***Callisaurus draconoides* Blainville, 1835: Arizona Zebratail Lizard**

COMMON NAMES: Arizona Gridiron-tailed Lizard (*C.d. ventralis* (Hallowell, 1852) - Valid); Arizona Zebra-tailed Lizard (*C.d. ventralis* (Hallowell, 1852) - Valid); Arizona Zebratail Lizard (*C.d. ventralis* (Hallowell, 1852) - Valid); Lagartija Cachora (Spanish)[42]; Zebra-tailed Lizard. HABITS: Feeds on insects, lizards, plant material and spiders. Takes shelter in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, desertscrub and wetland ecological formations. *14 (050512 - subsp. *ventralis* (Hallowell, 1852), color presentation), 37, 42 (072212), 55, 73, **78**, 87, 106 (050512 - includes a listing of subspecies, color presentation)*

***Holbrookia maculata* Girard, 1851: Lesser Earless Lizard**

COMMON NAMES: Bleached Earless Lizard (*H.m. ruthveni* Smith, 1943 - Valid); Bunker's Earless Lizard (*H.m. bunkeri* Smith, 1935 - Invalid?); Common Earless Lizard; Common Lesser Earless Lizard; Eastern Earless Lizard (*H.m. perspicua* Axtell, 1956 - Valid); Great Plains Earless Lizard (*H.m. maculata* Girard, 1851 - Valid); Huachuca Earless Lizard (*H.m. pulchra* Schmidt, 1921 - Valid); Lagartija-sorda Menor (Spanish)[42]; Lesser Earless Lizard; Mexican Earless Lizard (*H.m. elegans* Bocourt, 1874 - Invalid?]; Northern Earless Lizard (*H.m. maculata* Girard, 1851 - Valid); Prairie Earless Lizard (*H.m. perspicua* Axtell, 1956 - Valid); Sonoran Earless Lizard (*H.m. thermophila* Barbour, 1921 - Invalid); Speckled Earless Lizard (*H.m. approximans* Baird, 1859 - Valid); Western Earless Lizard (*H.m. thermophila* Barbour, 1921 - Invalid). HABITS: Feeds on insects, small lizards and spiders. Takes shelter in underground burrows, under rocks or by burying themselves in loose gravel and sand. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050512 - subsp. *approximans* (Baird, 1858); subsp. *bunkeri*; subsp. *elegans*; subsp. *maculata* (Girard, 1851); subsp. *ruthveni* (Smith, 1942), color presentation), 37, 42 (072212), 55, 73, **78**, 87, 106 (050512 - includes listing of subspecies, color presentation)*

***Phrynosoma solare* Gray, 1845: Regal Horned Lizard**

COMMON NAMES: Lagartija-cornuda Real (Spanish)[42]; Regal Horned Lizard. HABITS: Feeds on beetles, harvester ants (mostly) and other insects. Takes shelter by burrowing themselves in loose soil. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (050512 - color presentation), 37, 42 (072212), 55, 73, **78**, 87, 106 (050512 - color presentation)*

***Sceloporus clarkii* Baird and Girard, 1852: Clark's Spiny Lizard**

COMMON NAMES: Clark's Spiny Lizard; Plateau Spiny Lizard (*S.c. vallaris* Shannon and Urbano, 1954 - Valid); Sonora Spiny Lizard (*S.c. clarkii* Baird and Girard, 1852 - Valid); Sonoran Spiny Lizard (*S.c. clarkii* Baird and Girard, 1852 - Valid); Spiny Lizard. HABITS: Feeds on insects and plant material including buds, flowers and leaves. Takes shelter in underground burrows and on rocks and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050512 - subsp. *clarkii* (Baird and Girard, 1852), color presentation), 37, 42 (072212), 55, 73, **78**, 87, 106 (050512 - genus, includes a listing of species, color presentation)*

***Sceloporus magister* Hallowell, 1854: Desert Spiny Lizard**

COMMON NAMES: Barred Spiny Lizard (*S.m. transversus* Phelan & Brattstrom, 1955 - Valid); Desert Spiny Lizard (*S.m. magister* Hallowell, 1854 - Valid); Lagartija-escamosa de Desierto (Spanish)[42]; Orange-headed Spiny Lizard (*S.m. cephaloflavus* Tanner, 1955 - Valid); Orangehead Spiny Lizard; Sonoran Spiny Lizard (*S.m. magister* Hallowell, 1854 - Valid); Twin-spotted Spiny Lizard (*S.m. bimaculosis* Phelan & Brattstrom, 1955 - Valid); Yellow-backed Spiny Lizard (*S.m. uniformis* Phelan & Brattstrom, 1955 - Valid); Yellowback Spiny Lizard. HABITS: Feeds on ants, beetles and other insects, lizards, and plant materials including berries, buds, flowers and leaves. Takes shelter in rodent burrows, crevices, under logs, under rocks, on trees, in clumps of vegetation and in woodrat nests. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (050512 - subsp. *bimaculosis* (Phelan & Brattstrom, 1955); subsp. *cephaloflavus* (Tanner, 1955), color presentation), 42 (072212), 55, 73, **78**, 87, 106 (050512 - includes a listing of subspecies, color presentation)*

***Urosaurus ornatus* (Baird and Girard, 1852): Northern Tree Lizard**

COMMON NAMES: Big Bend Tree Lizard (*U.o. schmidti* (Mittleman, 1940) - Valid); Canyon Tree Lizard (*U.o. levis* (Stejneger, 1890) - Valid); Colorado River Tree Lizard (*U.o. symmetricus* (Baird, 1859) - Valid); Eastern Tree Lizard (*U.o. ornatus* (Baird and Girard, 1852) - Valid); Lagartija-arbolera Común; Lined Tree Lizard (*U.o. linearis* (Baird, 1859) - Valid); Northern Cliff Lizard (*U.o. wrighti* (Schmidt, 1921) - Valid); Northern Tree Lizard (*U.o. wrighti* (Schmidt, 1921) - Valid); Ornate Tree Lizard; Smooth Tree Lizard (*U.o. levis* (Stejneger, 1890) - Valid); Texas Tree Lizard (*U.o. ornatus* (Baird and Girard, 1852) - Valid); Tree Lizard. HABITS: Feeds on insects, insect larvae and spiders; takes shelter in rock crevices, under slabs of rock and in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050512 - subsp. *levis* (Stejneger, 1890); subsp. *linearis*; subsp. *schmidti* (Mittleman, 1940); subsp. *wrighti*; - color presentation), 37, 42 (072212), 55, 73, **78**, 87, 106 (050512 - includes a listing of subspecies, color presentation), **WTK** (July 2, 2009 - M)*

Teiidae: The Whiptail and Allies Family

Aspidoscelis burti subsp. *stictogrammus* (see *Cnemidophorus burti* subsp. *stictogrammis*)

Aspidoscelis sonorae (see *Cnemidophorus sonorae*)

Aspidoscelis tigris (see *Cnemidophorus tigris*)

***Cnemidophorus burti* subsp. *stictogrammus* Burger, 1950: Giant Spotted Whiptail**

SYNONYMY: *Aspidoscelis burti* subsp. *stictogrammus* (Burger, 1950) - Invalid?. COMMON NAME: Giant Spotted Whiptail. HABITS: The species feeds on insects, scorpions and spiders. Takes shelter in underground burrows, piles of debris and under rocks. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. ***8**, 14(050512 - recorded as *Aspidoscelis burti* (Burger, 1938): subsp. *stictogrammus*; subsp. *xanthonotus*, color presentation), 42 (061812), 55 (species), 73 (species), **78**, 87, 106 (050512 - no record of subspecies or species; genus, includes a listing of species, color presentation)*

***Cnemidophorus sonorae* Lowe and Wright, 1964: Sonoran Spotted Whiptail**

SYNONYMY: *Aspidoscelis sonorae* (Lowe and Wright, 1964). COMMON NAMES: Huico de Sonora (Spanish)[42]; Sonoran Spotted Whiptail. HABITS: Feeds on centipedes, insects, other lizards, scorpions, spiders and termites. Takes shelter in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, desertscrub and wetland ecological formations. *14 (050512 - recorded as *Aspidoscelis sonorae* (Lowe and Wright, 1964), color presentation), 42 (061812), **78**, 87, 106 (050512 - no record of species; genus listing, includes a listing of species, color presentation)*

***Cnemidophorus tigris* Baird and Girard, 1852: Western Whiptail**

SYNONYMY: *Aspidoscelis tigris* (Baird and Girard, 1852). COMMON NAMES: Arizona Desert Whiptail; California Whiptail (*C.t. mundus* Camp, 1916 - Valid); Coastal Whiptail (*C.t. multiscutatus* Cope, 1892 - Valid); Eastern Marbled Whiptail; Great Basin Whiptail (*C.t. tigris* Baird and Girard, 1852 - Valid); Huico Occidental (Spanish)[42]; Marbled Whiptail (*C.t. marmoratus* Baird and Girard, 1852 - Invalid); Northern Whiptail (*C.t. septentrionalis* Burger, 1950 - Valid); Southern Whiptail (*C.t. gracilis* Baird and Girard, 1852 - Valid); Western Marbled Whiptail; Western Whiptail. HABITS: Feeds on insects, lizards, scorpions and spiders; takes shelter in bushes and underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050612 - subsp. *gracilis* (Baird and Girard, 1852); subsp. *marmoratus*; subsp. *punctilinealis*; subsp. *reticuloriens*; subsp. *septentrionalis* (Burger, 1950)), 42 (072212), 37, 55, 73, **78**, 87, 106 (050612 - recorded as *Aspidoscelis tigris,* color presentation of *A.t.* subsp. *multiscutatus*)*

Testudinidae: The Land Tortoise Family

***Gopherus agassizii* [*agassizi* also observed] (Cooper, 1863): Sonoran Desert Tortoise**

COMMON NAMES: Agassiz's Desert Tortoise; Desert Tortoise; Mohave Desert Tortoise (Mohave population); Sonoran Desert Tortoise (Sonoran population). HABITS: Feeds on cacti (new growth, flowers and fruit), forbs, grasses, Slender Janusia (*Janusia gracilis*) as well as other plants and plant materials. Takes shelter in underground burrows, caliche caves located along washes, and crevices. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. ***8**, 14 (050612 - separate records for the Mohave Desert population and Sonoran Desert population), 42 (061812), 37, 55, 73, 87, 106 (050612 - color presentation. One defense mechanism the tortoise has when it is handled is to empty its bladder. This can leave the tortoise in a very vulnerable condition in dry areas, and they should never be alarmed, handled or picked up in the wild unless they are in imminent danger (like in a road). If they must be handled, and their bladder is emptied, then water should be provided in order to restore the fluid in their body.)*

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Plan website. Extensive revisions made to the individual species records were made possible by the Southwest Environmental Information Network (SEINet) and the National Plants Database: USDA, NRCS.

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(ANN) Anonymous

(JFW) John F. Wiens

(MBJ) Matthew B. Johnson, Program Manager and Curator of the Desert Legume Program - Boyce Thompson Southwestern Arboretum

(PCM) Personal Communication (Date)

(PDJ) Philip D. Jenkins, Assistant Curator of the University of Arizona Herbarium

(RGM) G. Meades

(TBL) Township Bird Listing

(WTK) William T. Kendall

(ANPS) Arizona Native Plant Society

(KGUN) Channel 9 (ABC - Month Day, Year & Program)

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