Common Plants of Saguaro National Park

2011 Edition

SONORAN DESERT NETWORK
Inventory and Monitoring Program

The Flora Project

Editor

Steve Buckley

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The ethnobotanical information in this book is included for educational purposes only. No plant or plant extract should be consumed unless you are certain of its identity and toxicity and of your personal potential for allergic reactions. Self-medication with herbal medicines is often unwise and wild foods should always be used with caution. Although every effort has been made to ensure accuracy and reliability, neither the author, the Sonoran Desert Network Inventory and Monitoring Program, nor the National Park Service are responsible for the actions of the reader or liable for any effects caused by these actions.

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National Park Service

The Sonoran Desert Network (SODN) is one of 32 National Park Service (NPS) inventory and monitoring networks nationwide that are implementing vital signs monitoring in order to assess the condition of park ecosystems and develop a stronger scientific basis for stewardship and management of natural resources across the National Park System.

The Sonoran Desert Network (SODN) consists of 10 units in central and southern Arizona and 1 unit in southwestern New Mexico. These units are characteristic of the upper Sonoran subdivision of the Sonoran Desert Ecoregion and the Apache Highlands Ecoregion, and range in size from half a square mile to 517 square miles (147 to 133,882 hectares).

Please visit our website for more information and a full list of our active research projects, available publications, and other resources:

http://science.nature.nps.gov/im/units/sodn/index.cfm

When we say common, we generally mean those plants that you would most likely encounter an any given day in Saguaro National Park, no matter what time of year. Along with roughly 1,500 other plant species, Saguaro National Park is a unique example of the floristic biodiversity to be found in the Sonoran Desert region. It is the intention of this book to introduce you to the diversity of plants that are found in the two districts of Saguaro National Park.

This guide is also designed to gently introduce you to the science of plant systematics. Plant systematics is a name for the field of botany that describes, catalogs, and attempts to understand floristic biodiversity and the evolutionary history of plants as a whole. It also involves organizing plants according to their evolutionary history and shared characteristics.

This field guide is nowhere near exhaustive. It is simply a small sample of the plants that are most commonly encountered in the immediately accessible areas of Saguaro National Park. This guide does include a number of species that are encountered at the middle and higher elevations in the Rincon Mountains so you can get a sense of how complex the diversity is in this region. Saguaro National Park is a beautiful and unique place and those of us lucky enough to call this region home welcome you here.

The Flora Project

This field guide is part of a larger body of work known as the Flora of the Sonoran Desert Network Project. The Flora Project emerged from the Vegetation Mapping program at the Sonoran Desert Network beginning in 2009. Since then we have compiled comprehensive floristic entries on upwards of 2,000 individual species, the ultimate goal being to build a comprehensive floristic database covering the 2,444+ species of plants found in the Sonoran Desert Network. These entries will be available as an online database through the Desert Research Learning Center, but they also translate directly into the work you have before you. The goal of the project is to produce 12 comprehensive park-specific field guides for every unit in our network, a series of six regional field guides tied to specific life forms, and common plant guides for each park unit. Our floras range from the small at around 160 species at Casa Grande Ruins NM to the massive with over 1,200 found in the Rincon Mountains District at Saguaro NP.

The methodology we use builds on the original inventory efforts that were completed in the late 1990s and early 2000s. The intention of the project is to conduct a more detailed floristic inventory while building vegetation maps for each park. We first combine the baseline inventory data with all historical studies, then proceed to a comprehensive search of all regional herbarium records. This step alone has netted over 15,000+ specimens which have been collected since the creation of the national parks in the region. We follow this search of herbaria with broad research in the phylogenetic and ecological literature to sort out problematic species and genera, and finally we scour all agency study records to develop a comprehensive portrait of the floristic research that has been undertaken in each park through the years.

The final product of these efforts are not field guides alone, but also a cross-platform floristic information system that is being developed for use by land managers, researchers, and the public. Ranging from on-line databases, to printed field guides, to apps for mobile and handheld digital devices, to a range of other digital and print educational tools and resources, The Flora Project hopes to set a standard for floristic research on federal lands in the desert Southwest.

How to use this guide

This guide is designed to introduce you to the common plants of Saguaro National Park, and more generally to the science of plant systematics that underlies the organization of this book. Prior knowledge is neither required or expected. The guide is divided into five general categories based on large categories of plant lifeforms: trees and shrubs, forbs, cacti, and grasses. Look to the first page of each section to get a better idea of what we mean by these categories of lifeforms.

Beyond these categories, the plants are arranged alphabetically, first by the plant family and secondarily by the genus and species names. There are a few basic floral diagrams for flowers and grasses, along with some of the common leaf shapes and flowers. These can help you begin to understand the language of plant systematics in a graphical way. If you know the common name of the plant, look in the index at the back of the book for a quicker lookup. The glossary in the back of the guide makes every effort to be comprehensive, so it can be relied upon to translate any of the technical language.

Most of all, please enjoy this field guide. We would like to see this work as an opening for an expanded awareness of the unique biodiversity that the National Parks conserve and preserve for future generations. There are thousands more plants in Saguaro National Park and the ten other National Park Units in the Sonoran Desert Network. We hope this work inspires you to visit all these amazing park units and come to appreciate the vital work of the National Park Service in preserving these landscapes for the future.

The Parks of the Sonoran Desert Network (SODN)

Notes

Notes

This field guide does not rewrite plant descriptions, but instead integrates and standardizes descriptions that help with identification in the field. It is to be considered an edited work because it tries to make plant descriptions more uniform by using a mash-up of descriptions from floras, field guides, monographs, and the current scientific literature.

The Sonoran Desert Network utilizes the Missouri Botanical Garden's Tropicos system (www.tropicos.org) as the standard for plant names. Generally US government agencies, including the NPS, use the Integrated Taxonomic Information System (www.itis.gov). Tropicos is the preferred standard for this field guide because it is reflective of the most recent scholarship in phylogenetic systematics for nomenclature and organization, while ITIS is not entirely up-to-date. Complete citations for the literature and opportunities for further investigation are found in the works cited section. All scientific names are italicized as per usage in the literature.

The Basics of Plant Systematics

The science of plant systematics is a discipline undergoing considerable change with the rise of phylogenetics (the science of plant genetics). As a consequence, name changes from the level of family down to genera and even to species are a common occurence. This is due in part to the expansion of systematic knowledge corresponding to plant distributions, but more so because of the widespread use of molecular study in systematics which clarifies relationships.

Plant systematics is a kind of information science, as much as it is a hard science of facts and plant names. The most recent scholarship tends toward explaining a sophisticated organizational system that accounts for most of the plant life found on the earth. But fundamentally the system is rooted in a methodology for organizing plants according to their evolutionary relationships.

In plant systematics the evolutionary relationships are characterized by what is unique about groups of plants and are aggregated into what are known as orders. The order is the largest organizational category and can consist of several to many different families. Immediately below the order is the family, which is where this field guide takes its organizational cue.

The family is a grouping of related plants that are connected by some or several specific characteristics. In systematics, these characteristics are called synapomorphies, or character states that developed in the ancestors of the family and that can be found in all the members of the family. For example, all those plants in the Mint Family, or Lamiaceae, have opposite leaves, square stems, and ethereal oils that give us the familiar smell. These are traits found in every plant in the family. Families are the best organization to follow because they are the most general and can be alphabetized accordingly within each lifeform category.

Below the family level, each species has a genera name, followed by what is known as the specific epithet. This way of organizing scientific names, known as the binomial nomenclature system, dates to the 18th century and the Swedish naturalist Carl Linnaeus. Common names are confusing and can be used to mean numerous species, hence the reason botanists do not generally use them. The binomial nomenclature system can only ever have one species named accordingly, where common names often overlap or have regional variations.

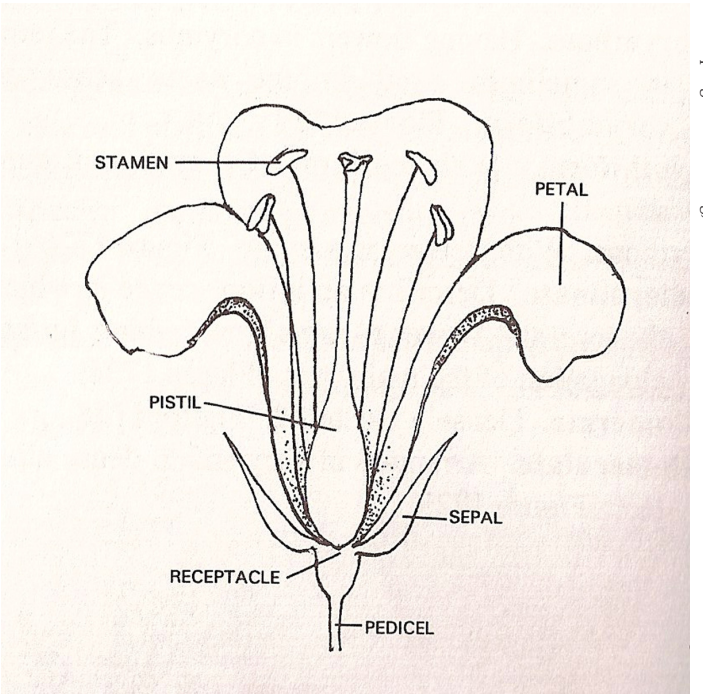
The organization of plants in this guide is based on what we at the Sonoran Desert Network consider to be the most recent and up-to-date plant systematics research. This comprehensive system of organization is called the Angiosperm Phylogeny Group III and it provides the guidance for all the current information about relationships among plants and what genera are to be found in specific families. If you are curious about what the overall system looks like graphically, check out http://www.mobot.org/mobot/research/APWEB/ and scroll down to the link on the page that reads, Angiosperm Phylogeny Poster.

For further information on the overall plant species checklists for either the Rincon Mountain District or the Tucson Mountain District, refer to the back of this field guide or visit their interactive versions on-line: http://swbiodiversity.org/seinet/projects/index.php?proj=5 These versions have interactive keys which can further help in the identification of plants and also links you to other regional park species checklists.

For further information about plant systematics refer to the works cited section at the back of this volume for the specific scientific literature that supports the phylogenetic and floristic research which is ongoing on at the Sonoran Desert Network.

Notes

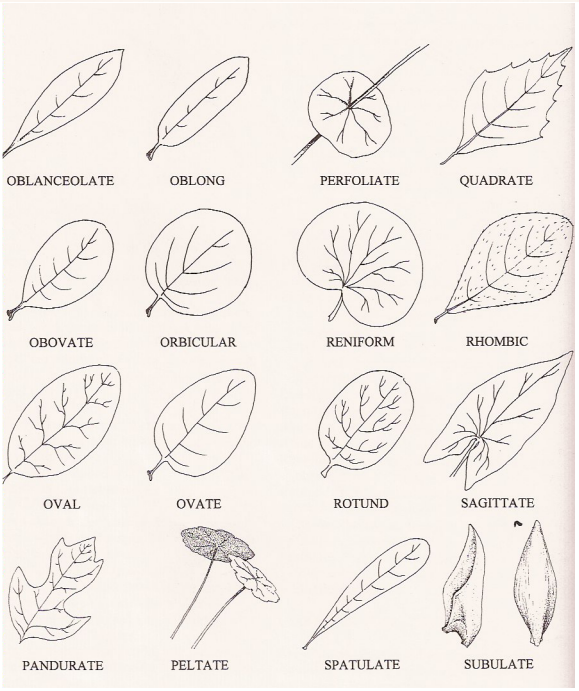
General flower structure



Basic diagram of a flower with its various parts.

Notes

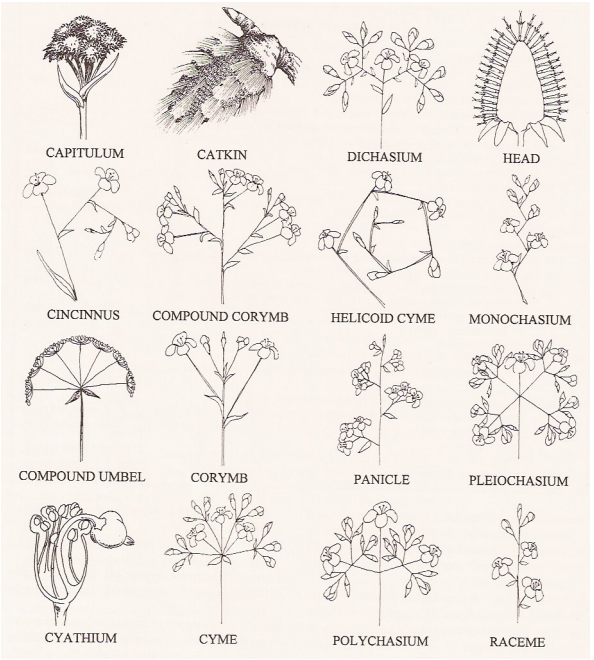
Leaf shapes

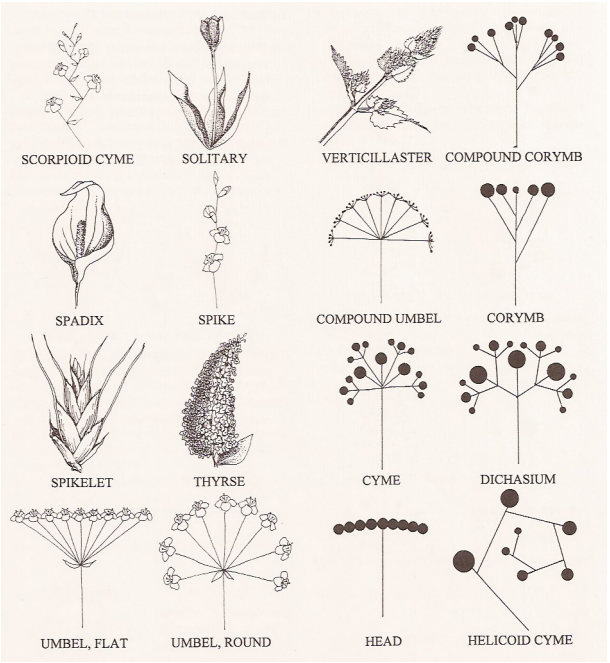


Notes

Leaf margins

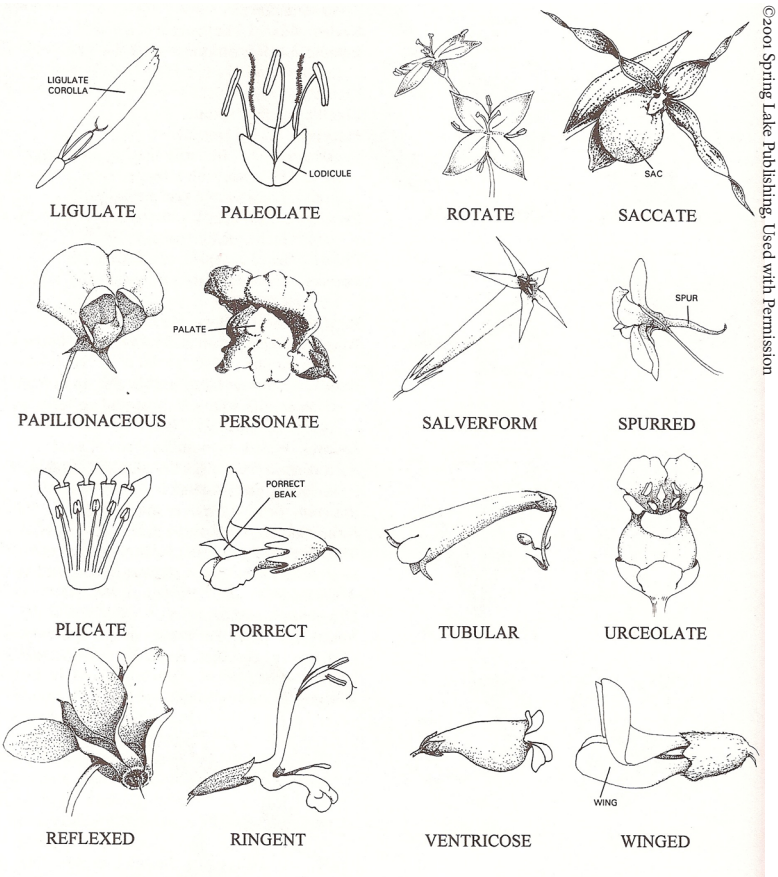
Notes





Notes

Flower types



Notes

Key to non-native species boxes

The high, medium, and low coding identifies the level of risk for impacting wildlands and natural resources.

H M L

Impact risk level

Eragrostis lehmanniana

Lehmann lovegrass

General: Tufted perennial, erect or ascending, sometimes decumbent and geniculate at lower nodes, 45–60 cm tall; stems bent at lower nodes. **Vegetative:** Sheaths one–third to one–half the length of the internodes, open, glabrous except for sparse pilose apex of margins; blades involute, about 1 mm wide, 2–10 cm long, stiffly ascending, sometimes grossly flexuous, 5–15 cm long; ligule ciliate, 0.5–1 mm long; collar pilose at the margins. **Inflorescence:** Narrowly oblong to lanceolate, open, 10–15 cm long, 4–8 cm wide, rachis glabrous to slightly scabrous, branches ascending to slightly spreading; spikelets slightly compressed, often dark gray–green to straw colored, several to 12–flowered, rachilla disrticulating; glumes hyaline, keeled, scarcely compressed, first lanceolate 1–1.2 mm, second ovate–lanceolate 1.4–1.6 mm long; lemmas oblong, obtuse, very little compressed or keeled; caryopsis ellipsoidal. **Ecology:** Introduced widely beginning in the 1930s, now widespread in grasslands and along roadsides from 3,000–4,500 ft (914–1372 m); flowers June–August. **Notes:** One of the most charismatic of the African introductions from earlier in the century, it was used extensively as an erosion control and range revegetation plant, but now it is changing fire–regimes and altering greater areas every year. **Etymology:** Eragrostis is from Greek eros, love and agrostis, grass, lehmanniana is named for German botanist Johann Georg Christian Lehmann (1792–1860). **Synonyms:** None

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The shaded box indicates that this species is non-native, introduced, or an invasive exotic.

Contact the Sonoran Institute for a set of field identification cards for all invasive non-native plant species in the region. czugmeyer@sonoran.org

Notes

Notes

The best way to start thinking about plant lifeforms is to start with the big stuff. First and foremost are the trees, a conventional definition of them is 'a woody plant with a single trunk.' The important part is that trees are defined by the presence of a single main trunk that is upright, with a crown of either leaves that fall (deciduous trees) or needles or even leaves that do not fall. Think of a pine tree.

In the Sonoran Desert region, thinking about trees requires a few caveats, such as not having just a single stem or not having a definite crown. It is often the case that many trees in this region often have many stems growing from one root and have a downright shrubby appearance, quite unlike the single stemmed pine tree we all picture with its single straight trunk and net crown on top.

To this end, let us consider the shrubs. A conventional definition of shrubs reads 'a woody plant shorter than a tree and with many stems.' The problem is that some trees can be shrubs and some shrubs can be trees. These definitions of trees and shrubs should be taken for what they are, very general attempts to categorize different types of plants across all their many forms.

For our purposes here, the best way to consider trees and shrubs is that these are the woody plants. These are the plants that persist long after the rains have gone in the fall and whose leaves fall and the trunks and stems remain throughout the year. Trees and shrubs are the most common of the common plants, their sheer size and number are what we see when we look at a large landscape. They constitute the bulk of all plant matter on the planet.

The trees and shrubs in Saguaro National Park include a much wider diversity than what is presented here, but we include a sampling that captures the unique range of diversity. We also include in this category the succulent plants, such as *Agave* and *Yucca*, because these plants are much closer to the trees and shrubs in terms of their ecological function than to other groups.

Anisacanthus thurberi

Thurber's desert honeysuckle, chuparosa

General: Perennial, cold-deciduous shrub 1–2 m (3–6 ft) high, leaves reappear in early spring; bark exfoliating, brown to gray with two vertical lines of pubescence. **Leaves:** Opposite lanceolate, sparsely hairy, entire, 4–6 cm long, 1–1.5 cm wide, to 2 cm rarely, puberulent to glabrous. **Flowers:** Usually brick red, occasionally yellow or orange, tubular, 2–3.5 cm long. **Fruits:** Dehiscent, 2-valved capsule 12–14 mm long, flattened with a long stalk. **Ecology:** Rocky canyon bottoms and gravelly or sandy washes from 2,000–5,000 ft (610–1524 m); blooms March–June, rarely in Fall (October–November). **Notes:** Summer rains stimulate stem growth, with flowers that are well adapted for hummingbird pollination. One of the better browse plants in the desert. Often found growing in shade. **Ethnobotany:** Potential use of nectar as sweet, but no documented use. **Etymology:** Anisacanthus is from Greek anisos 'unequal', while Thurberi is for Dr. George Thurber (1821–1890) a botanist on the Mexican Boundary Survey in 1850–1854. **Synonyms:** *Drejera thurberi*

Atriplex canescens

fourwing saltbush

General: Shrub, frequently 1.5–2 m, moundlike, much branched and drought deciduous. **Leaves:** Alternate, simple, gray-green, entire, narrowly spatulate to narrowly oblong, 5 cm long or less, salty tasting. **Flowers:** Inconspicuous, tiny, yellow, in clusters on stem; dioecious. **Fruit:** Small seeds enclosed by 4-winged bracts, often 1–2 cm and nearly as wide. **Ecology:** Found on sandy or gravelly soils, from desert scrub to pinon-juniper communities from 300–6,500 ft (100–2400 m) **Notes:** Browse for livestock, deer and antelope; seeds eaten by birds and rodents; very tolerant of salty soils. **Ethnobotany:** Seeds used for meal, yellow dye. Havasupai used it to make soap for hair washing and to treat itches and rashes. Hopi used the ashes as a substitute for baking soda. Navajo used it as an emetic, to treat ant bites, cough, and as a hair tonic. They also used it as feed for cattle, sheep and goats. **Etymology:** Atriplex is an old Latin name for this plant, canescens means covered with short gray or white hairs. **Synonyms:** None

Agave palmeri

Palmer's century plant

General: Generally single rosettes, rarely late–suckering, 5–12 dm tall, 10–12 dm across, open about the conal bud. **Leaves:** Mostly 35–75 cm by 7–10 cm, narrowed above base, long–acuminate, rather rigid, somewhat guttered, thick at base, convex below, pale green to light glaucous green or reddish–tinged, margins nearly straight or undulate; slender teeth, which are variously flexed; spine strong, 3–6 cm long. **Flowers:** Panicle deep, broad open, 3–5 m tall, with triangular bracts and 8–12 horizontal laterals in upper third of shaft; flowers 45–55 mm long, narrow, pale greenish yellow to waxy white, reddish in bud. **Fruits:** Shiny green ovary, 25–30 mm long with short neck; capsule oblong to pyriform, 3.5–6 x 1.8–2 cm. **Ecology:** Found in oak woodlands and grama grasslands from 3,000–6,000 ft (914–1829 m); flowers June–August. **Notes:** Critical for pollinators, bats, hummingbirds, insects; especially for the migratory bat, *Leptonycteris*, as reported by Gentry. **Ethnobotany:** The heads, or pinas, were harvested, roasted, ground, and fermented for use as mescal; widely used for fiber, food, and as forage. **Etymology:** Agave is from Greek agauos, admirable, noble, while palmeri is named for Edward Palmer (1829–1911), known for his botanical collections in the region. **Synonyms:** None

Agave parryi

Parry's century plant

General: Compact, globose rosette, medium sized, glaucous gray to light green, freely suckering; 40–50 cm by 60–75 cm, with 100–160 closely imbricated leaves. **Leaves:** Mostly 25–40 cm by 8–12 cm, linear–ovate, short acuminate, rigid, thick, nearly plane to concave above, rounded below; teeth mostly 1–2 cm apart, small, largest above mid–blade, 3–7 mm long. **Flowers:** Stout panicle, 4–6 m tall, with large reflexing bracts on peduncle and with 20–36 stout lateral peduncles on upper half of shaft, flowers bud pink to red, 60–75 mm long. **Fruits:** Capsule, constricted on stout pedicels, 3.5–5 cm by 1.5–2 cm, beaked, strong walled. **Ecology:** Found on rocky slopes from 5,000–7,000 ft (1524–2134 m); flowers June–August. **Notes:** Extensive range; distinguished by its compact, light green to grayish rosettes. This species is found along the "outlines of the cold fringe of Agaveland" (Gentry 1981). There are several varieties in the region, best to compare notes or specimens against Gentry. **Ethnobotany:** Used extensively for food, fiber, and drink. **Etymology:** Agave is from Greek agauos, admirable, noble, while parryi is named for Dr. Charles Christopher Parry (1823–1890), an English–born American botanist and collector. **Synonyms:** None

Agave schottii

Schott's century plant

General: Plants without stems except when flowering, rosettes solitary or in clusters, freely suckering, 30-60 cm across and 60-120 cm tall. **Leaves:** Leaves widening at base, then tapering at tip, 1–2.5 cm wide, bluish–green, (occasionally yellowish–green) in color, often with bud prints evident on the blade, margins sometimes producing threads, margins unarmed. **Flowers:** Flowers arranged in a spike or sometimes in a narrow panicle, flowers widely–spaced on distal 1/4–1/2 of the flowering stem, stem 1.6–4 m in height. Bracts not persistent, narrowly triangular on a short stalk 2–4 cm long. Flowers in clusters of 1–6, 3–5 cm long, funnelform, yellow in color, with exserted stamens, filaments sometimes in 2 levels or inserted high in the perianth tube, also yellow with yellow anthers. **Fruits:** Capsules on short pedicels, obovoid with a beaked or rounded apex, 1–2.2 cm long. **Ecology:** Found in gravelly or rocky areas in desert scrub, grasslands, and juniper or oak woodlands, 3,000–6,500 ft (914–1981 m); flowers late spring–late summer. **Notes:** There are 2 varieties of *A. schotti* in the southwest, *A. schottii* var. *schottii* and *A. schottii* var. *treleasei*, differentiated primarily by their blade width, with var. *schottii* being 0.7–1.2 cm wide, and var. *treleasi* being 1.2–2.5 cm wide. *Agave schottii* and its varieties are thought to hybridize with *A. chrysantha,* and each other, making positive identification more difficult. **Ethnobotany:** Pit baked and used as food by the Papago tribe. **Etymology:** Agave is from Greek agauos, admirable, noble, schottii refers to carl Victor Schott (1814–1875), a naturalist hired in 1851 by the United States Boundary Commission as a collector. **Synonyms:** None

Dasylirion wheeleri

sotol, desert spoon

General: Large, succulent shrub emerging from a central thick, woody, subterranean caudex. Leaves: Linear, basally clumped, elongated about 1 m long, 3–4 cm broad, margins armed with sharp, curved spines. **Flowers:** Dense racemes in elongated panicles, stalk 1.5–5 m tall. Perianth about 2–2.5 mm long, sepals and petals thin, whitish, stamens longer than perianth, slender filaments. Catkinlike spikes. **Fruits:** Capsule 7–9 mm long, 6–8 mm broad, 1-celled, 3-winged. **Ecology:** Found on rocky or gravelly hillsides and slopes from 3,000–6,000 ft (914–1829 m); flowers May–July. **Notes:** Known to be eaten by livestock in years of extreme drought. **Ethnobotany:** Crowns pit-baked, crushed, and fermented for use as a beverage. Stalks roasted, boiled, eaten raw. Stalks used for cradleboard backs, as a source for material for basketry, mats, and for ceremonial purposes. **Etymology:** Dasylirion comes from the Greek root dasys 'shaggy, thick, hairy, rough', while wheeleri is named for George Wheeler (1842–1905) an early American explorer. **Synonyms:** None

Nolina microcarpa

beargrass, sacahuista

General: Acaulescent rosette, with the appearance of a large, coarse grass. **Leaves:** Emerging from a basal rosette, 60-120 cm long, 6-12 mm wide, margins unevenly serrulate-scabrous, tips split into tufts 5-12 cm long; narrow channels run the length of the leaf. **Flowers:** Erect, up to 1 m tall, paniculate, narrow; primary branches 15-50 cm long, secondary branches one-half as long; bracts subtending lower branches lance-linear, 5-12 mm wide, 8-15 cm long, attenuate; campanulate flowers, whitish, 2-3.5 mm long, tepals oblong to ovate. **Fruits:** Subglobose, deeply notched at apex, rounded to shallowly notched at base, 4-5 mm high, 6-8 mm wide, papery, cells rupture at maturity. **Ecology:** Found on rocky slopes and hills from 3,000-6,000 ft (914-1829 m); flowers May-July. **Notes:** The more delicately serrated edges help to make this species identifiable and helps to separate this plant from *Dasylirion wheeleri*, as does the much wider leaves and long-prickles on the margins of *D. wheeleri*. **Ethnobotany:** Taken for rheumatism, for pneumonia and lung hemorrhages, the stalks were eaten, the seeds make a flour or meal for bread or mush, the fruit was eaten raw, preserved, used as a dye, for basketry, rugs, mats and other forms of weaving, for brushes, rope, cord, the roots were used for soap, and the dried leaves were used as cooking tools. **Etymology:** Nolina is named fro Abbe Pierre Charles Nolin (b. 1717) a French arbiculturalist, while microcarpa means having small fruits or seed pods. **Synonyms:** None

Yucca elata

soaptree yucca

General: Native shrub with definite trunk, rarely up to 9 m tall, not often over 1 to 2 m, simple with a few branches. Stalk can reach 9 m **Leaves:** Rigid linear leaves, sharp-pointed white margined, with curly filaments 2-5 cm long, about 5 mm wide, plano-convex. **Flowers:** Inflorescence a spreading panicle that extends well above foliage; closed to open, uppermost flowers racemose. Flowers campanulate to globose, 4-6 cm long, white to cream, pendant on slender to stout pedicels. **Ecology:** Mesas, desert washes, sandy plains, and grasslands from 1,500-6,000 ft (450-1900 m); flowers May-July. **Notes:** Key characters to know this plant: arborescent, with indehiscent and erect fruits, racemose inflorescences, oblong-cylindric capsule, 4-7 cm long. Often found in the expanses of desert grasslands, with its upright and elongate trunk of old leaves helps to clearly distinguish the species. **Ethnobotany:** Flowers and buds were used as food, the roots were used as a substitute for soap, and the leaves used for basketweaving. **Etymology:** Yucca comes from Haitian for uuca, or manihot, because young inflorescences are sometimes roasted for food, while elata means tall. **Synonyms:** None

Yucca madrensis

Sierra Madre yucca

General: Solitary, caulescent plants, shorter than 3 m. Stems simple, unbranched, shorter than 2 m. **Leaves:** Blade erect to reflexing with age, bluish–glaucous or green to yellow–green, thin, flat to conduplicate, flexible; margins entire, rarely with marginal fibers, brown to grayish. **Flowers:** Erect paniculate, open, comes from quarter to half within rosettes, elongate–ovoid to 8 dm, sparsely pubescent; pendant flowers, 3.5 cm, ovoid perianth, distinct tepals, or barely connate at base; white. **Fruits:** Becoming pendant, banana like, indehiscent, 6–12.5 by 2.5–3.8 cm, fleshy, succulent. **Ecology:** Found on slopes in Madrean pine–oak forests from 4,000–7,000 ft (1219–2134 m); flowers in late summer and fall with the rains. **Notes:** This species emerges from discussion surrounding what formerly was *Y. schottii*. The phylogenetics suggest that *Y. madrensis* is the most accurate name for that species, following FNA and Lenz and Hanson 2000. Easy to distinguish by its community associations in the higher elevation pine–oak woodlands and the lack of curling fibers along the margin of leaves. **Ethnobotany:** Uncertain; no documented usage, but given the wide variety of uses of other species in this genera. **Etymology:** Yucca comes from Haitian for uuca, or manihot, because young inflorescences are sometimes roasted for food, while madriensis refers to the Sierra Madre. **Synonyms:** *Yucca schottii*

Ambrosia ambrosioides

Ambrosia leaf bur ragweed

General: Perennial subshrub with erect stems to 5 m tall with strongly striate, puberulent to tomentulose branches, which age glabrate. **Leaves:** Alternate on petioles 2-3 cm long, tomentulose, often scurfy, the blades ovate to lance-ovate in outline, 5-8 cm wide and 8-22 cm long, margins coarsely toothed, strongly veined below, darker green and puberulent to scaberulous above, the lobes and apex usually acute to acuminate. **Flowers:** Heads conspicuously paniculate, with rotate involucres 5-6 mm across, deeply cleft into 6-12 lanceolate lobes, the palea puberulent, shorter than tubular corollas, the latter 1.5 mm long, the pistillate heads with 2-3 flowers, subtended by linear bracts 3-6 mm long. **Fruits:** Burs that are elliptic, hirsutulous, 8-9 mm high, bearing 2 elongate but slightly hooked beaks, 7-12 spines in 3 series. **Ecology:** Found along washes and in canyons from 500-4,000 ft (152-1219 m), flowers March-May. **Notes:** Distinctive smell helps to distinguish this plant in season with its sweet odor, along with the large toothed and very green leaves. **Ethnobotany:** Used as an analgesic for menstrual pains and used as a poultice applied to the chest to loosen a cough. **Etymology:** Ambrosia is Greek for food of the gods, while ambrosioides means like ambrosia. **Synonyms:** *Fransia ambrosioides, Xanthidium ambrosioides*

Ambrosia deltoidea

triangle bur ragweed

General: Shrub with numerous ascending to erect stems 30-80 cm from a woody base; rounded or flat topped; dark brown branches, ridged, strongly resinous.**Leaves:** Numerous, mostly alternate, on petioles 5-12 mm, blades deltate to lance-deltate, 12-25 mm long by 5-12 mm wide, cuneate to truncate bases, toothed margins, densely tomentose below, white or pale; above sparsely tomentulose, dark green. **Flowers:** Pistillate heads clustered, 2-3 florets, in terminal racemes or panicles; staminate heads crowded on peduncles 0.5-3 mm, more or less cup shaped involucres, 4-8 mm in diameter, tomentulose; 12-30 florets. **Fruits:** Burs broadly ellipsoidal to globose, 3-6 mm, usually stipitate-glandular, spines 15-30, scattered, 1-3 mm, tips straight, sometimes uncinate, distinctly flattened. **Ecology:** Found in sandy washes, on alluvial plains, on gravelly or rocky slopes from 1,000-3,000 ft (305-914 m); flowers December-May. **Notes:** Fruiting heads resemble cockleburs, only the spines are strongly flattened with plane of leaves. Abundant shrub among *Parkinsonia* and *Prosopis* in the Sonoran desert scrub communities. This species is often considered the dominant bursage of the Arizona Upland, while *A. dumosa* is found in the lower Colorado and Mohavean types. *A. deltoidea* is often found on the moister margins of gullies and other surface water features, while *A. dumosa* is confined to finer and drier soils. **Ethnobotany:** Unknown, but other species in the genera have many uses. **Etymology:** Ambrosia is Greek for food of the gods, while deltoidea means triangular, like the fourth letter of the Greek alphabet, delta. Synonyms: *Franseria deltoidea*

Ambrosia dumosa

burrobush, white bursage

General: Much branched, rounded shrub 10-40 cm tall; stiff branches, more or less spinose, glabrate with age, bearing short stiff hairs when young, bark gray and slightly striate. **Leaves:** Alternate, on petioles 2-8 mm, blades elliptic to ovate, 2-3 pinnately lobed, both surfaces densely grayish-tomentose, 10-25 mm long by 8-15 mm wide; divisions often narrow but not linear, often variously shaped. **Flowers:** On racemose or spikelike inflorescence, staminate and pistillate heads intermingled, staminate heads on peduncles 0.2-3 mm long; involucres broadly saucer-shaped, 4-5 mm wide, strigillose cancescent, lobes 5-8, broadly trianglular ovate; corollas puberulent, yellow. **Fruits:** Burs 4-5.5 mm long, subglobose, moderately glandular-puberulent, 2 beaks, straight 1-1.5 mm long; spines 30-40, narrowly subulate, flattened toward base, 1.5-2.2 mm long, tips not hooked. **Ecology:** Found on dry, fine soils of alluvial plains and slopes below 3,000 ft (914 m); flowers February-December. **Notes:** One of the more abundant shrubs in the desert scrub. Flattened spines on the burs are a contrast to other species of *Ambrosia*. Found in much of the Sonoran and Mojavean deserts, scarce only where cool-season rainfall is low, and since warm-season rain is infrequent in its range it germinates episodically. **Ethnobotany:** Unknown, but other species in the genera have many uses. **Etymology:** Ambrosia is Greek for food of the gods, while dumosa means bushy or shrubby. **Synonyms**: *Franseria dumosa*

Ambrosia monogyra

singlewhorl burrobrush

General: Slender shrub to 2.5 m, with multiple, slender, mostly erect stems branching above. **Leaves**: Sparse, drought deciduous, mostly 2–7 cm; young leaves of vigorous shoots often pinnately divided into several segments, upper leaves reduced and mostly entire. Leaves 0.5 mm wide, grooved above (involute) grooves filled with short, white, elongate-conical hairs. **Flowers:** Wind-pollinated, inconspicuous and monoecious, disk florets only, pistillate heads below staminate heads clustered in upper axils of branches. Membranous, spreading bracts of the fruiting head distinctive. **Fruits:** Fruiting bur spindle shaped 3.5–4 mm wide, bract wings in a single whorl, wings 0.8–1.4 mm wide, longer than wide. **Ecology:** Found on floodplains and along arroyos and washes from 1,000–4,000 ft (305–1219 m); flowers September–November. **Notes:** Thrives on disturbance created by occasional floods, seeds are transportable by flood making it an early successional floodplain species. **Ethnobotany:** Used as a remedy for abdominal pains, while the Seri used the seeds for food. **Etymology:** Hymenoclea is from hymen 'membrane' and kleio 'to encose, while monogyra refers to being in or with one circle. **Synonyms:** *Hymenoclea monogyra*

Baccharis sarothroides

desert broom

General: Woody shrubs often 2–2.5 m with broomlike green branches, often nearly leafless. Twigs angled or striate-ridged. **Leaves:** Few, quickly deciduous leaves linear to linear-lanceolate reaching 1–3 cm, larger leaves often minutely toothed, most leaves much smaller or reduced to scales. **Flowers:** Cylindroid pistillate heads about 1 cm long, 5 mm in diameter, erose to ciliate membranous, outer phyllaries broadly ovate, inner ones linear. **Fruits:** Achene, 1.5–2.7 mm, 10-ribbed, pappus 7–11 mm. **Ecology:** Found in sandy-gravelly washes, watercourses, shallow drainages, flats, and low hills, sometimes in saline soil from 1,000–5,500 ft (305–1676 m); flowers September–December. **Notes:** Because of its evergreen nature often used as an ornamental, not particularly palatable to livestock or grazing. **Ethnobotany:** Infusions were used for coughs and stomach aches, while many stalks were tied together to make brooms and single stalks made arrows. **Etymology:** Baccharis is named for Bacchus, the god of wine, sarothroides means broom-like. **Synonyms:** None

Brickellia californica

California brickellbush

General: Intricately branched shrub 50-200 cm tall, terete, crisply puberulent stems and ascending branches that are at first whitish, then purplish, brownish, or grayish. **Leaves:** Numerous, alternate, on petioles 5-60 mm, blades 3-nerved from base, deltate to ovate, 10-100 by 10-90 mm, dentate or crenate-serrate margins, irregularly so; faces puberulent to glabrate often gland dotted. **Flowers:** Heads borne in paniculiform arrays or solitary in axils on peduncles 1-5 mm, involucres cylindric to obconic 7-12 mm, subacute to rounded at tips, phyllaries greenish stramineous to purple-tinged, 21-35 in 5-6 series, unequal, scarious margins, outer ovate to lance-ovate, inner lanceolate; florets 8-12, corollas greenish white often tinged with purple, 5.5-8 mm. **Fruits:** Puberulent achenes 2.5-3.5 mm, with 24-30 white, barbellate pappus bristles. **Ecology:** Found on dry rocky hillsides, in arroyos and canyons from 2,500-9,000 ft (762-2743 m); flowers July-October. **Notes:** One of the more common *Brickellia* found in the region, when evaluating this plant pay attention to the involucral bracts and how they do not recurve, as they do in other species in the genera. **Ethnobotany:** Used ceremonially, as a lotion for sores, for cough and fever, as a rub for headaches, and as a tea. **Etymology:** Brickellia is named for Dr. John Brickell (1749-1809), while californica means of or from California. **Synonyms:** None

Encelia farinosa

brittlebush, incienso

General: Compact, rounded, much branched shrub 30-150 cm, stems branched distally, tomentose. **Leaves:** Cauline, ovate-acute to broadly ovate-lanceolate, 2-5 cm long, on petioles 10-20 mm, blades silver or gray, apices obtuse or acute, faces tomentose. **Flowers:** Hemispheroidal heads on leafless stalks that appear paniculate, peduncles glabrous except near heads, more or less yellow; involucres 4-10 mm, lanceolate phyllaries, ray flowers about 1 cm long, 2 cm in diameter, the ray corollas large and conspicuous 1-1.5 cm long, disc flowers yellow to brown-purple. **Fruits:** Cypselae 3-6 mm, with no pappus. **Ecology:** Found on dry, rocky or gravelly slopes below 3,000 ft (914 m); flowers November-May. **Notes:** A very distinctive plant with its bluish to gray-green powdery looking leaves, usually rounded in form, which break easily and bright yellow flower heads, often turns whole hillsides yellow in spring. **Ethnobotany:** Used for toothaches, for pain, the gum was chewed by children, used to fasten arrow points, as a waterproofing gum, and melted down for a varnish. **Etymology:** Encelia is named for Christoph Entzelt (1517-1583) a German naturalist, while farinosa means mealy or powdery. **Synonyms**: *Encelia farinosa* var. *farinosa*, *E. farinosa* var. *phenicodonta*, *E. farinosa* var. *radicans*

Encelia frutescens

button brittlebush

General: Much branched, low, usually rounded shrub 50-150 cm tall with slender branches, glabrous with developing fissured bark; stems whitish. **Leaves:** Cauline, on petioles 2-7 mm; blades elliptic to oblong, 10-25 mm, obtuse to acute at apex, broadly cuneate to truncate at base, faces strigose, entire margins; dark green. **Flowers:** Heads borne singly on strigose peduncles; involucres 6-12 mm, bracts imbricate and unequal, lanceolate phyllaries; rays mostly lacking; disk flowers 5-6 mm, yellow, short tube glandular-puberulent. **Fruits:** Black cypselae 6-9 mm, white villous along margins with silky hairs along middle of each face; pappus none or with 1-2 weak bristlelike awns. **Ecology:** Found on stony slopes, along washes, on slopes and roadsides from sea level to 4,000 ft (1219 m); flowers March-October. **Notes:** Notably different from *Encelia farinosa* by virtue of the bright green leaves sometimes densely pubescent, rather than the gray farinose leaves in *E. farinosa*. Often flower heads are much smaller as well. **Ethnobotany:** Used as a seasoning and as a remedy for shingles. **Etymology:** Encelia is named for Christoph Entzelt (1517-1583) a German naturalist, while frutescens means shrubby. **Synonyms:** *Encelia frutescens* var. *frutescens, Simsia frutescens*

Ericameria laricifolia

turpentine bush

General: Compact shrub, broomlike branching, 30-100 cm, stems erect to ascending, resinous; branchlets striate below leaf bases. **Leaves:** Broadly linear, ascending, spreading when older, 10-20 mm by 1-2 mm, midnerves not evident, acute apices, subfleshy, conspicuously impressed-punctate-resinous, densely crowded on younger branchlets. **Flowers:** Heads in irregular, much bracted cymes; peduncles 3-15 mm; involucres turbinate, 3-5 mm by 3-5 mm, spreading considerably in fruit; bracts imbricated in 4-5 series, linear to lance-linear, acute to slightly acuminate; ray flowers 306 or wanting in part of heads, ligules 1.5-2 mm wide, 4-5 mm long, barely exceeding disk corollas; disk flowers 9-16, corollas 5-6 mm long, gradually ampliate, lobes lanceolate, acute, about 1 mm long. **Fruits:** Achenes tan to brown, turbinate to narrowly oblanceolate, 3.5-4 mm, densely white strigose; light brown pappus, about equaling disk corollas. **Ecology:** Found on rocky slopes, on mesas, in canyons, and along rock walls from 3,000-6,000 ft (914-1829 m); flowers August-November. **Notes:** Leaves when crushed have a turpentine smell, hence the name. Distinctive with its imbricated leaves. **Ethnobotany:** Unknown **Etymology:** Eric- is ancient root for heath or broom, amari means bitter, while laricifolia means having leaves like larch. **Synonyms:** *Haplopappus larcifolius*

Gutierrezia sarothrae

broom snakeweed

General: Subshrub with minutely hispidulous stems, 10-60 cm. **Leaves:** Basal and proximal absent at flowering; cauline blades 1-3 nerved, linear to lanceolate, sometimes filiform and fascicled 1.5-2 mm wide, little reduced distally. **Flowers:** Heads corymbosely arranged, numerous, 3-10 at tips of branchlets; involucres cylindric to cuneate-campanulate, 1.5-2 mm in diameter; phyllary apices flat; ray florets 3-8, corollas yellow, 3-5.5 mm; disc flowers 3-9, usually bisexual and fertile, tubular-funnelform corollas. **Fruits:** Achenes terete, 0.8-1.6 mm, densely silky-strigulose; pappus in 1-2 series of narrowly oblong to ovate-lanceolate or obovate scales. **Ecology:** Found on plains and slopes from 3,000-7,000 ft (914-2134 m); flowers May-October. **Notes:** Usually an indicator of overgrazed land, similar in appearance to *G. microcephala* excepting the obvious character difference in the flowers, usually bearing more than 6 phyllaries; in the low desert it should be compared against *G. serotina* which has narrowly campanulate involucres and glabrous stems. **Ethnobotany:** Used ceremonially, as rub for rheumatism, as a cathartic and emetic, as an eyewash, snake bite remedy, the roots were used for respiratory ailments, as a laxative, for bruises, fevers, against venereal disease, for sores, as an insecticide, for headaches, colds, coughs, headaches, and as a sedative. **Etymology:** Gutierrezia is named for Pedro Gutierrez (Rodriguez), a 19th century Spanish noblemen and botanist, while sarothrae is from the Greek sarum, a broom. **Synonyms:** Many, see Tropicos

Isocoma tenuisecta

burroweed

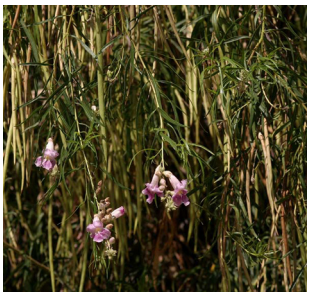
General: Shrub to sub-shrub, .3–1 m tall and 1 m wide. Bark of larger branches gray. **Leaves:** Alternate, dark-green to gray, glandular, pinnately cleft into four to eight linear acute lobes. Main axis of leaves 2–3.5 cm long, about 1 mm broad, divisions .2–2 cm long, about 1 mm broad. **Flowers:** Yellow, discoid, with no ray flowers, arranged into dense terminal clusters. Flowers dry and turn a light brown but remain on stems. Bracts are glandular as well. **Fruits:** Achene with pappus of many coarse persistent bristles of uneven length. **Ecology:** Found on dry slopes, mesas, and alluvial plains from 2,000–5,500 ft (610–1676 m); flowers from August–October. **Notes:** Significant invader of depleted rangelands, often coming to constitute the principle cover. Susceptible to drought and is not fire tolerant. This plant is toxic to livestock. **Ethnobotany:** No known uses. **Etymology:** Isocoma is from the greek meaning 'an equal hair-tuft' referring to flowers, while tenuisecta means thinly or narrowly cut. **Synonyms:** *Happlopappus tenuisectus*

Parthenium incanum

mariola

General: Much branched, compact shrub 30–100 cm tall with finely tomentose herbage and light gray, striate, eventually slightly fissured bark. **Leaves:** Oval–elliptic to obovate, 15–25 mm by 6–15 mm long, irregularly lobed or pinnatifid about to middle of blade, densely tomentose, veiny and cinereous beneath, pale green, less so on upper surface, lobes mostly obtuse to rounded, 5–10 mm long, petioles 2–5 mm long, densely tomentulose. **Flowers:** Terminal cymose panicles on naked or nearly naked branches 1–5 cm long, involucres broadly cup shaped, 3–4.5 mm wide at anthesis, bracts graduate, ovate to suborbicular, tomentulose; ray flowers with ligules 1–1.5 mm long, only slightly exceeding involucres, mostly erect or weakly spreading; sterile disk flowers about 2 mm. **Fruits:** Cypselae 2–2.5 mm long, dorsiventrally flattened, attached to subtending bract and to enfolded paleae of 2 sterile disk flowers immediately anterior to it by slender callous threads. **Ecology:** Found on gravelly slopes and plains from 2,500–5,000 ft (762–1524 m); flowers June–October. **Notes:** The distinctive perfume can help to identify this species. **Ethnobotany:** The leaves were boiled and drunk like coffee. **Etymology:** Parthenium is from the Greek parthenion, for a plant related to Matricaria, while incanum means grayish or hoary. **Synonyms:** None

Chilopsis linearis



desert willow

General: Native tree or shrub reaching 10 m at maturity. Bark is dark and ridged on older stems. **Leaves:** Whorled, opposite or alternate; simple, deciduous; very long linear less than 15.2 cm long, 10 mm wide, curved. **Flowers:** Large, 2-lipped, showy, 2.5 cm long; white to purplish, fragrant; in clusters of several. Fruit: Long slender capsule 10.2–20.3 cm long, 6 mm diameter; two halves persistent in winter, seed flat with 2 hairy wings. **Ecology:** Found along washes in deserts and foothills from 1,500–5,500 ft (457–1740 m); flowers April–August. **Notes:** Diagnostic characters of this plant are its very long slender and whorled leaves, long, slender pod, and the strikingly beautiful bilabiate flowers. The Flora of Arizona project identifies the only extant subspecies in the state as ssp. *arcuata*, which is characterized by its arcuate, drooping leaves. **Ethnobotany:** Havasupai used in basketry. Hualapai used to make cradleboards. It is a good anti-fungal and general antimicrobial. **Synonyms:** None

Celtis ehrenbergiana

spiny hackberry

General: Densely branchd shrub 1–6 m high. Paired, straight spines and short, lateral thorn-tipped branches. **Leaves**: Subentire to serrate, ovate to elliptic, 1–3 cm long, 0.6–2 cm wide. **Flowers:** Perfect, staminate, and pistllate, greenish yellow flowers in small cymes growing at leaf base. **Fruits:** One seeded drupe, yellow or orange 5–8 mm in diameter. **Ecology:** Common along washes and on rocky and gravelly slopes, occasionally dominates bajadas, grows in Sonoran desertscrub and semidesert grassland from 1,500–4,000 ft (457–1219 m); flowers March–April and again July–October. **Notes:** Paired spines at node distinguish this shrub from other thorny, simple-leaved shrubs in the region. **Ethnobotany:** Wood is used for fuel and fence posts, many birds and animals eat drupes and use shrub for cover. **Etymology:** Celtis is a Greek name for the tree, while its old name pallida means pale. **Synonyms:** *Celtis pallida*, *C. spinosa* var. *pallida*, *C. tala* var. *pallida*, *Momisia pallida*

Juniperus coahuilensis

redberry juniper

General: Evergreen small tree or large shrub 1–4.5 m with spreading branches forming an irregular, open crown; bark is shreddy but formed close to trunk, ashy gray to brown; multi–trunked at base. **Needles:** Erect branchlets with tricussate, scalelike, appressed leaves green to light green, abaxial glands obvious and elliptic to ovate. **Cones:** Dioecious terminal pollen cones, 3–4 mm long, oblong; seed cones terminal, 10–12 mm long, spheric to ovoid, bluish but maturing blue–brown to reddish–brown the second year; dry, hard, and fibrous. **Seeds:** Ovulate cones contain 1–3 seeds per, ovate to pyriform, grooved, tip acuminate. **Ecology:** Found on dry, well–drained soils in full sun, from 4,000–6,500 ft (1372–1981 m); flowers October–November. **Notes:** The complex of *Juniperus* can be confusing in the field, but with fruit this species stands apart. Absent that, it can be difficult to distinguish it from *J. monosperma* in the field, the only apparent point of departure between the two is the glands on *J. coahuilensis* are covered (more than 25 percent) by conspicuous white resin. **Ethnobotany:** Used for fuelwood and posts, mats, saddles, fleshy cones were ground for flour. Seeds when dried used for beads, often as measure of protection. **Etymology:** Juniperus is the Latin name for Juniper, Coahuilensis is named for the type specimen from Coahuila, Mexico. **Synonyms:** None

Juniperus deppeana

alligator juniper

General: Tree and sometimes shrub, usually single trunked, 7–15 m tall, usually dioecious; bark ashy gray outside, dark brown to black inside, 1–20 cm thick, deeply fissured into smaller rectangular plates. **Needles:** Usually decussate, closely appressed, scale–like and with an obvious gland, blue–green. **Cones:** Pollen cones terminal, 3–4 mm long, oblong; seed cones terminal, 8–20 mm long, subspheric to broad–ellipsoid, green, maturing bluish to reddish tan to red–brown in second year, glaucous, dry, hard, fibrous to rarely woody. **Seeds:** Ovoid or oblong to irregular, often angled, brown, 4–5 per cone, 6–9 mm long. **Ecology:** Found on dry, rocky slopes from 4,500–10,000 ft (1372–3048 m); flowers February–March. **Notes:** Distinctive with its alligator bark. Can be confused with *Cupressus arizonica* when young, when the bark can be reddish and peel like the latter. Pay attention to the cones and you will have no trouble distinguishing. **Ethnobotany:** The berries were boiled, eaten fresh, ground into a meal, drunk as a beverage, made into cakes, and used as both a fuel wood and as lumber. **Etymology:** Juniperus is the Latin name for Juniper, while deppeana is (probably) named for Ferdinand Deppe (1794–1860) a German botanical collector. **Synonyms:** *Juniperus deppeana* var. *pachyphlaea, J. deppeana* ssp. *sperryi, J. deppeana* var. *sperryi, J. mexicana, J. pachyderma*

Arctostaphylos pungens

pointleaf manzanita

General: Shrubs with rigid, spreading branches, 1–2 m tall, smooth reddish brown bark, with densely pubescent branchlets. **Leaves:** Elliptic to lance–elliptic, blades 1.5–4 cm long, 0.5–2 cm wide, pale green, lustrous, glabrous, with acute to rounded bases, tips acute and mucronate, entire margins, although young leaves may be toothed, on petioles 49 mm long, white–puberulent. **Flowers:** Simple or few–branched racemes, densely white puberulent, acuminate bracts, 1.5–4 mm long; flowers 2–8 mm long, sepals with ovate lobes, reflexed, 1–2 mm long, glabrous; corollas pink to white, urceolate, on pedicels 2.5–6.5 mm long, glabrous, with glabrous ovaries. **Fruits:** Depressed–globose berries, 5–11 mm wide, orange to brownish–red. **Ecology:** Found on rocky hillsides among the chaparral type, up to openings in the ponderosa communities from 3,000–8,500 ft (914–2591 m); flowers February–June. **Notes:** Distinguished by its densely white puberulent inflorescence axis and the racemose inflorescence. The mucronate tip on the leaves is variable among most *Arctostaphylos* but is pretty obvious in this species. **Ethnobotany:** Leaves taken for diarrhea, as a ceremonial emetic, as a poison oak rash, the berries were eaten and made into a beverage, the branches were used as a construction material, the wood was used for firewood, to make pipes, and the leaves were mixed with other tobacco for smoking. **Etymology:** Arctostaphylos is from Greek arktos, bear and staphule, a bunch of grapes, while pungens means sharp, referring to the mucronate tip of the leaf. **Synonyms:** *Arctostaphylos chaloneorum, A. pseudopungens, A. pungens* ssp. *chaloneorum*

Jatropha cardiophylla

sangre de cristo

General: Loosely branching shrub, branches flexible, bark reddish brown, smooth, 0.5-1 m tall. **Leaves:** When present, alternate, heart–shaped, margins with rounded teeth, glabrous and shiny, 1.5–7 cm long. **Flowers:** Cream colored flowers with 5 petals united into a tube shape, stamens 8–10, united below into a column. **Fruits:** Singular, large seeds contained in a globose capsule with a small protuberance at the tip. **Ecology:** Found on sandy and gravelly slopes, plains, mesas, and foothills, from 2,000–3,000 ft (610–914 m); flowers July–August. **Notes:** Called the Sangre de Cristo, the roots contain a red dye, and the clear sap is said to be able to seal wounds as it coagulates quickly on contact with the air. Most of the year this plant is a bunch of reddish barked stems, then all of a sudden you add water and you have beautiful heart–shaped leaves. **Ethnobotany:** Stems used to make baskets. **Etymology:** Jatropha is from the Greek iatros for doctor and trophe for food, while cardiophylla means heart leaves. **Synonyms:** None

Acacia constricta

whitethorn acacia

General: Spreading shrubs to 3 m, symmetrical with generally straight branches. Bark smooth, light gray to mahogany-colored, lower branches spreading near ground level. Stipular spines in pairs at the nodes of the stems, usually white, 1–3 cm. **Leaves:** Winter deciduous and tardily drought deciduous, even-pinnate, 3.5–4 cm long, the pinnae 3–9 pairs, leaflets many 1.5–3 mm. Petioles with a prominent nectary gland. **Flowers:** Fragrant, bright yellow in rounded heads about 1 cm in diameter. **Fruits:** Pods 4.5–13.5 cm long by 4–6 mm width, constricted between each seed, moderately compressed, reddish with viscid glands, gradually dehiscent. **Ecology:** Found along washes, on slopes and mesas from 2,000–6,500 ft (610–1981 m); flowers April–June. **Notes:** Some specimens are thought to be var. *paucispina*, which is described as one with few or no spines and less glandular leaves. Many taxonomists reject this taxon because it is not clear because spininess is variable. Note that the American genera *Acacia* has recently undergone revision, having been conserved for Australian taxa alone. **Ethnobotany:** Seri made a tea from the mashed seeds and leaves to relieve diarrhea or upset stomachs. Powdered, dried pods and leaves have been used to treat skin rashes, medicinal tea can be made from the roots. **Etymology:** Acacia is from Greek akakie taken from ake or akis, 'a sharp point, while constricta refers to constricted or contracted. **Synonyms:** *Acaciella constricta*

Acacia greggii

catclaw acacia

General: Native shrub or tree reaching to 6 m or more. Leaves: Alternate, deciduous, bipinnately compound; 2.5–7.6 cm long, with 2 or 3 pairs of pinnae, each with 4–6 pairs leaflets; pinnae 1–1.5 mm long. **Flowers:** Cream colored, fragrant, spikes 5.1 cm long, 13 mm diameter; summer. **Fruits:** Legume 5.1–12.7 cm long, 13 mm wide, flat, often twisted and narrowed between seeds; persists into winter. **Wood:** Hard, heavy, sapwood cream to yellow; heartwood, reddish-brown. **Ecology:** Found on flats, washes, and slopes below 5,000 ft (1524 m). **Notes:** Distinguished by small double-compound leaves less than 7.6 cm long; very stout recurved solitary spines; flat twisted pod constricted between seeds. Note that there is a nomenclature change for the entire genus to *Acaciella*. We conserve the old name for ease. **Ethnobotany:** Disagreeable because of stout spines, tool handles, fuel, good honey plant, quail, ground up into a meal. Used as an astringent, emollient, disinfectant, antiinflammatory. Havasupai used in basket making. **Etymology:** Acacia is from Greek akakie taken from ake or akis, 'a sharp point, greggii is reference to Josiah Gregg (1806–1850), a frontier trader and author who worked with Dr. George Engelmann. **Synonyms:** *Acaciella greggii*

Calliandra eriophylla

fairyduster

General: Spreading shrub growing to 1 m high, with unarmed light gray to whitish stems. Young stems and twigs densely to moderately pubescent with short white hairs. **Leaves:** Widely spaced leaves twice-pinnate with 2–4 pairs of pinnae, each with 7–9 (occasionally 10) pairs of leaflets 2–3 mm long. Generally cold deciduous. **Flowers:** Showy, dense spherical heads 4–5 cm in diameter. Corollas 5–6 mm long and inconspicuous; stamens showy, pink, rose, or reddish purple up to 1.5 cm long. **Fruits:** Linear velvety pods 5–7 mm wide and 3–7 cm long with thickened margins. **Ecology:** Grows along washes, on slopes and mesas, typically low and creeping, from 2,000–5,000 ft (762–1676 m); flowers February–April, occasionally September–October. **Notes:** Readily identifiable because of its stamens. **Ethnobotany:** Decoction taken as a gynecological aid after childbirth by Yavapai. **Etymology:** Calliandra is from Greek kallos 'beautiful' and andra 'stamen', while eriophylla is from Greek erion 'wool' and phyllon 'leaf' referring to matted white hairs that cover the plant when young. **Synonyms:** *Calliandra eriophylla* var. *chamaedrys, C. eriophylla* var. *eriophylla*

Coursetia glandulosa

rosary babybonnets

General: Spreading shrub, up to 10 m, with light gray, somewhat rough bark, unarmed. **Leaves:** Pinnate with mostly 5 pairs, usually 8–18 leaflets per leaf, oval to narrowly elliptic, 9–50 mm long, 2–20 mm across, appressed hairy. **Flowers:** Inflorescence racemose and sessile with flowers cream and yellow with a banner and keel, sepals reddish and pubescent, the calyx 5–7 mm long rounded at base, tube 3–4 mm long, corolla banner whitish, blade 11–15 mm long, 14–15 mm wide, orbicular with wings 11–15 mm, whitish to yellowish near the tips. **Fruits:** Long, thin pod, constricted between the seeds, 2–11 cm long, 5–7 mm wide, stipitate glandular with sinuous margins. **Ecology:** Found on wash edges, dry rocky slopes, and canyons, from 2,000–4,000 ft (610–1219 m); flowers March–April. **Notes:** Distinguished by the small light gray to tan branches and the small pinnate leaves, but difficult to identify when not in flower. First glance it appears like an *Acaciella* or the like, but note the lack of spines and when flowering the raceme of cream flowers is not only beautiful, but very distinctive. Distinguished from the Mexican species by the stipitate glands on the flowers and rachis of the flowers, generally found on rocky slopes. **Ethnobotany:** Resin of plant was used as a gum to seal jars by the Papago. **Etymology:** Coursetia is named for George Louis Marie Dumont de Courset (1746–1824), a French botanist, while glandulosa means bearing glands. **Synonyms:** *Coursetia microphylla*

Dalea formosa

featherplume, feather indigobush

General: Small shrub, with stems to 60 cm long, divaricately and much branched, stems sometimes zig-zag, glabrous except for the inflorescence. **Leaves:** Odd-pinnately compound, 7-11 foliolate, leaflets 2-3 mm long, oblong, spatulate, or cuneate-oblong, sometimes folded lengthwise, glabrous and glandular dotted beneath. **Flowers:** Spicate, 2-10 flowered, rather loose, floral bracts ovate, glandular, glabrous on the back but silky on the margins, calyx long-villous, the tube 3-4 mm long, corolla papilionaceous, petals purple, blade of banner ovate, 3-4 mm long, often yellow. **Fruits:** Small legume, obovate, about 3 mm, flat, apical margin densely fringed, glandular-dotted, indehiscent. **Ecology:** Found on gravelly or rocky, dry slopes from 2,000-6,500 ft (610-1981 m); flowers April-October. **Notes:** One of the lowest growing of the *Dalea*, often far more woody at the base than other species in the genera. **Ethnobotany:** Taken as an emetic, as a strengthener before a long run, and as a cathartic. **Etymology:** Dalea is named for Samuel Dale (1659-1739) an English botanist, while formosa means finely formed, handsome, or beautiful. **Synonyms:** *Parosela formosa*

Olneya tesota

ironwood

General: Slow growing tree 7-10 m tall, with densely canescent, striate, and spiny branches, the spines 5-10 mm long, slightly hooked, black on the tips, with shredding gray bark. **Leaves:** Pinnate 3-10 cm long with 4-12 pairs of leaflets, these oblong 5-20 mm long. **Flowers:** On axillary racemes 2-6 cm long, with 0.5 mm long deciduous bracts, papilionoid flowers, the calyx narrowly turbinate, densely canescent, the tube 3-4 mm long, with triangular ovate lobes 203 mm long, nearly as wide, the corolla purple, 9-10 mm long, tinged with yellow. **Fruits:** Pods 8-9 mm thick, 3-6 cm long, canescent and glandular pubescent, with a broad beak and stipe. **Ecology:** Found in desert washes and on low hills often in gravelly to silty soil below 3,000 ft (914 m), flowers April-May. **Notes:** Distinctive in spring for its purple flowers, but distinguished from the similar *Acaciella greggii* by virtue of its much more full crown that is dense gray-green. Well known for its nurse plant qualities and because it is endemic to the Sonoran Desert region.This species is only found at the Tucson Mountain District. **Ethnobotany:** The wood was widely used for fuel, the well known carvings of people like the Seri, and the seeds were roasted, parched and ground for flour and widely used as food. The wood is known for its hardness and was used for all kinds of tools and implements, instruments, carvings, digging sticks, weaving, and even shovels. **Etymology:** Olneya is named for Stephan Olney (1812-1878) an American botanist, while tesota is a corruption of the Spanis tieso meaning stiff or firm, referring to the wood of the tree. **Synonyms:** None

Parkinsonia florida

blue paloverde

General: Large shrubs to small trees reaching 7–10 m tall with a well-developed trunk. Small straight spines borne singly at nodes. Bark of twigs and branches bluish green, while older trunks are often gray. **Leaves:** Leaves are pinnate with single pair of pinnae, with 2–4 pairs of obovate leaflets 4–8 mm long, darkening when dried. **Flowers:** Found in terminal racemes, 22–28 mm wide, calyx green to yellow-green, lobes reflexed; Petals bright yellow, banner with small orange-red spots basally. **Fruits:** Straw colored oblong pods 4–10 cm long moderately flattened, mostly indehiscent, seeds 1–6. **Ecology:** Generally found along washes, plains, and canyons, sometimes on slopes from sea level to 4,000 ft (1219 m); flowers March–April. **Notes:** Larger than most other species of this genus. **Ethnobotany:** The seeds were dried and roasted before being ground into meal for mush or cakes. Green pods can be eaten raw, similar to edamame (soybean) in texture. The wood was used for carving ladles. **Etymology:** Parkinsonia is named after John Parkinson (1567–1650), florida refers to either free-flowering, abundant flowers or bright. **Synonyms:** *Cercidium floridum*, *C. floridum* ssp. *floridum*

Parkinsonia microphylla

yellow paloverde, foothill paloverde

General: Small tree or large shrub to 6 m tall with smooth green bark on all twigs and branches except near the base, which is gray. **Leaves:** Borne on thorn tipped stems, lacking a petiole with 1 pair of pinnae, each 1–5 cm and with 4–8 pairs of leaflets, leaflets 1–3.5 mm broadly elliptic to broadly oblong or orbicular. **Flowers:** Bicolored with four yellow petals and one white banner, 12–18 mm wide. **Fruits:** Pods, sparsely pubescent, tan to straw-colored 4–8 cm long, indehiscent. **Ecology:** Abundant on bajadas, plains and hillslopes through low desert from 500–3,500 ft (152–1067 m); flowers April–May. **Notes:** This plant is very common in the Sonoran Desert, where its leafless stems make it readily identifiable. **Ethnobotany:** The seeds were dried and roasted before being ground into meal for mush or cakes. Green pods can be eaten raw, similar to edamame (soybean) in texture. The wood was used for carving ladles. **Etymology:** Parkinsonia is named after John Parkinson (1567–1650), microphyllum refers to its being small-leaved. **Synonyms:** *Cercidium microphyllum*

Prosopis velutina

velvet mesquite

General: Common, shrub or tree, reaching to 17 m. **Leaves:** Alternate, deciduous, bipinnately compound, with 1 or 2 pairs of pinnae each with 9–30 pairs leaflets; leaflet 4–13 mm long, oblong, closely spaced on stalk; paired straight stipular spines 1–2 cm borne at nodes. **Flowers:** Greenish yellow flowers in spikelike racemes 5–12 cm long. **Fruits:** Legume 7.6–20.3 cm long, pubescent, non-dehiscent, sweetish pulp. **Bark:** Dark brown, thick, long narrow strips. Hard, heavy, reddish-brown, yellow sapwood. **Ecology:** Common along washes, in bottomlands, slopes and mesas from 3,000–5,500 ft (914–1675 m). **Notes:** Diagnostic features include bipinnate leaf with 1 or 2 pairs of pinnae, always with hairs; stout, straight stipular spines; pubescent leaves, twigs, pods. **Ethnobotany:** Excellent fuel, charcoal, posts, novelties, cattle eat the pods, browse, honey; grassland invader; pods make highly edible flour. **Etymology:** Prosopis was a Greek name for burdock (seemingly misnamed), while velutina refers to velvet-like. **Synonyms:** *Neltuma velutina*, *Prosopis articulata*, *P. chilensis* var. *velutina*, *P. juliflora*, *P. juliflora* var. *articulata*, *P. juliflora* var. *velutina*

Quercus emoryi

Emory oak

General: Trees reaching 10 m tall, bark dark blackish–gray, young twigs usually densely woolly during first year, dark reddish–brown beneath hairs, the older twigs glabrescent, gray, remainingsmooth.**Leaves:**Unlobed,lanceolate, elliptic, oblanceolate to oblong lanceolate, 2–6 cm long, 1–2.3 cm wide, 1.8–3 times as long as wide, woolly when young, subglabrous at maturity except for a tuft of tomentum at the base of the blade below, persisting for one year, spring deciduous; acute apex, base cordate to oblique, on petiole 3–7 mm, margin entire to sinuate, lustrous green, with 1–3 teeth. **Flowers:** Staminate aments with reduced perianth parts, 4–12 stamens; pistillate flowers solitary or in clusters of 2–3; inferior ovary. **Fruits:** Acorns 1.5–1.8 cm long, cap 5–6 mm long, 7–8 mm wide, woolly within, scales of cap papery. **Ecology:** Found in chaparral, piñon–juniper, and oak woodlands from 3,500–7,000 ft (1067–2134 m); flowers April–May. **Notes:** Distinctive in the landscape with its lustrous green foliage, although the leaves are pale beneath, this is one of the more widespread oaks in the region. **Ethnobotany:** The acorns were eaten whole, raw or ground, boiled, used in stews, and also stored for future use. **Etymology:** Quercus is the classical Latin word for oak, thought to be derived from Celtic quer, fine, and cuez, tree, while emoryi is named for Major William Hemsley Emory (1811–1887) who led the Mexican Boundary Survey. **Synonyms:** None

Quercus hypoleucoides

silverleaf oak

General: Tree to 10 m tall, bark dark blackish–gray, young twigs woolly, dark reddish–brown beneath hairs, becoming glabrous with age, older twigs gray, more or less smooth. **Leaves:** Unlobed, lanceolate to elliptic, 4–11 cm long, 0.8–3 cm wide, 3–5 times as long as wide, densely white woolly with stellate hairs beneath; persisting more than one year; leathery; apex acute, often mucronate, base acute to obtuse, petiole 3–11 mm long, woolly, later glabrescent; midvein raised above, prominent below; dark green above; margin entire or serrate dentate. **Flowers:** Staminate flowers in slender aments, perianth 4–7 lobed; stamens 4–12; pistillate flowers solitary or in clusters 2 or 3; ovary inferior. **Fruits:** Acorns 1.5–2 cm long, maturing after the second summer; cap 8 mm long, 12 mm wide, woolly within and without, scales not much thickened basally; nut shell woolly within. **Ecology:** Found in canyons, woodlands or in the grasslands from 3,500–9,000 ft (1067–2743 m); flowers April–June. **Notes:** Distinctive with its acute tip and the white undersides. **Ethnobotany:** Unknown, but other species in the genus have many uses. **Etymology:** Quercus is the classical Latin word for oak, thought to be derived from Celtic quer, fine, and cuez, tree, while hypoleucoides means white or pale beneath. **Synonyms:** None

Quercus rugosa

netleaf oak

General: Shrubs and trees to 10 m high, bark light gray, relatively thin, with many longitudinal fissures between plates, young twigs densely yellowish woolly to scarcely pubescent, reddish–brown with lighter lenticels beneath hairs, older twigs glabrescent within about 2 years, becoming grayish. **Leaves:** Unlobed, obovate, oblanceolate, or elliptic, 2–10 cm long, 1.5–7 cm wide, 1.3–2.5 times as long as wide, densely to scarcely covered with stellate and glandular hairs beneath; persisting about 1 year; apex rounded to acute, base cordate to obtuse, petiole 2–5 mm long; midvein prominent below; leathery, dull green above, golden yellow below, margin slightly revolute, 3–9 teeth. **Flowers:** Wind pollinated staminate aments, with reduced perianth parts, 3–6 stamens. **Fruits:** Acorns 1.5–2 cm long, usually 2–4 on peduncles 1.5–6.3 cm long, cap hemispheric to deep–bowl shaped, 4–10 mm long, 10–16 mm wide, finely appressed yellowish or reddish pubescent to woolly within; scales with thickened bases. **Ecology:** Found in oak and conifer forests, often on wooded slopes from 5,000–9,000 ft (1524–2743 m); flowers April–June. **Notes:** Distinctive in its thicket–forming habit, with long leaves, often with the mature leaves gaining a golden yellow color beneath the larger leaves. **Ethnobotany:** Unknown, but other species in the genera have many uses. **Etymology:** Quercus is the classical Latin word for oak, thought to be derived from Celtic quer, fine, and cuez, tree, while rugosa means wrinkled. **Synonyms:** *Quercus diversicolor, Q. reticulata*

Quercus toumeyi

Toumey oak

General: Shrub to small tree reaching 3 m tall, bark rough, furrowed, light gray, young twigs densely to moderately covered with hairs, soon losing some or all pubescence, smooth reddish–brown beneath pubescence, older twigs gray, becoming rough and sometimes blackened. **Leaves:** Unlobed, oblong–lanceolate to elliptic, 1–4 cm long, 0.4–1.4 cm wide, 1.9–3.3 times as long as wide, glabrous above, glandular hairs below, persisting about one year; apex acut or acuminate, tip mucronate, base truncate, or acute, petiole 1–3 mm long, woolly, often reddish, midvein prominent below; blade stiffly leathery, lustruous above, dull below, margin entire or with teeth. **Flowers:** Wind pollinated staminate aments, with reduced perianth parts; stamens 4–6. **Fruits:** Acorns 1–1.5 cm long, cap 5–7 mm long, woolly within, scales with thickened bases, nut shell glabrous within except for puberulent apex. **Ecology:** Found on rocky slopes in chaparral and oak forests from 4,000–6,500 ft (1219–1981 m); flowers April–May. **Notes:** Distinctive on slopes among chaparral, with the spinose tipped leaves, with their yellowish tinge. **Ethnobotany:** Unknown, but other species in the genera have many uses. **Etymology:** Quercus is the classical Latin word for oak, thought to be derived from Celtic quer, fine, and cuez, tree, while toumeyi is named for James W. Toumey (1865–1932) a botanist and professor at the University of Arizona. **Synonyms:** None

Fouquieria splendens

ocotillo

General: Long-lived desert "shrub" 3–5 m tall, with slender wandlike spiny branches from reduced trunk. Adults have 12 or more branches. **Leaves**: Short-shoot leaves appear after ground-soaking rain, turning yellow with hot weather or high soil moisture. **Flowers**: Dense panicles at branch tip, often 19–24 cm, with conspicuous leafy bracts falling at about anthesis, tubular flowers bright red-orange, the corolla lobes reflexed. **Fruits:** Capsule with 6–15 flat, papery-winged seeds. **Ecology:** Found on dry, rocky or gravelly slopes and sandy plains from sea level to 5,000 ft (0–1524 m); flowers February–March. **Notes:** Very distinct plant in our region, particularly good for hummingbirds. **Ethnobotany:** Blossoms soaked for a summer drink, as a blood purifier and tonic, while seeds were parched and ground into flour for mush or cakes. Papago pressed the nectar out of blossoms, hardened it like rock candy and chewed. Flowers sucked for nectar. Stems used for fences and houses. Apache use it powdered root paste to ease swelling and a gum from the bark used to wax leather. **Etymology:** Fouquieria is named for Pierre Eloi Fouquier (1776–1850) a French physician, professor of medicine and naturalist, while splendens means splendid. **Synonyms:** *Fouquieria splendens* ssp. *splendens*

Krameria grayi

white ratany

General: Stiff, intricately branched and mounded shrubs 20-80 cm tall, young branches densely canescent; old stems terete, blue-green, with rigid spinose tips. **Leaves:** Sparse, alternate and simple, linear to oblong, sessile, acute to obtuse, often apiculate, 1-3 mm wide, 5-10 mm; occasionally completely lacking. **Flowers:** Peduncles 15-25 mm long, sericeous, bracts foliaceous, borne at middle of peduncle; sepals 5, lanceolate, acute, purple to deep red-purple, 9-12 mm long, canescent on exposed parts; lower petals 2.5-3 mm long, suborbicular, often with many small tubercules on dorsal surfaces; upper petals 3, spatulate, 4-5 mm long, slender claws, distinct and pink to purple at tip, green basally; stamens 4 curved upward and inserted at base of petals. **Fruits:** Broadly ovoid to globose, densely woolly body, spines acicular, 5.5-10 mm long, hairy below, glabrous toward apex, bearing 2-5 stout recurved barbs to 1 mm in terminal whorl. **Ecology:** Found on dry slopes along washes and on hillsides below 3,500 ft (1067 m); flowers March-September. **Notes:** Told apart from *K. erecta* by the blue-green cast of the old stems, the overall canescence of the shrub, the whorled spines at the apex of the fruit, and by the petals not being connate. **Ethnobotany:** Used as a wash for sores as a disinfectant, as an eye medicine, taken for pain, coughs, fevers, sore throats, for swelling, and the roots were boiled and ground as a dye in basket making. **Etymology:** Krameria named after Johann Georg Heinrich Kramer (1684-1744) an Austrian physician and botanist, while grayi is named for the American botanist Asa Gray. **Synonyms:** None

Gossypium thurberi

upland cotton

General: Erect, openly branched shrub 1-3 m tall, the young stems five-sided, glabrate; bark smooth, gray-brown. **Leaves:** Deeply 3-5 lobed, 5-15 cm long, lobes narrowly lanceolate; on slender petioles 2-8 cm long, gland-dotted, glabrous; lobes lanceolate, entire, long-acuminate, bright green above, slightly glaucous beneath. **Flowers:** Solitary or subcorymbose, peduncles 1-3.5 cm long, 3 bracts; ovate-lanceolate, entire or 3-toothed, 6-15 mm long, minutely puberulent along margins; calyx 3 mm long, petals 1.5-2.5 cm long, pale yellow, often with vestigial red spot at base. **Fruits:** Three celled capsule, broadly ovoid to subglobose, 1-2 cm long, abruptly apiculate, closely gland-dotted, inner margins of sutures bearing tufts of long white hairs; seeds 4-5 mm long, dark brown to nearly black, turbinate, finely pubescent with short golden-brown and white hairs. **Ecology:** Found on rocky hillsides and along arroyo banks from 2,500-8,000 ft (762-2438 m); flowers August-November. **Notes:** Grows prolifically on some hillsides with the summer rains; the enormous lobed leaves are a giveaway if you also note the bark; in the winter it can be noted by the sometimes persistent capsules that dehisce and remain at the end of the branches. **Ethnobotany:** Used as a source of fiber. **Etymology:** Gossypium comes from the Latin name Pliny used for the cotton tree, while thurberi is named for Dr. George Thurber (1821-1890), an American horticulturalist and botanist who participated in the Mexican Boundary Survey. **Synonyms:** *Thurberia thespesioides*

Fraxinus velutina

velvet ash

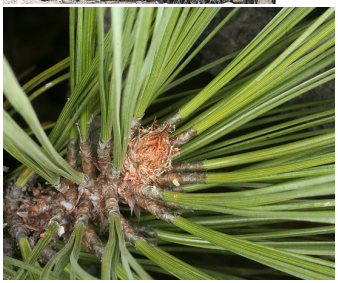
General: Small to medium sized trees, 8–9 m tall, occasionally reaching 12–15 m tall; 30–45 cm in diameter; rounded crown composed of many thin, spreading branches. Bark is gray to grayish-red, furrowed and zig-zagged. Opposite branching twigs light gray and covered with small, fine hairs, becoming shiny gray and hairless with age; buds approximately .3 cm in length, comprised of three slightly hairy, oval-shaped scales; large, dark chocolate buds with fine, dark hairs. **Leaves:** Leaves opposite, pinnately compound, 10–13 cm in length; 3–5 elliptical or oval leaflets with pointed tips; leaflet margins may be finely round toothed; pale green and shiny above, green and slightly hairy below; young leaves covered with velvety hairs. **Flowers:** Flowers covered by bud scales with dense hairs; clusters of inconspicuous flowers on thin stalks. **Fruits:** Samara flat, paddle shaped 2 cm in length and 0.75 cm wide; paddle end may be slightly notched. **Ecology:** Moist soils along streams and riparian areas from 3,000–7,000 ft (914–2134 m); flowers March–May. **Notes:** Characterized by opposite leaves, with 3–5 leaflets having pointed tips, and winged fruits. Low palatability for livestock, deer will browse and over browse when other preferred species not available. Provides habitat for wild ungulates and small rodents, as well as nesting sites for songbirds and other avian species. Host plant for Two-Tailed Swallowtail butterfly. **Ethnobotany:** Hualapai used wood to make bows, and as a sharp tool for gathering mescal agave. **Etymology:** Velutina refers to velvety. **Synonyms:** *F. pennsylvanica* ssp. *velutina*, *F. velutina* var. *coriacea*, *P. velutina* var. *glabra*, *P. velutina* var. *toumeyi*

Menodora scabra

rough menodora

General: Subshrub from woody caudex and woody base, with several to many erect stems, 10–40 cm, stems, leaves and calyx minutely but distinctly scabrous–puberulent, at least along margins of leaves and sepals, stems sometimes subglabrate. **Leaves:** Opposite below, becoming alternate above, subsessile, linear–oblong to elliptic–oblong, acute at apex, cuneate at base, 1.5–6 mm wide, 1–3 cm long, margins faintly revolute or plane. **Flowers:** Corymbose inflorescence with pedicels 1–5 mm long, minutely scabrous; calyx lobes 7–13, linear, 3–5 mm long at anthesis, acute to apiculate at apex; corolla yellow, tube about equaling calyx lobes, lobes broadly obovate, 3.5–6 mm wide, 6–8 mm long, rounded; 2 stamens, 6–10 mm long, somewhat exserted. **Fruits:** Thin walled capsule 6–9 mm long and 1.5 cm wide, circumcessile, shining. **Ecology:** Found on arid slopes from 1,500–7,500 ft (457–2286 m); flowers March–September. **Notes:** Distinguished by the woody base, the opposite leaves that become alternate above, and the cymes with 5–lobed bright yellow flowers that have only 2 stamens (a key character of the Oleaceae). Not always scabrous, look for the twin balls. **Ethnobotany:** Root used for backbone pain, cold infusion for heartburn, to facilitate labor, and as a life medicine. **Etymology:** Menodora comes from Greek menos, force, and doron, gift, while scabra means rough or scurfy. **Synonyms:** *Menodora scabra* var. *glabrescens, M. scabra* var. *laevis, M. scabra* var. *longituba, M. scabra* var. *ramosissima, M. scoparia*

Pinus arizonica

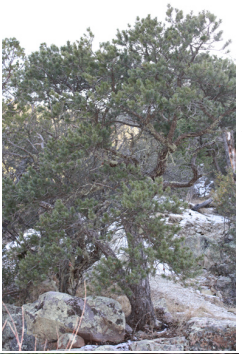


Arizona pine

General: Trees with straight trunks 30–35 m tall, up to 1 m in diameter; branches are thick and strong, lower ones drooping, upper ascending, crown thick and rounded in mature trees; bark irregularly fissured with reddish, brown scaly plates. **Needles:** Borne in fascicles of 3–5 needles, stiff, erect, 12–22 cm long, growing in clusters at the end of branchlets. Stomata are present on the dorsal and ventral surfaces, margins finely serrate, with 6–10 resin canals, medial; fascicle sheaths brown up to 15 mm long. **Cones:** Ovoid to conical, symmetrical, erect to slightly reflexed, 6–9 cm long, borne singly, in twos or threes on short, stout peduncles, reddish brown; scales stiff about 12–14 mm wide, apical margin rounded and smooth, transversely keeled, ashy gray and bearing a sharp persistent, recurved prickle. **Seeds:** Dark brown, oval, about 6 mm long, articulate wing 20–25 mm long and 8–9 mm wide. **Ecology:** Found on deep, well–drained soils in valleys, on mesas, and in the mountains from 6,500–9,500 ft (1981–2896 m). **Notes:** Although this species' precise identity is in some question, with some suggestion that it is actually *P. ponderosa* var. *arizonica*, Perry 1991 suggests that it is much more clearly delineated. He suggests t that while the two are related, one need only look at the needles: 3–5 is the standard number for *P. arizonica* (usually 4) as opposed to only 2–3 in *P. ponderosa*; the cone scales have a small recurved prickle while P. ponderosa has a large, strong, and erect prickle; and finally, there are 6–10 resin canals in *P. arizonica* as opposed to only 2–6 in *P. arizonica*. Perry suggests using a hand lens you can clearly distinguish between the two. Recent phylogenetics place this as its own species without question, but one distributed in southeastern Arizona and northern Mexico. **Ethnobotany:** Unknown for this species, but all pines have a variety of uses. **Etymology:** Pinus is the ancient Latin name for pines, while arizonica means of or from Arizona. **Synonyms:** *Pinus ponderosa* ssp. *arizonica*, *P. ponderosa* var. *arizonica*

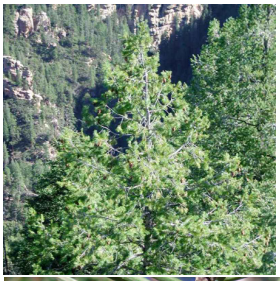
Pinus discolor

border piñon



General: A small tree 5–10 m tall, with a trunk 10–50 cm in diameter, the crown open and irregularly rounded; bark dark gray, furrowed with smaller transverse fissures, in deeper furrows an orange colored hue is visible. **Needles:** In fascicles of 3, occasional but rarely 2 or 4, 2–6 cm long, 1.3–1.6 mm wide, straight, slender, flexible, margins entire; the adaxial surface very glaucous, abaxial surface dark green; sheaths thin, pale brown, recurved into a rosette, deciduous. **Cones:** Symmetrical, very small, 2–3 cm long, 3–4 cm wide when open, pale orange to reddish brown, opening when mature and soon deciduous, on short peduncle 3–6 mm long that falls with cone; scales without a prickle. **Seeds:** Small, wingless, 10–12 mm long, 7–10 mm wide, brown with thick, 0.7–1.2 mm thick, hard seed coat. **Ecology:** Found on arid slopes and flats from 5,000–8,000 ft (1524–2438 m). **Notes:** This species is suggested to be the sole species in the southeastern Arizona parklands. Malusa 1992, suggests that *P. cembroides* does not reach the international border, which has been supported in conversation with Phil Jenkins at UA, who suggests it never has come further north than a good distance south into Chihuahua. Other literature supports this view. That would leave *P. discolor* as the piñon of the borderlands. Malusa 1992 also suggested that the populations of piñon are considerably allopatric, with the populations along the margins of their range only slightly intergrading. The phenology of the two species also lends credence to their separation, with 6 weeks between their respective flowering time, suggesting no hybridization. **Ethnobotany:** The nuts were widely collected and eaten, while the pitch can be used for wounds or cuts. **Etymology:** Pinus is the ancient Latin name for pines, while discolor comes from the Greek dis– which can mean two or without, as in two colors or without color. **Synonyms:** *Pinus cembroides* var. *bicolor, P. culminicola* var. *discolor*

Pseudotsuga menziesii



Douglas fir

General: Trees up to 50 m tall in the largest specimens, trunk reaching 1.5 m in diameter; bark brown to grayish–brown, deeply furrowed, with a cream colored internal bark cork, with reddish flecks; branches of the tree droop downward within a narrow to broadly conic canopy, that is often flattened in age. **Needles:** Solitary and linear, short–stalked and yellow–green to dark or bluish green, apex obtuse to acute, 15–30 mm long by 1–1.5 mm wide, rectangular in cross section, flattened with pale undersides, all spreading around twigs, leaving oval leaf scars. **Cones:** Pendulous, reddish–brown 4–10 cm long by 3–3.5 cm wide, with thin persistent scales, exceeded in length by three–toothed papery bracts, the central tooth much longer than lateral ones. **Seeds:** Seeds 5–6 mm, with a wing that is longer than the body. **Ecology:** Found on mountain slopes from 5,000–10,000 ft (1524–3048 m). **Notes:** This species is often characterized by its deeply furrowed bark, with is often very gray as it ages. The oldest specimens are often some of the most massive species in our region. It can be distinguished from other species by is flattened needles with a rounded tip, as well as the papery cones with the three papery bracts. The pendulous cones tell it apart from the upright cones in *Abies*. In the Rocky Mountain region, this species is properly *P. menziesii* var. *glauca*. **Ethnobotany:** Used for coughs, sore throats, rheumatism, kidney and bladder troubles, for diarrhea, venereal diseases,colds, the pitch was used for cuts, as a diuretic, disinfectant, the pitch was chewed like gum, the leaves and young sprouts were made into tea and as a coffee substitute, as a spice for meat, baskets, lumber, fuelwood, and it had a wide variety of ceremonial uses. **Etymology:** Pseudotsuga comes from pseudo, false and tsuga, the Japanese word for hemlock, while menziesii is named for Archibald Menzies (1754–1842) a Scottish botanist and surgeon. **Synonyms:** *Pseudotsuga mucronata, P. taxifolia*

Platanus wrightii

Arizona sycamore

General: Fast growing deciduous tree to 25 m, trunks erect to inclined or basally reclined or prostrate, white bark, plated appearance with older brown bark and younger whitish bark beneath. Branches are lateral buds hidden by leaf petiole. **Leaves:** Alternate, simple, 3–5 lobed less than 25 cm long, older leaves paler undersurface. **Flowers:** Male and female in clusters of 2–5 balls each. **Fruits:** Brownish ball (multiple of achenes) 2.5 cm diameter, in clusters of 2–4 per stalk; gradually break up through fall to winter. **Ecology:** Found in canyons and along riparian streams from 2,000–6,500 ft (610–1981 m); flowers April–May. **Notes:** Ornamental, shade tree, stream bank erosion control. Diagnostic character is the mottled bark, which is brown with whitish and greenish patches. Needs to have its feet wet, usually indicative of good riparian habitat. Older growth *P. wrightii* indicative of excellent Elegant Trogon habitat in southeastern Arizona sky islands. **Ethnobotany:** Fuel, shelter for small mammals and birds. **Etymology:** Platanus is Greek platanos for the long-lived oriental plane tree, wrightii is for Charles Wright (1811–1885) an American botanical collector who was on the Mexican Boundary Survey. **Synonyms:** *Platanus racemosa* var. *wrightii*

Ziziphus obtusifolia

lotebush

General: Shrubs to 4 m tall, armed. Stems green to gray, or brown, canescent to glaucous, branchlets thorn-tipped, occasionally with axillary recurved thorns, thorn tips glabrous and brown. **Leaves:** Thin or thick, deciduous; stipules triangular, petioles 0.5–5 mm long, blades linear to narrowly elliptic to oblong or ovate, 5–20 mm long, 2–15 mm wide, green to pale green, glabrous to canescent, margins entire to serrate or crenate. **Flowers:** Inconspicuous, 2–15 per inflorescence, hypanthium 1–2 mm long, glabrous to canescent, sepals yellowish green, glabrous to canescent, petals about 1 mm, white to light green, stigma 2-lobed. **Fruits:** Blue to purple to black with white waxy bloom, 5–8 mm wide, pedicels become thicker in fruit, flower cup persistent. **Ecology:** Found on mesas, canyon slopes, desert grasslands and along drainages from 1,000–5,000 ft (305–1524 m); flowers May–September. **Notes:** To discern from *Condalia*, the following characteristics are found in *Ziziphus*: inflorescence a cyme, three nerved basal venation, no thorn tipped branches, ovate or oblong branches, stipular spines, easily falling seeds. Two varieties in the region: var. *obtusifolia* and var. *canescens*. Var. *obtusifolia* is found on gypsum soils in Cochise Co., about 3 m tall, thin, glabrous leaves, with a glabrous hypanthium, and fruits 7–8 mm wide. Var. *canescens* is more widespread, to 4 m tall, leaves thick, mostly canescent, hypanthium canescent, fwith fruits about 5–8 mm wide. **Ethnobotany:** A decoction from the roots of var. *canescens* was used to treat sore eyes by the Pima and roots have been used in place of soap. **Etymology:** Ziziphus comes from the Persian word zizufun or Arabic zizouf, the Arabian name for a shrubby Mediterranean tree, obtusifolia means obtuse- or blunt-leaved. **Synonyms:** None for *Z. obtusifolia*, several for both varieties, see Tropicos

Vauquelinia californica

Arizona rosewood

General: Large shrubs to small trees with evergreen leaves, to 6 m tall, with dark gray nearly smooth bark. **Leaves:** Lanceolate with serrate margins, leaves mostly pointing upwards, dark green on the surface, lighter in color underneath, to 10 cm long, 1–2 cm wide, on petioles 0.5–2 cm long. **Flowers:** White flowers in terminal cymose panicles, hypanthium 2 mm deep, slightly wider, tomentose, the calyx lobes ovate, 1–1.5 mm long, petals white, oblong to obovate, 3–4 mm long, spreading to reflexed, numerous stamens and up to 5 pistils. **Fruits:** Fruit small, numerous capsules, subwoody with 5 follicle like locules about 4 mm. **Ecology:** Found on gravelly or limestone soils in canyons and oak woodlands, from 2,500–5,000 ft (762–1524 m); flowers May–July. **Notes:** The upwards–pointing leaves are a good indicator for this species, along with the evergreen leaves and the finely serrate margins. **Ethnobotany:** Unknown **Etymology:** Vauquelinia is named for Louis Nicolas Vauquelin, a 19th century French chemist and botanist, while californica means of or from California. **Synonyms:** None

Bouvardia ternifolia

firecrackerbush

General: Shrubs to woody herbs reaching 1.5 m tall. **Leaves:** Whorled, with 3–4 pr node, glabrous or velvety, 2–9 cm long, short petiolate; blades ovate to lanceolate, apices acuminate to long–attenuate, margins scabrous; stipular sheath long cuspidate to multi–aristate. **Flowers:** In terminal cymes, few to many, villous outside with short coarse hairs; calyx lobes lanceolate to filiform, erect, corolla tube slender, widening toward throat, red, 15–32 mm long, lobes ovate, 2–3 mm long; stamens mostly included, anthers subsessile, 2.5–3 mm long. **Fruits:** Globose capsule 5–7 mm broad, calyx lobes persistent. **Ecology:** Found on rocky slopes and canyon bottoms from 2,500–8,000 ft (762–2438 m); flowers May–October. **Notes:** The red flowers are distinctive, and when combined with the whorled leaves and the tendency to flower even with only a little rain, helps to clearly identify this plant. **Ethnobotany:** Unknown for this species. **Etymology:** Bouvardia is named for Charles Bouvard (1572–1658) who was superintendent of the Jardin du Roi in Paris, while ternifolia means terete leaved, referring to the leaves that are smooth and cylindrical in cross–section. **Synonyms:** *Bouvardia glaberrima*

Populus tremuloides

quaking aspen

General: Tree to 35 m, with generally smooth yellowish white or greenish bark, dark gray where shallowly furrowed, winter buds reddish brown, resinous. **Leaves:** Leaves whitish green beneath, dark green above, circular to ovate with an acuminate apex, minutely toothed, borne on a slightly flattened pedicel. **Flowers:** Catkins densely flowered, with the tips of the floral bracts bearing deep cuts at the tips and a marginal fringe of hairs. Disc flowers cup shaped, entire, with 6–12 stamens, 2 stigmas, and 2–carpelled ovaries. **Fruits:** Ovoid capsules, smooth, 2.5–4.5 mm long, 2–valved. **Ecology:** Found in wet or intermittently wet areas in woodlands and forests, meadow edges, prairies, and disturbed areas, from 0–10,000 ft (0–3000 m); flowers March–June. Found in wet or intermittently wet areas in woodlands and forests, meadow edges, prairies, and disturbed areas, from 0–10,000 ft (0–3048 m); flowers March–June. **Notes:** According to FNA, *Populus tremuloides* is the most widely distributed tree in North America, and in the southernmost portions of its range, may have clonal groves dating back to the Pleistocene era. Due to the clonal nature of this species, it readily hybridizes with other *Populus* species, however, even within isolated colonies there tends to be a high amount of phenotypic variation. **Ethnobotany:** Decoction of bark taken as a vermifuge, to treat heartburn, to ease labor, stomachache pain, heart trouble, venereal disease, colds, ruptures, purgative, laxative, purgative, and worms. Powdery white outer surface used as a syptic and deodorant. **Etymology:** Populus is Latin for "people" because the many moving leaves in a breeze resemble a moving populace, while tremuloides means like the quivering poplar or quaking aspen. **Synonyms:** Numerous, see Tropicos

Simmondsia chinensis

jojoba

General: Intricately branched shrub with rigid knotty branches 1-5 m tall, finely puberulent branchlets and peduncles. **Leaves:** Opposite, entire, ovate to oblong-elliptic, 1-2 cm broad, 2-5 cm long, acute to obtuse at both ends, dull green, leathery, somewhat glaucous or canescent, sparsely puberulent or glabrate with age. **Flowers:** Dioecious; sepals of staminate flowers oblanceolate or oblong 3-4 mm long, densely puberulent without, stamens 3-4 mm long, filament about 1 mm long or less, in capitate axillary clusters on peduncles 2-6 mm long; sepals of solitary pistillate flowers connate at base to form cup 1.5-3 mm deep, broadly lanceolate, 8-10 mm long at anthesis, to 15 cm long in fruit. **Fruits:** Capsule oblong ovoid, 15-20 mm long bearing a single seed. **Ecology:** Found on dry hillslopes, outwash slopes and along arroyos in gravelly or rocky soils from 1,500-5,000 ft (457-1524 m); flowers February-May. **Notes:** Opposite, entire, leathery leaves and large single seeded capsule are distinctive. Often forms dense thickets. **Ethnobotany:** Used for sores, as a cathartic, as a coffee like beverage, the nuts were made into cakes, eaten fresh, and made into a nut butter. **Etymology:** Simmondsia is named for Thomas Simmonds (1767-1804), an English botanist, while chinensis means of or referring to China. **Synonyms:** *Buxus chinensis, Simmondsia californica*

Lycium pallidum

pale desert thorn, wolfberry

General: Spreading, much branched shrub 1-2 m tall with glabrous to sparsely pubescent, somewhat flexuous branches; bark smooth and lustrous when young, whitish; spines 5-10 mm long, slender. **Leaves:** Ovate to oblong-spatulate, 3-15 mm wide, 1-4 cm long, acute or sometimes rounded at apex, tapering to a short petiole, glaucous, glabrous or nearly so. **Flowers:** On slender pedicels 6-12 mm long, calyx shallowly campanulate, 5-8 mm long, 5-lobed, lobes ovate to lanceolate, acute, 3-5 mm long, glabrous and glaucous; corolla tube narrowly funnelform, 12-20 mm long, 5-6 mm broad at throat, greenish, tinged with purple veins, glabrous, 5 lobes oval to rhombic, 3-6 mm long, margins sparsely ciliolate; stamens exserted 3-12 mm, filaments adnate almost to middle of corolla tube, pilose below; style about equaling stamens. **Fruits:** Bright red berry, ovoid, 8-10 mm in diameter. **Ecology:** Found on sand or rocky soil from 3,500-7,000 ft (1067-2134 m); flowers April-June. **Notes:** Thorny spreading shrub with zig-zagging branching pattern with pallid leaves and greenish white flower help to identify this species. Most widespread species in the genus. **Ethnobotany:** Used widely as a ceremonial plant, as an emetic, for toothaches, chickenpox, as a life medicine, the berries were eaten raw, made into a drink, used as a syrup, dried, made into jam, boiled with stew and other foods, considered to be a sacred plant. This is perhaps the most bitter of the *Lycium* fruits. **Etymology:** Lycium is from Greek name Lykion used to describe a thorny tree or shrub, while pallidum means ashen, pale, wan. **Synonyms:** None

Larrea tridentata

creosote bush

General: Aromatic, much branched evergreen shrub up to 3.5 m, growing from at or just above ground. **Leaves:** Alternate, persistent, composite (2 leaflets) 13–25 mm long; elliptical, dark "varnished" green, strong-scented (especially after rain). **Flowers:** Yellow, showy, 7–11 mm long. **Fruits:** Five-segmented, white silky pilose. **Ecology:** Widespread and common on dry plains and mesas below 5,000 ft (1676 m); flowers any time after adequate rain. Needs minimum 12 mm for flowering. **Notes:** Most common and widespread shrub in warm deserts of North America, ordinarily untouched by livestock; causes dermatitis in some people. Diagnostics include: sympodial stems, dark green, lustrous and paired leaves, 13 mm long; leaves 2-pinnate; strong "creosote" odor. **Ethnobotany:** Used to treat arthritis and allergies. As a salve it is a strongly antimicrobial and a moderate sunblock. **Etymology:** Larrea is named for Bishop Juan Antonio Hernandez Perez de Larrea (1731–1803) in Valladolid, Spain, while tridentata means three-toothed, the appearance of the leaves being three-toothed. **Synonyms:** None

Cactaceae

The Cactaceae, or cactus family, are stem succulents along with some epiphytes. Known for their tiny leaves, usually deciduous and absent, which produce spines. Axillary buds (called an areole) are flattened and usually spine–producing. Each areole gives rise to leaf tissue which are spines. Solitary inflorescences on each apical branch. The flowers are perfect, some with well developed hypanthium, they have numerous tepals that are spirally arranged, with outer sepaloid and inner petaloid, and numerous stamens. Distinctly inferior ovary, sunken into stem tissue that bears more areoles, comprised of 2–many carpels (count styles to know) with 1 locule and parietal placentation. Fruit a berry.

Subfamilies:

Pereskoideae: Leaves broad, flat; no glochids; seeds black, nor aril (leaf cacti)
Opuntioideae: Leaves small, terete; minute glochids, almost invisible to the naked eye, spines at the base of big ones; seeds with pale aril or winged
Cactoideae: Leaves none or very small; no glochids; seeds black, no aril (the touchy feely cactuses with no glochids).

Quick guide to the genera in Saguaro National Park:

***Carnegia*:** Large columnar cacti, many–ribbed stems and branches, crowded areoles bearing spines with tuft of brown felt. Flowers borne singly, often in crown at apex.

***Cylindropuntia*:** The genus of the true chollas. Taxonomists recently separated this out of the *Opuntia*, to only include those species with the jointed chain structure familiar to the genus.

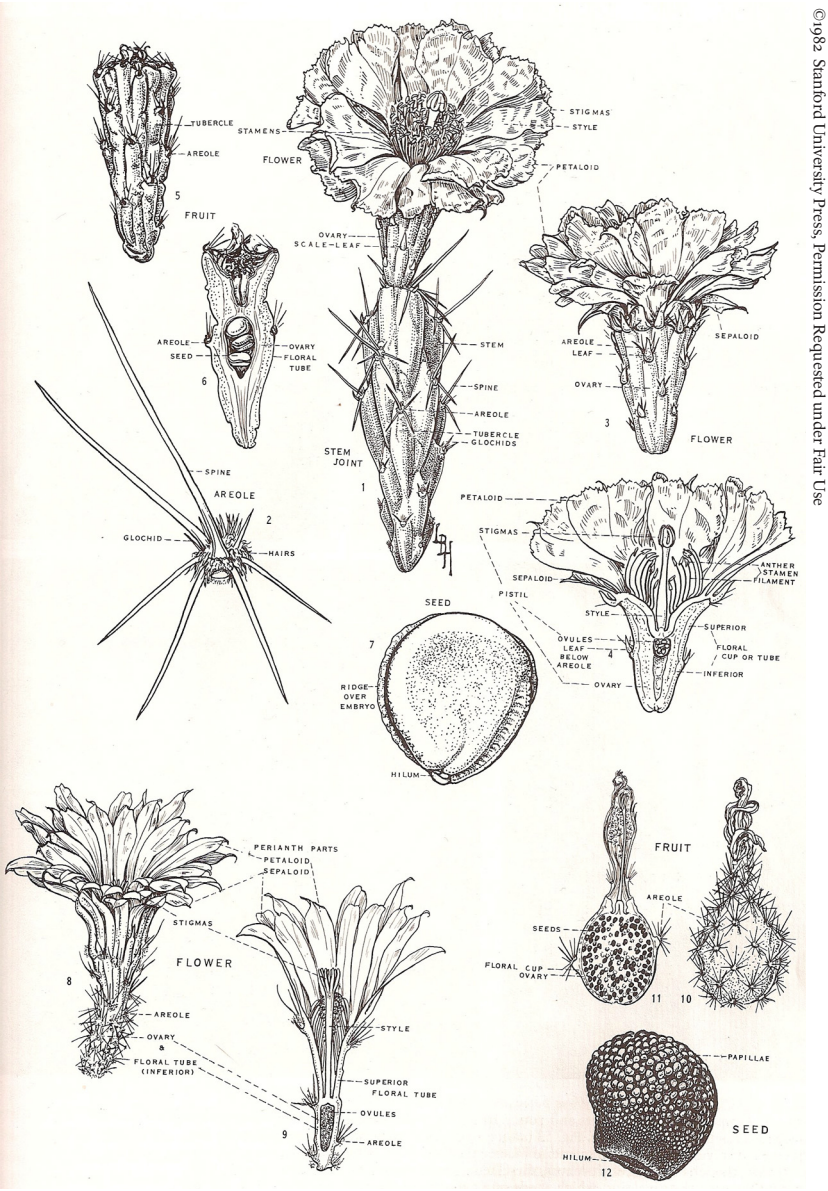
***Echinocereus*:** Stem with ridges and grooves on surface, flowers produced within the spine bearing areoles at side of plant or slightly below apex of branch, length of stem fifteen to one–hundred times the diameter

***Ferocactus*:** Simple stemmed, ovoid to cylindric, often large. Areoles large, tomentose or woolly, spines large and strong, in three distinct series, ribbed.

***Escobaria*:** *Escobaria* is a small North American genus from the southwestern US into northern Mexico. It is closely related to *Coryphantha* and somewhat more distantly to *Mammillaria*. *Escobaria* spp. have small, funnel–shaped flowers in the spring and summer. The flowers are generally yellow, pink or brownish.

***Mammillaria*:** Solitary or few–branched, with globose, short–cylindrical stems with watery to milky juice. Terete or angled tubercles, areles crowning tubercles, central spine or spines like radials.

***Opuntia*:** Stem a series of cylindroid or flat joints, areoles with glochids



The parts of a cactus.

saguaro

General: Upright, a large simple stem with 1 to several lateral branches reaching 16 m tall with branches 30–65 cm in diameter and 12–25 ribs that are obtuse and 1–3 cm high, which varies with water availability. **Spines:** Aeroles 2–4 cm apart on older growth, crowded at apex of stem, the spines on top needle shaped, yellowish brown and extending forward, the central spine more stout than the radial ones, these up to 7–8 cm long, dark brown to black. **Flowers:** Nocturnal and 10–12 cm long by 5–8 cm diameter when expressed, the floral tube is 1–1.5 cm long and green with a throat 2.5–3.5 cm long and perianth segments that are waxy white, with white filaments. **Fruits:** Green berry tinged with red, fleshy, 6–10 cm long, splitting irregularly. **Ecology:** Found on rocky or gravelly soils on slopes, rocky ridges, outwash fans, canyons, and benches from 500–3,500 ft (152–1067 m), flowers May (rarely in August with rains). **Notes:** You know this plant; if not, you'd better learn it. **Ethnobotany:** O'odham peoples have gathered the fruits using traditional long sticks. The fruit has uses that range from mush, to wine, to jam, syrup, to using the seeds for oil; the plant can be used for splints, furniter, fences and for fodder. **Etymology:** Carnegeia is named for Andrew Carnegie (1835–1919), while gigantea refers to the enormous habit. **Synonyms:** *Cereus giganteus*

Cylindropuntia acanthocarpa

buckhorn cholla

General: Small tree or shrub that is sparsely to much branched, 1–2 m tall with stem segments firmly attached, these cylindric 10–30 cm long and 2–2.5 cm in diameter, with prominent tubercles that range from narrow to broad, 1.5–4.5 cm long. **Spines:** Areoles white, yellowish, to tan, almost felty, aging gray black, elliptic to subcircular, 4–5.5 mm long, 4–5 mm wide. The spines in areoles toward the tips with 6–20 per areole, each with 0–5 short bristle spines at the areole margins, the apical spines are terete, yellow or tan. **Flowers:** Inner tepals bright yellow to bronze to brick red, spatulate, the small pointed tip notched 2–3 cm long, the filaments dark red and the anthers yellow with the style and stigmas white to light green. **Fruits:** Tan at maturity, obconic to ellipsoid with basal tubercles the longest, dry with apical flange above shallow umbilicus, 1.5–3.5 cm long, 1.5–2 cm in diameter, densely to sparsely spiny, rarely spineless, with 12–30 areoles. **Ecology:** Found on sandy flats to rocky slopes from 500–5,000 ft (152–1524 m), flowers March–June **Notes:** There are four varieties in Arizona: var. *thornberi* is told apart by its 25–45 mm long prominent tubercles, with gray green segments, and not or barely interlaced areoles; var. *acanthocarpa* told apart by the whitish to light brown spines 15–25 per areole and oval tubercles, var. *coloradensis* has branches mostly at acute angles, with yellowish green segments 15–30 cm long; var. *major* has branches mostly at obtuse angles with green to dark green segments, 8–20 cm and 14–18 spines per areole. **Ethnobotany:** Dry woody joints make handicrafts, stem ash was applied to burns or cuts, taken for stomach troubles, the fruits was gathered and eaten fresh or dried, pit roasted, and baked for food. **Etymology:** Cylindropuntia is from Greek kylindros or a cylinder, plus the genus Opuntia, while acanthocarpa means with thorny fruits like the genus Acanthus. **Synonyms:** *Opuntia acanthocarpa*

Cylindropuntia arbuscula

Arizona pencil cholla

General: Shrubby chollas that are 1–2.5 m, as wide or wider than tall, intricately branched with a dense crown, the trunk short, often well developed, up to 15 cm to the lowest branch, can reach 16 cm in diameter. The bark smooth and dark bronze on older branches and young trunks, becoming dark gray, scaly, and flaking with age, usually much branched above, the joints 3.5–15 cm long, 7–12 mm wide, green to yellow–green all year, becoming shorter upwards. **Spines:** Spines 0–5 and sparsely distributed along stem, pale yellow at apex to red–brown at base, aging black, stout and usually deflexed, the longest 1–5 cm long; sheaths loose–fitting, yellowish brown. The glochids are pale yellow and encircle the areole in an apical tuft with only a few marginal ones. **Flowers:** The inner tepals are dark bronze to orange bronze to a greenish yellow or yellow brown, spatulate, apiculate, 1.5–2 cm long, with dark green–bronze filaments and yellow anthers with a style that is whitish basally to light orange apically with very pale green stigmas. **Fruits:** Green even when ripe, becoming yellowish apically, sometimes purplish at areoles, commonly sterile, narrow and tuberculate to 2.5 cm long, the fertile ones obconic–stipitate, becoming smooth and spineless, fleshy, 2.5–5 cm long, 1.5–3.5 cm in diameter, with 15–17 areoles and buds that can persist for a year.**Ecology:** Found in sandy–silty or granitic soils, bajadas, desertscrub, small washes, shallow drainages and in *Larrea* flats from 1,000–3,500 ft (305–1067 m), flowers April–June. **Notes:** During years of drought flower buds often dry without opening. **Ethnobotany:** Fruits boiled with saltbush and used for food, calyxes pit roasted with inkweed and dried for future use or eaten fresh, flowers pit roasted and eaten, the young joints boiled and eaten as a vegetable in times of want by the Papago. **Etymology:** Cylindropuntia is from Greek kylindros or a cylinder, plus the genus Opuntia, while arbuscula means resembling a small tree. **Synonyms:** *Opuntia arbuscula*

Cylindropuntia bigelovii

teddybear cholla

General: "Trees" or small shrubs, much branched with the older branches at base of crown dark brown and clinging to solitary or multiple trunks, 0.5–1.5 m tall. The stem segments are green to light green and very spiny which obscures the tubercles, the ultimate tubercles are easily detached, these are deltoid and attached at the pointed end, overall they are 4–12 cm long, 4–5.5 cm in diameter. **Spines:** Areoles white, yellow, to a felty brownish but aging gray, elliptic–deltoid, 3–7 cm long, 2–4 mm wide, with 7–11 spines at most areoles, these spines pale yellow to tan and aging dark brown. The upper spines terete and erect, spreading, 20–30 mm long, basal subterete to flattened. **Flowers:** Inner tepals pale green and sometimes red–tipped, these spatulate with an irregular margin each 20–35 mm long. Bearing pale green filaments with yellow orange anthers, a light green style, and a cream to green stigma. **Fruits:** Yellow and strongly tuberculate, cylindric to broadly obconic, fleshy and leathery, becoming spineless, 22–40 mm long and 16–20 mm diameter with 36–76 areoles. **Ecology:** Found on sandy flats to gravelly slopes to rocky washes, bajadas, and hillsides from 1,000–3,000 ft (305–914 m), flowers March–June **Notes:** Ours is var. *bigelovii*. Known to hybridize with *C. acanthocarpa* var. *major*. **Ethnobotany:** The buds were cooked, roasted or baked, eaten, and stored for food. **Etymology:** Cylindropuntia is from Greek kylindros or a cylinder, plus the genus Opuntia, while bigelovii is named for Dr. John Milton Bigelow (1804 –1878) a botanist who collected as part of the Whipple survey of 1853–1854. **Synonyms:** *Opuntia bigelovii*

Cylindropuntia fulgida

jumping cholla

General: "Trees" or small shrubs 1–3 m tall with widely spreading, branching trunks, the crown spreading and much branched. The stem segments gray–green often drying blackish, with terminal ones that are easily dislodged, the segments 6–16 cm long and 2–3.5 cm in diameter, the tubercles broadly oval, mammillate, these 12–22 mm long and 6–9 mm broad by 4.5–9 mm high, the spines dense and conspicuous, tending to obscure the joints. **Spines:** Areoles gold to tan felty but aging gray to black, obdeltoid, 5–7 mm long by 2.5–4 mm wide. Bearing spines 0–12 per areole, yellowish, aging brown, with uniformly whitish sheaths, the upper spines erect and tending to spread in all directions, the sheaths are loose, terete to subterete,with the largest to 3 cm long. The basal spines erect to deflexed but basally flattened, the largest to 3.5 cm long with yellow glochids in an apical tuft and scattered along areole margins, these 1–3 mm. **Flowers:** Opening in late afternoon or evening with pink to magenta inner tepals, these obovate to strap like and with a small notch at the tip, the tepals 12–16 mm long. The filaments pale pink to magenta with white to cream anthers, a pinkish style and whitish to pale yellow stigmas. **Fruits:** Gray green and obconic, borne on a stalk and forming long pendulous chains that branch, fleshy and spineless with tubercles becoming obscure. The basal fruits are 32–55 mm long by 23–45 mm wide, with terminal fruits 20–33 mm long by 12–23 mm diameter, both with 18–35 areoles. **Ecology:** Found on sandy flats, rocky slopes, and rolling hillsides from 500–4,000 ft (152–1219 m), flowers April–Sept. **Notes:** The fruit can persist for up to 22 + years, with the seeds remaining viable no matter how many years the fruits persist on the plants, and even after the fruits have fallen and taken root. There are two varieties in Arizona: var. *fulgida* and var. *mamilla* **Ethnobotany:** The buds were pit baked and eaten as a staple food, as were the young shoots which were eaten in summer. **Etymology:** Cylindropuntia is from Greek kylindros or a cylinder, plus the genus Opuntia, while fulgida might mean resembling something shiny. **Synonyms:** *Opuntia fulgida*

Cylindropuntia leptocaulis

Christmas cactus

General: A bushy cactus 0.5–1 m tall but sometimes spreading to more than 1 m, sparingly to densely branched with long cylindrical joints that are 3–6 mm diameter, usually bearing similar spineless terminal branchlets that are arranged at right angles along major axes. The stems are glabrous and yellow green, gray–green, or purplish, with riblike wrinkles. The areoles are broadly elliptic, wool white to yellow and aging to gray. **Spines:** The areoles usually have one short (less than 1 cm) or long (2.5–5 cm) spine, usually in apical areoles or well distributed, the spines are erect and flexible, reflexed or deflexed, red–brown to gray, yellow, or white, aging red–brown, with sheaths gray to purple–gray with yellow to red–brown tips or yellow throughout. The glochids are in an adaxial tuft or crescent to encircling areole, yellow to reddish–brown. **Flowers:** Inner tepals are pale yellow to greenish yellow, cream, or bronze, sometimes tipped red, 1–1.5 cm wide, the tepals are narrow obovate, with yellow anthers, a yellow style, and green–yellow stigma lobes. **Fruits:** Fruits yellow to scarlet, obovoid and up to 12 mm long when ripe, fleshy, covered in minute glochids or smooth, occasionally proliferating. **Ecology:** Found on sandy, loamy, or gravelly soils in deserts, grasslands, chaparrals, woodlands, flats, bajadas, and slopes from 200–5,000 ft (61–1524 m); flowers March– August. **Notes:** Notable red fruits are usually the dead give away of this plant along with the very narrow stems. This plant grows much taller when growing within nurse association with mesquite or palo verde. **Ethnobotany:** Fruits were eaten, crushed and mixed with a beverage to produce narcotic effects; the small fruits were also eaten raw. **Etymology:** Cylindropuntia is from Greek kylindros or a cylinder, leptocaulis is Greek leptos for slender and caulis meaning stemmed. **Synonyms:** *Opuntia leptocaulis*

Cylindropuntia versicolor

staghorn cholla

General: Small "trees" or shrubs that openly branch at acute angles with a rounded crown at maturity, 1–2.5 m high the trunk is short but the branches much longer with joints that are often elongate, mostly 12.5–35 cm long. The stem segments are whorled or subwhorled, purple to green–purple with the purple to reddish color increasing in times of drought or winter. The tubercles are prominent and elongate–oval, 3–5 times as long as broad, usually 15–25 mm long, the areoles subcircular and 3.5–4 mm in diameter, wooly or felty, tan to brown and aging gray. **Spines:** Spines well distributed along stem and slightly interlacing but usually spreading in all directions with 6–10 per areole (more numerous in older areoles). These bearing 0–2 bristle–like spines, the distal spines rich red–brown, gray–coated below about 6–11 mm long, the basal spines whitish or pinkish to red brown, mostly reflexed and lightly flattened, the longest 10–18 mm long, the sheaths grayish or yellowish and deciduous within a few months, with dark yellow glochids in a small apical tuft or crescent, these to 1 mm long. **Flowers:** Flower 3–5.5 cm diameter with yellow–green inner tepals, the outer tepals yellow to gold and bronze or red to rose or magenta each 20–25 mm long and 10–15 mm broad, truncate to rounded, with yellowish green, red, purple, or chocolate filaments with yellow anthers and a whitish to pale bronze style with whitish stigmas. **Fruits:** Fruit yellowish green or tinged red to purple and leathery–fleshy, obovate and often borne on a stalk, they are essentially spineless and not strongly tubercled, often proliferating they are 2.5–4 cm long and 1–2 cm in diameter, at first prominent and subequal in length or with longer lower ones, but swelling and becoming smooth when fertile. With 20–30 areoles, the fruits are persistent for more than one year with some new fruits developing from the areoles of older ones, forming short chains of 2 or 3. **Ecology:** Found in deep sandy soils of canyons, washes, and valleys to rocky hillsides, desert scrub from 2,000–3,000 ft (610–914 m), flowering April–June. **Notes:** This species is variable in a number of respects, especially in flower color. The many intermediate forms between it and *Cylindropuntia spinosior* are particularly abundant in the eastern part of the range of the species. **Ethnobotany:** Pit baked buds, fruit, and joints considered a staple food, young shoots and buds eaten as greens, mature fruits eaten raw. **Etymology:** Cylindropuntia is from Greek kylindros or a cylinder, plus the genus Opuntia, while veriscolor means variously–colored. **Synonyms:** *Opuntia versicolor*

Echinocereus coccineus

scarlet hedgehog cactus

General: Plants commonly 20–100 branched but loosely aggregated clumps that are often tightly packed into rounded mounds, these often reaching 100 cm in diameter. The stems are erect and cylindric, 5–40 cm long by 4–15 cm wide with 6–14 ribs, with the crests slightly undulate and areoles 10–20 mm apart. **Spines:** Usually 5–16 per areole but mostly straight except on specimens with unusually long spines, the central spines ashy white to gray brown to yellow red, often dark tipped. There are 4–23 radial spines per areole which are appressed to slightly projecting and 5–40 mm, there are 0–6 central spines per areole, these are spreading outward, terete, and usually 10–80 mm. **Flowers:** Unisexual, 3.5–8 cm by 3–7 cm with a flower tube 15–40 mm long and 8–30 mm wide, and having flower tube hairs that are usually 1–2 mm. The inner tepals are crimson to scarlet and less often orange red, rarely rose pink, with tips that are thick and rigid, along with pink or purple anthers. **Fruits:** Greenish to yellow pink or bright red to brownish, 20–40 mm or less with white pulp. **Ecology:** Found on rocky slopes, often on ledges and in canyons, often on igneous rocks from 3,500–9,000 ft (1067–2743 m), flowers March–June. **Notes:** This species is difficult because it forms an intergrading series of plants across its range. There is considerable variation across its range and it is known to have a number of varieties. Central among them in our region are var. *coccineus* and var. *arizonicus*. The first is distinguished from *E. triglochidiatus* by having terete spines, while *E. triglochidiatus* has angled or flattened spines. Notably, this species is functionally dioecious. The latter variety is distinguished by being more often in Chihuahuan desert scrub habitat, often fewer branches, and flowers that are not quite a distinctly scarlet colored. **Ethnobotany:** Used as a heart stimulant, raw fruit was eaten for food, however, some consider the plant poisonous. **Etymology:** Echinocereus is from the Greek echinos, hedgehog or spine and cereus, waxy, while coccineus means scarlet or deep red. **Synonyms:** None

Echinocereus fendleri

pinkflower hedgehog cactus

General: Unbranched or in loose clumps of 1–5 stems, the stems erect to slightly decumbent and flabby while ovoid to cylindric in age, 7.5–17 cm tall by 4–7.5 cm wide with 8–11 ribs that have uninterrupted crests or are undulate, areoles 15–17 mm apart with the spines not obliterating stem surface. **Spines:** Usually 4–12 per areole, either straight or curved with radial spines spreading, these 11–39 mm and white with a dark stripe on the underside, often with spines of different colors but usually 1 central spine per areole, these black or dark brown to gray and extended or ascending, 25–42 mm long,the lower central spine similar in color or dark and flat to sharply angled, frequently some or all spines in each areole are opaquely white, especially the largest radial spine which is often strongly flattened. **Flowers:** Flowers darker to purplish maroon with magenta inner tepals, the flowers 5–11 cm across and high with a flower tube 10–15 mm by 10–30 mm, flower tips thin and delicate, anthers yellow. **Fruits:** Fruit fleshy and green turning to bright red to dull carmine or purplish maroon, even orangish, 20–30 mm, pulp magenta or red. **Ecology:** Found in sandy or gravelly soils in a wide variety of ecotypes on mostly south–facing hillsides from 3,000–8,000 ft (914–2438 m), flowers April–June, fruiting June–August. **Notes:** The systematics of this species (according to some) now include what were previously varieties of *E. fasciculatus:* var. *fasciculatus* and var. *boyce–thompsonii*. These are both rare cacti, so precise distribution information is masked, both are treated as separate species here They are told apart by *E. fasciculatus* having 5–20 stems, each 15–45 cm long, with 8–10 ribs and spines at right angles to the stem, being deflexed and grayish; *E. boyce–thompsonii* has 4–12 stems, each 10–20 cm long, with 14–18 ribs, a light colored principal stem and slightly longer than *E. fasciculatus*. **Ethnobotany:** The raw fruits were eaten as food, the stems were pit roasted and eaten, and the fruits were eaten dried. **Etymology:** Echinocereus is from the Greek echinos, hedgehog or spine and cereus, waxy, while fendleri is named for Augustus Fendler (1813–1883) a German botanical collector in North and Central America. **Synonyms:** None

Echinocereus triglochidiatus

kingcup cactus

General: Unbranched or 1–12 branched mounds of branches that are often dense and rarely to 300 stems, the stems usually erect or nearly so and cylindric to spheric, 5–70 cm long and 5–13 cm diameter with 5–12 ribs that have slightly undulate crests bearing areoles 10–40 mm apart. **Spines:** Spines 3–11 per areole that are straight to curved or contorted with radial spines appressed or spreading to projecting outward, these white to yellow, gray, or black, the radial spines 1–10 per areole and 15–90 mm, while the central spines are only 0–1 per areole and angular while 50–120 mm long. **Flowers:** Whole flower 5–10 cm long with the flower tube 20–35 mm, the inner tepals bright orange red to dark red but paler below, these 25–40 mm long and 10–15 mm diameter with tips thick and rigid, the anthers usually pink to purple and areoles with spines and white hairs. **Fruits:** Green to yellow green, pink or red, 20–35 mm, with a deciduous mass of spines. **Ecology:** Found on igneous to calcareous rock outcrops, along cliffs and on sandy slopes from 3,500–9,000 ft (1067– 2743 m), flowers April–June. **Notes:** This is the earliest name for a complex of diploid and polyploid taxa according to FNA. Since the 1980s, these taxa have been separated into tetraploid and polyploid divisions. There are still a few varieties, but all of those are not totally accepted by USDA Plants DB or ITIS, so this is still a complex in process. **Ethnobotany:** Water was extracted in emergencies, the pulp was made into cakes and candy, the fruit was eaten fresh, as jam, the pulp was baked and eaten like squash,and the dried pulp was used for candles. **Etymology:** Echinocereus is from the Greek echinos, hedgehog or spine and cereus, waxy, while triglochidiatus means with three glochids. **Synonyms:** *Echinocereus triglochidiatus* var. *gonacanthus, E. triglochidiatus* var. *inermis, E. triglochidiatus* var. *mojavensis*

Ferocactus wislizeni

candy barrelcactus

General: Barrel cactus that is about as tall as wide, clearly a columnar plant with 20–28 ribs that are not markedly tuberculate. **Spines:** Hooked central spines obscure the stem, while the central spines are red but have a surface layer that is ashy gray with 4 per areole and forming cross, not flattened against the stem, these are strongly cross ribbed and 3–8 cm long. The radial spines are ashy gray with mostly 12–20 per areole, spreading and curling irregularly back and forth, but not cross ribbed. **Flowers:** Flower 4.5–6 cm diameter and 5–7.5 cm long, they can be orange, yellow or reddish and cup shaped with perianth parts which are narrowly lanceolate and apically sharply acute and mucronate while being borne on the crowns of the stem with a distinct purplish middle stripe. **Fruits:** Yellow and barrel shaped, they are fleshy and covered by numerous almost circular but shallowly fimbriate scales that are readily dehiscent through basal pore. **Ecology:** Found on deep soils of igneous and limestone origin, sandy desert soils, gravelly slopes, wash margins, alluvial fans, lower edges of oak woodlands and grasslands from 1,000–4,500 ft (305–1372 m), flowers July–September. **Notes:** Called the compass cactus because it tends to lean south toward sun, species can live up to 100 years. Spines are said to cripple a horse unless they are treated the same day. **Ethnobotany:** The top of the cactus was lopped off and the interior pulp was crushed as a source of water in extreme circumstances; the seeds were parched, ground, and boiled into a mush; the spines were used as fish hooks by the Pima, and the fruit was made into a candy. **Etymology:** Ferocactus from Latin ferus, fierce and cactus referring to spines, while wislizeni is named after Frederick Adolf Wislizenus (1810–1889) an Army surgeon, explorer, and botanist. **Synonyms:** *Echinocactus wislizeni*

Mammillaria grahamii

Graham's nipple cactus

General: Low globular cactus that is either branched or unbranched plant with 0–9 branches and diffuse roots, the stems are spheric to cylindric and 5–16 cm tall by 3.5–7 cm wide with tubercles that are 5–12 mm by 3.5–7 mm with axils that appear naked. **Spines:** Spines 26–33 per areole and glabrous, with 17–35 radial spines that are whitish or pale tan and bristlelike, these 6–12 mm long and less that 1 mm wide and stiff, the 3–4 central spines have 1–3 hooked ones which are reddish to purplish brown to black and the others shorter, less colored and straight. **Flowers:** Roughly 2 cm by 2 cm with the outermost tepal margins minutely fringed with inner tepals that are bright rose pink to rose purple, 10–16 mm long by 4–8 mm wide, with stigma lobes that are yellow green to green and 3–7 mm. **Fruits:** Fleshy fruits green turning bright red, scarlet to carmine, they are barrel shaped and elongating until the color change is complete, often with the floral remnants. **Ecology:** Found on silty, sandy, gravelly, or rocky soils, often on slopes in the chaparral and grasslands from 2,000–5,000 ft (610–1524 m); flowers April–September, fruits September–March. **Notes:** There are quite a few varieties, at least historically. The systematics according to FNA seem to make this a geographically variable species, rather than making species distinctions. Benson 1969 listed two varieties. The fishhooks are key with this genera on the whole and the beautiful pink flowers and really red fruits help also, but this species in particular has no nipples visible. **Ethnobotany:** The dried fruit was cooked and eaten, as was the raw fruit, it was boiled and placed warm in the ear for earaches, and the raw pulp was eaten, primarily by children as a snack food. **Etymology:** Mammillaria from the Latin mammilla, a nipple, while grahamii is named for James Duncan Graham (1799–1865), he was the astronomer for the survey of the final boundary between Mexico and the United States in 1851. **Synonyms:** *Mammillaria grahamii* var. *grahamii*, *M. grahamii* var. *oliviae*, *M. microcarpa*, *M. microcarpai* var. *auricarpa*, *M. milleri*, *M. oliviae*

Mammillaria thornberi

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Thornber's nipple cactus

General: Plants branched prolifically from base with every branch having an independent root system, the plant is found in dense clumps of independently rooted stems with stems that are slender and cylindric while tapered at base and firm, they are 4.5–10 cm tall by 2–3.5 cm in diameter, there is no latex and the tubercles are 5–9 mm long and wide. **Spines:** Spines tend to obscure the stem, with 14–23 per areole, these whitish to yellowish near base and reddish brown to black towards the tips, the 13–21 radial spines are whitish with reduced dark tips relative to central spines, the 1–3 central spines are porrect and hooked with 0–3 subcentral spines, the adaxial to central spines are more or less transitional to the radial spines. **Flowers:** Flowers are 1.5–3 cm long by 1–2.5 cm in diameter with the outermost tepal margins densely short fringed while the inner tepals are lanceolate and white or pinkish with rose–pink midstripes, the tepals 14–19 mm long and 5–7 mm in diameter. **Fruits:** Fruits bright red and obovoid to nearly clavate, 7–15 mm long by 4–7 mm wide, juicy only in fruit walls while the floral remnants are persistent. **Ecology:** Found on sandy or fine soils under shrubs of flats and washes (akaline tolerant), usually in Sonoran desert scrub, on valley floors from 500–2,500 ft (152–762 m), flowers April–May. **Notes:** Found only at Tucson Mountain District in Saguaro NP. Considered rare in many counties in Arizona. FNA states that the epithet *fasciculata* was long misapplied to *M. thornberi;* it correctly pertains to *Echinocereus fasciculatus*. **Ethnobotany:** Specific use of species is unknown, however the genus was used as food by many native American tribes, the spines were removed or the plant skinned and the flesh of the plant was eaten, sometimes raw. **Etymology:** Mammillaria comes from the Latin mammilla, a nipple, while thorberi is named for John James Thornber (1872–1962) an American plant collector. **Synonyms:** None

Opuntia engelmannii

pricklypear, cactus apple

General: Shrubs or "trees" with short trunk that are spreading to sometimes decumbent from 1–3 m, with pads that are yellow green to blue green and glabrous but often glaucous, the pads are circular to obovate to rhombic and 15–40 cm tall by 10–40 cm wide, with 5–8 areoles in diagonal row across the middle of the pads, 4–7 mm long by 4–6 mm wide, the juveniles have pads that bear long hair–like spines. **Spines:** Evenly distributed on pad to absent they are white to yellow(red to dark brown near base) and straight to curved and flattened to angular at least at the base, there are 1–6 per areole with the largest spreading to strongly reflexed and 1–3 cm long with yellow brown glochids that are widely spaced with irregular lengths to 12 mm, they are sparse along the pad crescent and encircle the areole. **Flowers:** Inner tepals uniformly yellow to buff but sometimes orange to pink to red, 3–4 cm long, with filaments and style that is whitish to cream colored, with fresh stigmas that are yellow green to green. **Fruits:** Deep red to purple and elongate ovate to barrel shaped, they are sometimes stipitate and spineless, generally juicy, 3.5–9 cm long by 2–4 cm in diameter. **Ecology:** Found on sandy, gravelly, or rocky soils, slopes, bajadas, and flats from 1,000–9,000 ft (305–2743 m); flowers April–July. **Notes:** There are four recognized varieties: var. *engelmannii*, var. *flavispina*, var. *lindheimeri*, and var. *linguiformis*. It is best to consult Pinkava 2003 for clarification of a variety type. The systematics of this species and *O. phaeacantha* still appear to remain a little unresolved. This is perhaps a consequence of their hybridization, but depending on who you talk to these species are all one or all the other. The variability of these species is probably something to contend with and as such other texts should be consulted to clearly distinguish among them. Overall, good characters for easy identification are the large pads, with generally three visible central spines, often with spines over the entire pad. **Ethnobotany:** A poultice of the heated plant applied to the breasts was an aid for breast feeding, the ripe tunas are eaten fresh, dried, ground, mixed with corn meal, used as a red dye, fermented for a beverage, made into a syrup, and the tender pads are eaten as nopalitos. **Etymology:** Opuntia from ancient root puncti for prickled, while engelmannii is named for Georg Engelmann (1809–1884) a German born, American botanical collector. **Synonyms:** None

Stenocereus thurberi

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organ pipe cactus

General: Columnar, branching from the base, usually in a big thicket with stems erect 3-6 m tall, sometimes rebranching above, the branches 12-20 cm in diameter, with 15-17 ribs, these 9-15 mm high. **Spines:** Areoles 1-1.5 cm apart on ribs, circular, 4-6 mm in diameter with reddish brown hairs, aging gray, the spines red-brown coated whitish, aging gray with dark tips, terete, bulbous based, usually 11-14 per areole, thin, with radial spines 1-3.5 cm and central spines to 6 cm. **Flowers:** Nocturnal, subterminal, funnelform 6-7.5 cm long and 6-7 cm wide, the floral tube 2-4.5 cm long, outer tepals green and tinged with red to rose red or purplish, , inner tepals white to light pink, reflexed and oblong to 2 cm long, 7 mm wide, the anthers yellow. **Fruits:** Fleshy and red, 4.5-6.5 cm, with deciduous spiny areoles, the pulp sweet. **Ecology:** Found on rocky or sandy slopes, or in the valleys from 1,000-3,500 ft (305-1067 m), flowers April-July. **Notes:** Distinctive with its organ pipe formation, but lacking the gray upper hairs of senita. Rare in the Tucson area, a solitary specimen was located by SODN vegetation crews in 2011 in the Tucson Mountains. **Ethnobotany:** The fruit is used for food, the seeds are parched and made into flour for cakes, ground and used for oil, the fruits are dried, made into juice, used as fodder, made into jams and syrups, made into wine, candy, made into torches, for ink, the skeletons were used as a pole for knocking off ripe fruit. **Etymology:** Stenocerus comes from the Greek steno for narrow and the Latin cereus meaning a tapered candle, while thurberi is named for Dr. George Thurber (1821-1890) a botanist with the Mexican Boundary Survey. **Synonyms:** *Cereus thurberi, Lemaireocerus thurberi, Marshallocereus thurberi, Rathbunia thurberi*

When we think of forbs as a lifeform, we are really talking about something called an herbaceous plant, or a plant that is not woody and a plant that dies back at the end of a growing season. Herbaceous plants can be either annual (short-lived) or perennial (living longer than a single season), but they will never be trees or shrubs because of their lacking any kind of persistent woody stem.

What we present here as the forbs are but a very small sampling of the most diverse class of plants. Some genera presented here have upwards of six other species, all unique in their own way. The problem presented by trying to capture this type of plant is that you overlook so many, so we focus only on the most widespread, both in terms of areas found but also in terms of what time of year these plants grow and bloom.

With well over 1,000 different species of herbaceous plants, or forbs, the two districts of Saguaro National Park are a very unique representation of the floristic diversity found in the Sonoran Desert.

Tidestromia lanuginosa

woolly tidestromia

General: Procumbent, ascending, or prostrate but much branched annual, yellowish green to gray–green or reddish, to 50 cm, densely rough pubescent to glabrate with age. **Leaves:** Opposite on petiole 2.5 cm long, ovate–orbicular to lanceolate 1–3 cm each direction, densely pubescent. **Flowers:** Minute and perfect in axillary glomerules, the perianth yellow 1.5–3 mm long, the segments oblong, acute to obtuse, 5 stamens, filaments united at base, glabrous or villous perianth segments, with globose ovary, stigma capitate or 2 lobed. **Fruits:** Utricle subglobose, glabrous, indehiscent, brown globose seeds. **Ecology:** Found on dry plains, hillsides, and often on disturbed soils below 5,000 ft (1524 m); flowers August–October. **Notes:** Two species are found in the area, generally *T. languinosa* is a slightly more common higher elevation species, while *T. oblongifolia* is found in more true desert. Generally, this species as an annual is clearly distinguishable from the others in the genus. **Ethnobotany:** Unknown **Etymology:** Tidestromia is named for the American botanist Ivar (Frederick) Tidestrom (1864–1956) who wrote the Flora of Arizona and New Mexico, while lanuginosa means woolly or downy. **Synonyms:** *Achyranthes lanuginosa, Alternanthera lanuginosa, Cladothrix lanuginosa, Tidestromia lanuginosa* ssp. *eliassoniana*

Ambrosia confertiflora

weakleaf burr ragweed

General: Herbaceous perennial from a hard, knotty base, with stout, deeply buried, woody taproots, stems often 40-75 cm, erect, and leafy with white, mostly appressed hairs. **Leaves:** Green, often 6-17 cm, 2 or 3 times pinnately divided. **Flowers:** Heads small, numerous, in terminal panicles; corollas pale yellow, puberulent; pistillate heads disposed singly or in small clusters near base of racemes, 1-2 flowered. **Fruits:** Burs 3-4 mm with small, terete, hooked spines. **Ecology:** Found on hillsides, slopes, mesas, and sometimes a weed in fields and along roadsides from 1,000-6,500 ft (305-1981 m); flowers March-October. **Notes:** Pinnately divided leaves are one diagnostic for this species. **Ethnobotany:** Unknown for this species, other species in this genera have many uses. **Etymology:** Ambrosia is Greek for food of the gods, while confertiflora means crowded flowers. **Synonyms:** *Franseria confertiflora, F. strigulosa, Gaertneria tenuifolia*

Artemisia ludoviciana

white sagebrush, wormwood

General: Perennial herbs arising from rhizomes; stems 20-100 cm tall; glabrous to tomentose. **Leaves:** Mostly cauline, entire to lobed to pinnately divided (mostly at tip), white tomentose on lower surface, green glabrous to tomentose on upper surface, 0.8-9 cm long, 0.1-2 cm wide. **Flowers:** Paniculate to spicate; heads numerous, small, sessile to short pedunculate, somewhat pendulous; involucres 2.5-4.5 mm long, 3-7 mm wide, the bracts glabrous to tomentose, with broad scarious margins; corolla with disk flowers only, marginal. **Fruits:** Achenes glabrous **Ecology:** Found on exposed slopes, hillsides, rocky slopes, and flat plaints from 2,500-8,500 ft (760-2590 m); flowers August-November. **Notes:** Easily confused with *A. carruthii* but leaves are larger with wider, more robust lobes (vs. smaller leaves with thin linear lobes in *A. carruthii*). These two species may hybridize. Used in sweathouses. Five subspecies are found in AZ: *ssp albula*, ssp. *ludoviciana*, ssp. *mexicana*, ssp. *redolens* (rare) and ssp. *sulcata*. In Saguaro NP, both ssp. *sulcata* and ssp. *mexicana* are present, largely distinguished by the latter having more linear and less pinnately divided leaves which are distinctively green above and whitish below. Host plant for Painted Lady butterfly. **Ethnobotany:** Branches used in sweathouses. Often found in moist waterways but can be found in many zones in Arizona. Widely distributed and used throughout the Intermountain west as a medicinal bitter, purifying and cleansing plant, and in making towels. **Etymology:** Named after queen Artemisia of Caria, Asia Minor. Ludoviciana means of or from Louisiana. **Synonyms:** None

Bahia absinthifolia

hairyseed bahia

General: Perennial 10–40 cm with stems spreading to erect, much branched from a woody base, stems and leaves white–tomentose. **Leaves:** Mostly opposite, short–petiolate or subsessile, blade 1–6 cm long, entire or 1–2 ternately lobed, lobes lanceolate to oblong, faces densely canescent and usually gland dotted. **Flowers:** Corymbose array, involucre hemispheric, 5–7 mm high by 9–14 mm broad; 8–13 ray florets, corolla laminae 6–15 mm; 60–80 disc florets; corollas 3–4 mm. **Fruits:** Obpyramidal cypselae 3–4.5 mm, faces hirtellous to strigose, with pappi of spatulate to obovate, apical scales 1–1.5 mm. **Ecology:** Found on arid slopes and flats, hillsides, and along arroyos 2,500–5,500 ft (762–1676 m); flowers April–October. **Notes:** This plant is often abundant on caliche soil, it is best distinguished by being a perennial with opposite leaves that have lanceolate to oblong lobes and densely scabrello–canescent faces. **Ethnobotany:** Unknown, but other species in the genus have uses. **Etymology:** Bahia is named after Juan Francisco de Bahi y Fonseca (1775–1841), a Spanish botany professor, while absinthifolia means with leaves like absinthium, which is used to flavor Absinthe. **Synonyms:** None

Baileya multiradiata

desert marigold

General: Annual or short lived perennial with floccose stems and leaves, stems branch at base, decumbent to ascending, 20–40 cm tall, leafy on lower portion only. **Leaves:** Basal, 3–5 cm long, spatulate, 3–lobed and crenate early in season, later ones deeply 3–cleft and lobed, all densely white–floccose; upper cauline leaves linear to spatulate, entire, 2–4 cm long. **Flowers:** Peduncles 10–30 cm long, involucres 7–8 mm high, 10–15 mm broad, lanate; one head per stem; phyllaries 5.5–6.5 mm, linear–lanceolate 20–35; flower heads 3.5–5.3 cm wide including rays; rays many, bright yellow, 15–20 mm by 5–8 mm, the apex conspicuously 3–toothed, style branches truncate to slightly rounded at tips. **Fruits:** Achenes cylindrical–truncate, 3–4 mm long, evenly striate. **Ecology:** Found on arid plains, arroyos, outwash slopes, sandy plains and roadsides below 5,000 ft (1524 m); flowers March–October. **Notes:** Not always readily distinguishable from *B. pleniradiata*, but when sampled in the correct time of year the shape of the style is diagnostic. **Ethnobotany:** Rubbed under the arms as a deodorant, or mixed with clay and used in making adobes and in plaster. **Etymology:** Baileya is named for Jacob Whitman Bailey (1811–1857) an early American microscopist, multiradiata comes from the Latin for multi–radiata. **Synonyms:** *Baileya multiradiata* var. *thurberi*

Cirsium neomexicanum

New Mexico thistle

General: Native biennial herb from a stout taproot; stems stout, 30-200 cm tall; pubescent with tangled, wooly hairs. **Leaves:** Basal and cauline; basal and lower cauline leaves lanceolate to elliptic or oblong, up to 40 cm long and 7 cm wide, shallowly and regularly pinnately lobed, the lobes further toothed and with spines 2-8 mm long, or rarely almost entire with spiny margins; stem leaves reduced and scattered above, sometimes with short (about 1 cm) downward extensions of the leaf bases; pubescent with tangled, wooly hairs. **Flowers:** Heads solitary or a few at the ends of stems and branches; involucre 2.5-5 cm high, pubescent with tangled, woolly hairs, with outer and middle phyllaries spine-tipped and reflexed, inner phyllaries appressed, with long, tapering tips; flowers white to lavender or pink. **Fruits:** Achenes 5-6 mm long; pappus bristles 20-25 mm long. **Ecology:** Dry, exposed slopes from 1,000-6,500 ft (305-1980 m); flowers March-September. **Notes:** Characterized by the few or solitary white to lavender or pink flower heads with spine-tipped and reflexed outer and middle phyllaries. Products of the plant provide food for some insects and some bird species. Second season plants may be killed by fire. Post-fire regeneration process is via seed. Seeds favorite of Goldfinches and other birds while flowers provide nectar and pollen for bees. Host plant for Painted Lady butterfly. **Ethnobotany:** Taproots of young plants are eaten raw or roasted. They are often sliced, fried, mashed or ground into flour. Flowers may be eaten raw or cooked and have high nutrition content. Navajo use for chills, fever. Used also as a panacea as root infusion, especially for colds. **Etymology:** Cirsium is Greek for thistle, while neomexicanum means of or from New Mexico. **Synonyms:** None

Erigeron divergens

spreading fleabane

General: Native biennial herb; stems branched from base and above, 5–50 cm tall; spreading–hairy. **Leaves:** Alternate; basal leaves up to 5 cm long, reduced above; oblanceolate and long–petioled below, to nearly linear above; entire to slightly lobed. **Flowers:** Heads several to many on leafy peduncles; involucres 4–5 mm high; disk 7–11 mm wide; rays 75–150, 5–10 mm long, pale blue, pink or white; disk yellow. **Fruits:** Achenes sparsely hairy, 2–4 veined, with a double pappus of 5–12 long, fragile bristles surrounded by short, narrow scales. **Ecology:** Semi–arid, open to lightly wooded areas from 1,000–9,000 ft (305–2740 m); flowers May–August. **Notes:** Lacks the numerous stolons of *E. flagellaris;* another related species *Erigeron colomexicanus* (=*E. divergens* var. *cinereus*) has leafy stolons. **Ethnobotany:** Aerial parts are sometimes used to make oil to treat pets for fleas (Hence the common name – fleabane). Many *Erigeron spp*. used similarly. **Etymology:** Name means Early–Old–Man, named by Theophrastus. Divergens is ancient word for diverging. **Synonyms:** *Erigeron divergens* var. *typicus*

Helianthus annuus

sunflower

General: Native annual herb; stems stout, erect, 30–200 cm or more tall; rough–hairy. **Leaves:** Only the lowermost leaves opposite, otherwise alternate; long–petioled, ovate or even broader, especially below, 4–20 cm long, 3–15 cm wide, coarsely toothed to (less commonly) almost entire; rough–hairy. **Flowers:** Heads solitary or few at the ends of stems and branches; phyllaries ovate with a long narrow tip, more–or–less pubescent and ciliate–margined; disk usually 3–4 cm wide, purplish–brown or occasionally yellow; rays 15–40 mm long, yellow; central receptacle bracts inconspicuously pubescent at the tips. **Fruits:** Achenes plump, glabrous or finely pubescent, with a pappus of 2 or more awns or scales. **Ecology:** Open or disturbed areas from 1,000–7,000 ft (305–2134 m); flowers March–October. **Notes:** A related species, *H. petiolaris*, is very similar but smaller and more slender in all respects, with phyllaries lanceolate and usually not ciliate–margined, and the central receptacle scales conspicuously white–bearded at the tip. Medium drought tolerance, no fire tolerance. Host plant for California Patch, Bordered Patch, and Painted Lady butterflies. **Ethnobotany:** Seed is dried, ground and mixed with water to make a coffee–like drink. It is also ground to make sunflower seed cakes or crushed and boiled to make oil. The oil relieves coughs. The pith of a sunflower stalk has also been burned and used as a wart remover. Stalks used as fuel, livestock fodder, poultry food, and silage. Stems used as source of commercial fiber. Fiber may be used in paper. **Etymology:** From ancient root helio– for sun loving and meros– meaning part. **Synonyms:** Numerous, see Tropicos

Porophyllum gracile

slender poreleaf

General: Slender to moderately branched suffrutescent perennial, 20–70 cm tall, internodes mostly 10–30 mm, faintly glaucous or quite green or purplish stems. **Leaves:** Scattered, sparsely glandular, thinly linear to filiform blades, 0.5–1 mm wide and 2–5.5 cm long. **Flowers:** Heads solitary at ends of branches on peduncles 1–3 cm long and slightly dilated upward, involucres cylindro–campanulate, 8–14 mm high, phyllaries 5, oblong to linear; florets 12–30, corollas whitish to purplish, 6–9 mm, with darker purple streaks, tube shorter than narrow throat. **Fruits:** Brownish cypselae 6–10 mm, pappus of tawny, stramineous or rose–colored, very slender bristles 5–8 mm long. **Ecology:** Found on rocky slopes, outwash fans, in canyons and arroyos below 4000 ft (1219 m); flowers March–October. **Notes:** Very distinctive smell from the crushed plant. **Ethnobotany:** Taken for pain, as a liniment for rheumatism, for aches, as a wash for sores, abdominal pain, and taken to regulate delayed menstruation. **Etymology:** Porophyllum is from Greek poros, a passage or pore, and phyllon, leaf, a reference to the translucent glands on the leaf, while gracile means slender, or graceful. **Synonyms:** *Porophyllum caesium, P. junciforme, P. nodosum, P. putidum, P. vaseyi*

Psilostrophe cooperi

whitestem paperflower

General: Suffrutescent perennial, few to many stemmed clumps 25–30 cm tall, stems and leaves densely white tomentose. **Leaves:** Alternate, linear, 1–4 mm wide, 2–10 cm long, green and glabrous with age, midrib conspicuous with age. **Flowers:** Heads borne singly at the tips of branches on peduncles 2–10 cm long, involucres campanulate 6–8 mm, phyllaries 5–12 in 1–2 series; ray florets 3–8, pistillate, rays 12–20 mm, spreading to reflexed in fruit, pale yellow, coarsely 3–toothed, papery; 10–17 disc flowers exserted 3–4 mm beyond involucre at anthesis. **Fruits:** Glabrous cypselae, sometimes gland–dotted, pappi of 4–6 oblong to lanceolate scales 2–2.5 mm. **Ecology:** Found along washes, on gravelly slopes and rocky hillsides from 2,000–5,000 ft (610–1524 m); flowers March–September. **Notes:** The most suffrutescent of the Psilostrophe in the region, as well as having the most tomentose herbage. Pay attention to the exserted disc flowers to distinguish between *Psilostrophe*, *Zinnia*, and *Melampodium*. **Ethnobotany:** Unknown **Etymology:** Psilostrophe is from Greek psilos, naked or glabrous, and strophe, to turn, while cooperi is named for Dr. James Graham Cooper (1830–1902) an American geologist who collected plants in the Mojave in 1861. **Synonyms:** *Riddellia cooperi*

Zinnia acerosa

desert zinnia

General: Much branched low rounded or flat–topped subshrub 10–25 cm tall, with slender cinereous–puberulent branches, irregularly scaly grayish bark. **Leaves:** Linear to oblanceolate–linear, acerose leaves 0.3–2.5 mm wide, numerous, often longer than internodes, 5–20 mm long, cinereous–puberulent, golden punctate glands interspersed among hairs. **Flowers:** Peduncles 5–35 mm long, campanulate involucres 5–7 mm long, 3–5 mm wide; phyllaries suborbicular to oblong, greenish and tomentulose at first, later glabrate and stramineous but dull; ray flowers mostly 5–7, ligules suborbicular to broadly oblong, 7–10 mm long, white or faintly yellow, strongly green veined beneath, persist, strongly reflexed in fruit; disk corollas 5–6 mm, tinged with purple. **Fruits:** Disk achenes 2.5–3.5 mm long, striate, strigose or only upwardly ciliate, pappus usually of 2–3 unequal awns or much reduced; ray achenes oblanceolate, 3–angled in cross–section, receptacular chaffy bracts uniformly yellow, erose at apex. **Ecology:** Found on arid rocky slopes and mesas from 2,500–5,000 ft (762–1524 m); flowers March–November. **Notes:** The color of the ray flowers is usually sufficient to tell it apart from *Z. grandiflora*. **Ethnobotany:** Plant was crushed and used as a paste on swellings or aches. Also given to children to help them learn to talk. **Etymology:** Acerosa means sharp, or with stiff needles. **Synonyms:** *Zinnia pumila*

Cucurbita foetidissima

coyote gourd, Missouri gourd

General: Coarse, large–leaved prostrate vine with large, deeply penetrating root, long–lived. Stems radiate, forming dense cover 30–40 cm high over several square meters, scabrous with curved, dimorphic, hair like trichomes. **Leaves:** Triangular–lanceolate to quadrangular–lanceolate, commonly 10–20 cm long, evenly and progressively smaller toward the tips of stems, densely and coarsely white–pubescent above, scabrous beneath with conical trichomes along veins. Thick petioles, scabrous, one–half as long as blade; tendrils thick, long–petiolate, branches short and capitately coiled. **Flowers:** Short peduncle, staminate calyx lobes subulate, equaling tube, corollas with several kinds of hair. **Fruits:** Globose, 6–8 cm across, green with conspicuous, whitish stripes, white–mottled. **Ecology:** Found on sandy soils, along fields, in disturbed areas from 1,000–7,000 ft (305–2134 m); flowers May–August. **Notes:** Conspicuous because of its utterly foul smell, crush it in your fingers and they'll stink for days. You can use the crushed plant leaves soaked in water as a spray to ward off squash bugs. **Ethnobotany:** Poultice of roots applied to boils and sores, to soothe horses' backs, ground fruit shell as shampoo, as an emetic and as a rattle, or dried for other purposes. **Etymology:** Cucurbita is the Latin name for gourd, while foetidissima means very evil smelling. **Synonyms:** *Pepo foetidissima*

Dalea pringlei

Pringle's prairie clover

General: Upright perennial, slightly suffrutescent, with green glabrous and glaucous stems 15–60 cm tall with linear–subulate stipules, 2 mm long. **Leaves:** Pinnate leaves 1.5–6 cm long, 15–47 leaflets, oblong to elliptic, acute to obtuse at both ends, glabrous, glandular punctate beneath. **Flowers:** Dense spikes 2–10 cm long, 7–10 mm thick, ovate bracts, abruptly short–acuminate, 4–5 mm long, densely silky–villous on margins and lower part, gland–dotted on back, dark–colored; calyx campanulate, densely villous, tube 2–2.2 mm long; calyx lobes lance–subulate, pilose, 2.5–3 mm long, corolla rose or purplish, blade of banner ovate, about 1.5 mm long, claw 2.5 mm long. **Fruits:** Obovate pod, densely pilose, gland–dotted. **Ecology:** Found on slopes from 2,500–5,000 ft (762–1524 m); flowers April–October. **Notes:** Distinguished by its purple flowers, with calyx lobes that are commonly longer than the tube, paired petals oval to elliptic, as well as the glabrous stems and leaves. **Ethnobotany:** Unknown **Etymology:** Dalea is named for Samuel Dale (1659–1739) an English physician and botanist, while pringlei is named for Cyrus Guernsey Pringle (1838–1911) an American plant collector. **Synonyms:** None

Senna covesii

Coues' covesii

General: Perennial from a slightly woody base and woody rootstock with spreading and ascending branches 30–60 cm long and grayish to tawny–velvety pubescence throughout. **Leaves:** Stipules linear, 5–12 mm long, caducous; petioles 2–5 cm long, bearing a small apiculate gland on a stalk to 3 mm long between the lowest of 2–3 pairs of leaflets; leaflets elliptic to oblong or oblong–obovate to 1.5 cm wide, 1–3 cm long, rounded and mucronulate at apex. **Flowers:** Peduncles 3–7 cm long, normally surpassing leaves, 3–7 flowered, pedicels 1–1.5 cm long; sepals 6–8 mm long, densely hirsutulous, rounded at apex, thin; clawed petals 10–16 mm long, imbricated in bud, yellow, dark–veined. **Fruits:** Pod oblong, 5–6 mm wide, 2–3.5 cm long, moderately appressed–pubescent, bearing a subulate tip 2–4 mm long. **Ecology:** Found on flats and along washes, in gravelly and rocky soils from 1,000–3,000 ft (305–914 m); flowers April–October. **Notes:** Distinguished from *S. bauhinioides* by having 2–4 pairs of leaflets, rather than a single pair. **Ethnobotany:** Unknown **Etymology:** Senna is from Arabic Sena, while covesii is named for Elliot Coues (1842–1899) an American naturalist who is best known for his ornithological work. **Synonyms:** *Cassia covesii*

Hedeoma nana

dwarf false pennyroyal

General: Annual or perennial, low suffrutescent plant with several to many slightly decumbent to ascending stems 10–25 cm long, herbage with white, downwardly curving, simple hairs 0.5–1 mm long, a tinge of red or lavender often present on various parts. **Leaves:** On slender petioles, 1–3.5 mm long, blades ovate to elliptic, sometimes rhomboidal–ovate, 2–6 mm wide, 5–10 mm long, denticulate to subentire, obtuse to acute at base, acute at apex, dark green above, paler and somewhat veiny beneath, finely punctate. **Flowers:** Few–flowered, often verticillate and axillary at upper stem nodes, on pedicels 1–4.5 mm long; calyx tube mostly 2.5–3 mm long, finely ribbed, distinctly swollen in basal one–half at maturity, hispidulous; calyx teen reddish, upper three ovate–subulate, 1 mm long, slightly curved outward, lower pair narrowly subulate, 2 mm long, curved inward; corolla blue to purple, often with darker spots and streaks in lower lip, tube about equaling calyx, hispidulous without. **Fruits:** Nutlets almost plano–convex, 1.2–1.4 mm long. **Ecology:** Found in rock crevices, rocky slopes, exposed ridges, at the base of rocks from 500–5,500 ft (152–1676 m); flowers March–October. **Notes:** There are three subspecies with overlapping distribution. The base description generally fits for ssp. *nana* which is the most widespread and common, while there are two other subspecies: ssp. *californica* and ssp. *macrocalyx*. Ssp. *californica* can be distinguished by its puberulent stem, leaf blade 3–8.5 mm long by 2–4.5 mm wide, ovate to round, with a flower calyx 4.5–5.5 mm long, with lobes spreading or reflexed and a corolla 8–9 mm, often found on rocky limestone outcrops. Ssp. *macrocalyx* is told apart from ssp. *nana* by having more persistent basal leaves that are 10–15 mm long and purplish beneath, a calyx tube 3.5–4.5 mm long, a corolla tube 5–6 mm long, and the limb distinctly exceeding the calyx. **Ethnobotany:** Used ceremonially, taken as a cathartic, taken for indigestion, made into tea, the leaves were used as flavoring, and used as a hair and body wash. **Etymology:** Hedeoma is from the Greek hedus, sweet, and osme, odor, an ancient name for a strongly aromatic mint, while nana comes from Greek nannos, or dwarf. **Synonyms:** None, see Tropicos for any subspecies synonyms.

H M L Impact risk level

Marrubium vulgare

horehound

General: Perennial exotic herb from a taproot; stems several, prostrate to ascending–erect, 20–100 cm long/tall, densely white wooly. **Leaves:** Opposite, blades 1–6 cm long, conspicuously wrinkled, ovate to round, with crenate margins; generally green and pubescent above, white wooly below. **Flowers:** Whorled in globular clusters in leaf axils, with spiny calyces; corolla 5–10 mm long, whitish. **Fruits:** 4 nutlets **Ecology:** On disturbed ground from 2,000–7,500 ft (610–2286 m); flowers April–October. **Notes:** Distinguished by noticeably wrinkly leaves and white–wooly pubescence on stems and undersides of leaves.

Ethnobotany: Herb is useful in tincture form to alleviate lung congestion. Species is sometimes substituted in brewing in place of hops. Navajo use it to treat indigestion, stomachache, influenza, colds, coughs, sore throats, and general aches and pains. It is also used in childbirth. **Etymology:** Possibly from the Hebrew for "bitter juice". Vulgare is ancient word for common. **Synonyms:** None

Trichostema arizonicum

Arizona bluecurls

General: Suffrutescent perennial with erect pubescent stems 25–50 cm tall. **Leaves:** Opposite, on petioles 2 mm long, winged; blades 13–30 mm long, 8–12 mm wide, broadly elliptic to ovate, oblong or obovate, 1–nerved; margin entire or few–toothed. **Flowers:** Panicle of flowers on pedicels 8–11 mm long, actinomorphic calyx, 1.5–2 mm long; corolla 7–12 mm long, tube slightly exserted, white except the middle lobe of the lower lip is blue; stamens are twice the corolla length, arching above the corolla; filaments white, anther sacs strongly divaricate. **Fruits:** Sessile ovary bearing obovoid nutlets, rugose–reticulate or irregularly ridged, often pubescent. **Ecology:** Found in the desert grasslands and woodlands, often in the shade from 4,000–6,500 ft (1219–1981 m); flowers July–October. **Notes:** Readily distinguished by the unique arching filaments and flowers; decidedly un–mint like to some, especially with the purported old urine smell of the leaves according to some. **Ethnobotany:** Unknown, but many uses for other species in the genera. **Etymology:** Trichostema comes from Greek thrix for hair and stema for stamen, which refers to the long elongate filaments of the genus, while arizonicum means of or from Arizona. **Synonyms:** None

Janusia gracilis

slender janusia

General: Slender, twining vine to 3 m long with strigose–cinereous branches. **Leaves:** Opposite, linear–lanceolate, 3–7 mm wide, 1.5–4 cm long, upper ones smaller, plane or margins faintly revolute, acute acuminate, sparsely appressed–pubescent above, somewhat more densely so and slightly paler beneath, 1–10 small marginal glands near base, below calyx. **Flowers:** Slender pedicels 2–5 mm long in flowers, 1–1.5 cm long in fruit; sepals ovate–oblong, about 2.5 mm long, glands 0.8–1 mm long; petals yellow, occasionally suffused with red or turning red in age, larger ones 4–5 mm long, blades rhombic or broadly ovate. **Fruits:** Coarsely veined samara, wings 9–12 mm long or rarely to 16 mm. **Ecology:** Found on rocky hillsides, gravelly slopes, and along arroyos from 1,000–5,000 ft (305–1524 m); flowers April–October. **Notes:** Often climbing over other plants, the opposite linear leaves help to give this plant away, as does the samaras when they are in full expression, often in twos or threes, back to back with the wings pointing outward. **Ethnobotany:** Unknown **Etymology:** Janusia is of uncertain origin, gracilis means slender or delicate. **Synonyms:** None

Abutilon incanum

pelotazo, Pringle's abutilon

General: Subshrub with slender stems 0.5–2 m tall, minutely stellate–tomentose, velvety pubescent herbage. **Leaves:** Ovate to lance–ovate, 0.5–3 cm wide, 1.5–6 cm long, irregularly serrulate, minutely grayish–tomentose on both surfaces, slightly paler beneath, acute to short–acuminate or sometimes obtuse at apex. **Flowers:** Axillary or subpaniculate near tips of branches, peduncles and pedicels together 1–2.5 cm long, slender; calyx lobes ovate, abruptly mucronate, 3–5 mm long, reflexed in fruit; petals yellow or pink with dark red center, petals reflexed, 4–6 mm long; staminal column 2–3 mm long, purplish, minutely pubescent, 5 styles. **Fruits:** Exceeding the calyx, about 6 mm in diameter, tomentulose, with 5 mericarps, acute or apiculate at apex, 3–seeded. **Ecology:** Found on open, arid well–drained slopes from 1000–4000 ft (305–1219 m); flowers April–October. **Notes:** One of the more common *Abutilon* in the Sonoran desert, often seen in its dormant phase with the whitish stems, remnant fruits, and a few scraggly greenish leaves near the base. In spring this species greens up and can grow quite large. **Ethnobotany:** Flowers, roots and bark used for stomachaches. **Etymology:** Abutilon is from the Arabic word for a mallow–like plant, while incanum means grayish or hoary. **Synonyms:** *Abutilon incanum* ssp. *incanum, A. incanum* ssp. *pringlei, A. pringlei*

Sphaeralcea ambigua

desert globemallow

General: Perennial subshrub, erect 50-100 cm tall, grayish pubescent. **Leaves:** Blades 15-50 mm, triangular, weakly 3-lobed, green or yellowish green, 3-veined, base wedge-shaped, truncate, cordate, crenate and wavy margin. **Flowers:** Open long-branched panicle, petals orange, 2-3 cm, white anthers. **Fruits:** Mericarps 9-13, less than 6 mm, 3.5 mm wide, truncate-cylindric, dehiscent. **Ecology:** Found on dry, rocky slopes, and along sandy washes below 3500 ft (1067 m); flowers throughout the year. **Notes:** Most xerophytic of the *Sphaeralcea*, stems woody below and very numerous, one of the largest-flowered species, with petals reaching 3 cm, and leaves extending along the stalk. **Ethnobotany:** Used medicinally for upset stomach, as an antirheumatic, as a cathartic, for colds, as birth control, for venereal diseases, as a poultice for swellings and sores, and as an eyewash. **Etymology:** Sphaeralcea is from Greek sphaira, a globe, and alcea, a related genus, while ambigua means doubtful, or of uncertain identity. **Synonyms:** None

Boerhavia coccinea

scarlet spiderling

General: Decumbent or prostrate perennial, branching from base with many stout stems 30-140 cm long, viscid-pubescent and sometimes glandular-hirsute below, more or less glandular above, occasionally glabrate. **Leaves:** Opposite, 2-6 cm long, ovate-orbicular to oblong, rounded to acute at apex, green above, pale below, with a brown-punctate margin, glabrous to hirsute, often viscid. **Flowers:** Cymose, much branched, branches slender, glandular-pubescent, flowers in heads on slender peduncles, bracts minute, lanceolate; perianth purplish red, 2 mm long; stamens 1-3, barely exserted. **Fruits:** Obovoid, 2.5-3.5 mm long, densely glandular-puberulent with dark, blunt, usually gland-tipped hairs. **Ecology:** Found in sandy soil along drainages, washes, roadsides, disturbed areas below 7000 ft (2134 m); flowers April-November. **Notes:** This plant tends to take over areas, so it is identifiable often by the large patches. **Ethnobotany:** Unknown **Etymology:** Boerhavia is for Hermann Boerhaave (1663-1738) a Dutch botanist, while coccinea means scarlet or bright, deep pink. **Synonyms:** None

Castilleja austromontana

Rincon Mountain Indian paintbrush

General: Perennial with villous stems with spreading hairs, 10–65 cm tall. **Leaves:** Entire, thin and lax, linear to linear–lanceolate or oblanceolate, to 6 cm long, glabrous to sparsely scabrous on the upper surface, hispid or villous on the lower surface. **Flowers:** Short dense spike, floral bracts obovate, shorter and wider than leaves, entire or with acute lateral teeth, green with red apex, glandular–pubescent, villous on veins and margins; calyx equally cleft about a third the length of the tube on both upper and lower sides, lateral lobes acuminate, tube yellow and villous, becoming red and glandular at apex; corolla exserted, 15–30 mm long. **Fruits:** Loculicidal capsule with numerous seeds. **Ecology:** Found in montane forests 6,500–10,000 ft (1981–3048 m); flowers May–September. **Notes:** Distinguished by the linear to lance shaped leaves, the stiff spreading hairs, bright red bracts, and its large size. **Ethnobotany:** Unknown, but other species in the genus have uses. **Etymology:** Castilleja is for the Spanish botanist Domingo Castillejo (1744–1793), while austromontana means of the southern mountains. **Synonyms:** None

Castilleja integra

wholeleaf Indian paintbrush

General: Perennial with several stout stems, 10–40 cm tall, with woody rootstock, covered in tangled woolly hairs. **Leaves:** Linear to linear–lanceolate, entire, to 7 cm long, glabrous on the upper surface, tomentose to villous beneath. **Flowers:** Inflorescence a dense spike, usually elongating at anthesis; floral bracts obovate, scarlet to various shades of red, entire of some with linear lateral lobes; upper part of bract glandular–pubescent, lower part villous; calyx equally cleft on both upper and lower sides, yellow and villous except scarlet and glandular–pubescent at the apex; corolla 25–30 mm long, exserted, upper hood as long or shorter than corolla tube, green and glandular–pubescent with red scabrous margins, lower lip green, lobes very short. **Fruits:** Ovoid loculicidal capsule 10–14 mm long, with numerous seeds. **Ecology:** Found on dry rocky slopes from 4,500–10,500 ft (1372–3200 m); flowers March–October. **Notes:** One of the more widespread *Castilleja* found in the region. Distinguished by the bracts being entire or toothed near the apex, much like *C. austromontana*, but different with its smaller linear, entire leaves. In our region there are two varieties: var. *gloriosa* and var. *integra*. There is not much clarity as to the variety distinctions, so it is a worthy collection to make. **Ethnobotany:** Used for burns, an infusion taken for stomach troubles, as a blood medicine, as a dye, as a ceremonial decoration, and as a preservative when mixed with chile. **Etymology:** Castilleja is for the Spanish botanist Domingo Castillejo (1744–1793), while integra means entire, undivided, or without teeth. **Synonyms:** None

Penstemon barbatus

beardlip penstemon

General: Perennial herb 30–110 cm tall, stems few from a stout, short–branched caudex, glabrous, ascending to erect, internodes often remote. **Leaves:** Blades 2–10 cm long, 1–20 mm wide, entire, glabrous, glabrate, or lower puberulent, basal ones spatulate to broadly oblanceolate, petioled, upper sublinear to filiform, sessile. **Flowers:** Inflorescence glabrous, secund, of 3–7 verticels, these remote, making the inflorescence wandlike; pedicels slender, ascending with cymes of 1–2 flowers; calyx 3–5 mm long, glabrous, the lobes ovate, obtuse to acute, sometimes apiculate, mostly entire, more or less scarious–margined, corolla 25–35 mm long, scarlet, glabrous externally, sometimes long pubescent on the palate, distinctly bilabiate, upper lip projecting and lower lip reflexed, anthers long–exserted. **Fruits:** Septicidal capsule. **Ecology:** Found on a rocky to sandy soil from 4,000–10,000 ft (1219–3048 m); flowers June–October. **Notes:** In our region we identify one subspecies: ssp. *torreyi*, which can be distinguished by having more slender stems, linear cauline leaves, the calyx is 3–5 mm long, and the corolla is glabrous at the base of the lower lobes with the palate bearing yellow hairs. Similar to *P. eatonii*, except that the corolla in *P. eatonii* has approximately equal lips. **Ethnobotany:** Taken for menstrual pain and stomachache, applied to burns, taken for cough, as a life medicine, for help in childbirth, as a veterinary aid, used as a magic medicine, taken as a diuretic, a hunting medicine, for decoration, and ceremonially. **Etymology:** Penstemon is from Greek pente, five and stemon, indicating the five stamens of the genus, while barbatus means bearded. **Synonyms:** *Penstemon barbatus* var. *coccineus*

Eriogonum wrightii

bastardsage, shrubby buckwheat

General: Perennial subshrub, to shrub, rarely scapose, 15–100 cm by 10–150 cm, sometimes matted 1–25 cm by 5–30 cm; lanate to thinly tomentose, or glabrous, grayish to greenish or reddish; stems spreading to erect, with or without peristent leaf bases, stems stout to slender. **Leaves:** Basal and clustered in terminal tufts, or cauline and clustered, occasionally with one per node, on petiole 0.02–0.5 cm, tomentose to floccose, blade oblanceolate to broadly elliptic, 0.1–3 cm by 0.1–1 cm, tomentose to floccose, sometimes subglabrous or glabrous and green above, plane margins, sometimes revolute. **Flowers:** Virgate inflorescence to cymose with involucres disposed at tips in racemosely arranged involucres, rarely capitate, 5–20 cm by 10–40 cm, dichotomous branches, tomentose, floccose, or glabrous, 3 bracts, trangular, scalelike, 0.5–3.5 mm; one involucre per node, turbinate to narrowly campanulate, 1–4 mm by 1–2.5 mm, with 5 teeth, erect, 0.3–1 mm; flowers 1–4 mm, perianth white to pink or rose, glabrous; tepals connate on the lower quarter, obovate, with exserted stamens 1.5–4 mm; filaments glabrous or sparsely pilose below. **Fruits:** Achenes light brown to brown 1.5–3 mm, glabrous. **Ecology:** Found in dry, rocky soils on flats and slopes from 3,000–7,000 ft (914–2134 m); flowers June–October. **Notes:** There are two varieties in Arizona: var. *nodosum* and var. *wrightii*. Var. *nodosum* is mostly found in the southwestern portion of the state and relegated to the low deserts, and can be told apart by its grayish flowering stems and branches, which are lanate to densely tomentose. Var. *wrightii* has more whitish, reddish or greenish stems, which are more tomentose to floccose; this variety is also more widespread throughout the state. **Ethnobotany:** Used as an emetic, the seeds were pounded into a meal and drunk as a beverage, or even eaten dry. **Etymology:** Eriogonum is from Greek erion, wool and phyllon, leaf, while wrightii is named for William Greenwood Wright (1831–1912) a California lepidopterist. **Synonyms:** None

Comandra umbellata

bastard toadflax

General: Erect perennial and glabrous herbs from rhizomes, plants 7–50 cm tall, root–parasitic on many angiosperms; stems striate, branching freely at base, but sparingly above; rhizomes 1–5 mm thick, cortex bluish when fresh. **Leaves:** Alternate, narrowly linear–lanceolate to ovate–oblong, entire, acute, firm, subsessile to short petiolate, 5–40 mm long, 1–10 mm wide, base acute to attenuate, tip acute to obtuse. **Flowers:** Terminal and subterminal clusters of 3–6 flowered cymes, each subtended by bract; flowers perfect, 3–7 mm across, pedicles 0–4 mm long, each subtended by bracteole; perianth rotate to turbinate or campanulate, the 5 lobes 3–4 mm long, white to pink or purplish, spreading to suberect, ciliolate, with long erect hairs below middle of inner surface which adhere to anthers; tube green persistent, shorter than lobes. **Fruits:** Ovoid to subglobose drupes, smooth to slightly roughened 4–8 mm long. **Ecology:** Found on slopes, often rocky from 500–8,500 ft (152–2591 m); flowers April–August. **Notes:** In our region there are two subspecies: ssp. *californica* and ssp. *pallida*. The former is distinguished by its broadly elliptic or subovate leaves and ovate to ovate–lanceolate leaves, 2–2.5 mm long, greenish above and paler bluish beneath. The latter is distinguished by its having linear to lanceolate leaves, rarely elliptic, gray green above and below, thick and succulent, essentially very glaucous leaves, and narrowly lanceolate perianth lobes 3–4 mm long. **Ethnobotany:** Unknown **Etymology:** Comandra comes from Greek kome, hair and ander, man, referring to the hairy attachment of the stamens, while umbellata refers to the way the flowers arise from a central point like an umbel. **Synonyms:** None

Phoradendron coryae

Cory's mistletoe, oak mistletoe

General: Aerial parasitic shrub usually found on *Quercus*, with shoots to 1 m, mostly short pubescent, gray–green, with internodes 2–3 cm long. **Leaves:** Obovate–elliptic to circular, 1.5–3 cm long, 1.5–2.5 cm wide, densely pubescent. **Flowers:** Inflorescence a staminate spike with 2–3 fertile segments, each with 25–40 flowers in 3 rows per segment; pistillate spikes have 2–3 fertile segments, each with 25–40 flowers in 3 rows per segment; flowers pubescent. **Fruits:** White, berrylike, short hairy around the persistent perianth segments, about 3 mm in diameter. **Ecology:** Found on *Quercus*, *Condalia*, *Berberis*, *Vaquelinia*, and *Sideroxylon* in oak woodlands below the Mogollon Rim from 4,000–9,000 ft (1219–2743 m); flowers July–September. **Notes:** Distinguished not only by its host plant but also by its wide pubescent leaves, usually more than 1 cm in width. The species name is possibly changing to *P. serotinum* ssp. *tomentosum*. Stay tuned. **Ethnobotany:** Unknown but other species in the genera have uses. **Etymology:** Phoradendron is from Greek phor, a thief and dendron, tree—hence tree thief because of its parasitism, while coryae is of uncertain orgin. **Synonyms:** *Phoradendron havardianum*, *P. villosum* ssp. *coryae*

Heuchera sanguinea

coralbells

General: Perennial from woody rhizomes, scapose stems 20–40 cm tall. **Leaves:** Basal, blades 1–7 cm long, ovate, moderately 7–10 lobed, lobes rounded ciliate with bristle tipped teeth, glabrous on upper surface, hirsute on veins below; petioles pubescent, 1.5–50 cm long. **Flowers:** Inflorescence open, cylindrical to pyramidal panicle with 0–2 leaf–like bracts, 20–60 cm tall; flowers 4–12 mm long, bright pink to deep red, glandular hairy, 5–merous; hypanthium funnelform to urceolate, 1–3 mm long, pyramidal; sepals 1–4 mm long, equal, ovate–oblong, erect; petals, 0.5–3.5 mm long, oblanceolate, white to pink; stamens shorter than sepals. **Fruits:** Two valved capsule. **Ecology:** Found on rocky canyon walls and outcrops to moist rocky areas from 3,500–9,500 ft (1067–2896 m); flowers March–October. **Notes:** This plant is distinctive in its cliffside and rocky habitat, often in a narrow cleft on rock faces, especially notable are its red flowers with are distinctively 5–merous and with its ovate leaf blades. **Ethnobotany:** Unknown **Etymology:** Heuchera is named for Johann Heinrich von Heucher (1677–1747), professor of medicine and botanist at Wittenberg, Germany, while sanguinea means blood red. **Synonyms:** None

Datura wrightii

sacred thrornd–apple

General: Perennial herbs; spreading and branching; herbage grayish–green; 50–180 cm tall. **Leaves:** Leaves alternate with short petioles and toothed lobes, usually asymetric at the base, 4–15 cm long, grayish–green and short–pubescent. **Flowers:** Calyx tube 6–10 cm long with 1–3 cm long teeth; corolla white, often with hints of lavender or purple, 15–25 cm long, with 5–10 slender teeth that are 5–20 mm long; anthers white or lavender, 15 mm long. **Fruits:** Capsule round, 3–4 cm in diameter, nodding, and very prickly; prickles 5–12 mm long; seeds flat and cream–colored. **Ecology:** Found in creosote brush, Joshua tree, sagebrush, and pinon–juniper communties from 1,000–6,500 ft (300–1980 m); flowers April–October. **Notes:** Characterized by its spreading habit, large ovate leaves, and large white funnel–shaped corolla. Entire plant is poisonous. **Ethnobotany:** Apache use plant juice, flower, roots as disinfectant. Cahuilla and others use leaf powder to make ointment for setting bones. Also used as antidote for tarantula, snake, spider and poisonous insect bites. In Cahuilla given to Shaman so he may visit the land of the dead and offer messages to those living. In other tribes given to medicine men to "see" the disease and give proper diagnosis. Used in numerous tribes in ceremonies marking boy initiation into manhood. Plant is most poisonous narcotic known. **Etymology:** Datura is an ancient Hindu name. Wrightii named for Charles Wright (1811–1885), an American botanical collector. **Synonyms:** *D. inoxia, D. meteloides, D. metel*

Vitis arizonica

canyon grape

General: Native, sprawling or weakly climbing perennial vine; stems generally 2–6 m long; the young twigs densely woolly, but losing this over time and the bark becoming shreddy. **Leaves:** Broadly cordate, 3–10 cm long and about as wide, irregularly toothed and sometimes shallowly 3–lobed, more–or–less cottony hairy; petiole 1–3 cm long; tendrils opposite the leaves, more–or–less branched, withering quickly if not attached to something. **Flowers:** Inflorescence opposite leaves, usually branched, 2–10 cm long; flowers with five, white petals. **Fruits:** Edible (but sometimes bitter) grapes, 8–10 mm thick, black. **Ecology:** Generally in canyons and along streams from 2,000–7,500 ft (610–2286 m); flowers April–July. **Notes:** Characterized by a sprawling or vine–like habit; broad, irregularly–toothed leaves with tendrils opposite; and inflorescences opposite of the leaves that bare dark purple to black grapes. **Ethnobotany:** Navajo use in courtship gifts. Apache dry and eat fruits like raisins, eaten fresh. Havasupai use to make toys/games, other tribes have uses as well. Leaves can be salted and soaked and used similarly like domesticated grape leaves. **Etymology:** Vitis is Latin for vine. **Synonyms:** *Vitus treleasei*

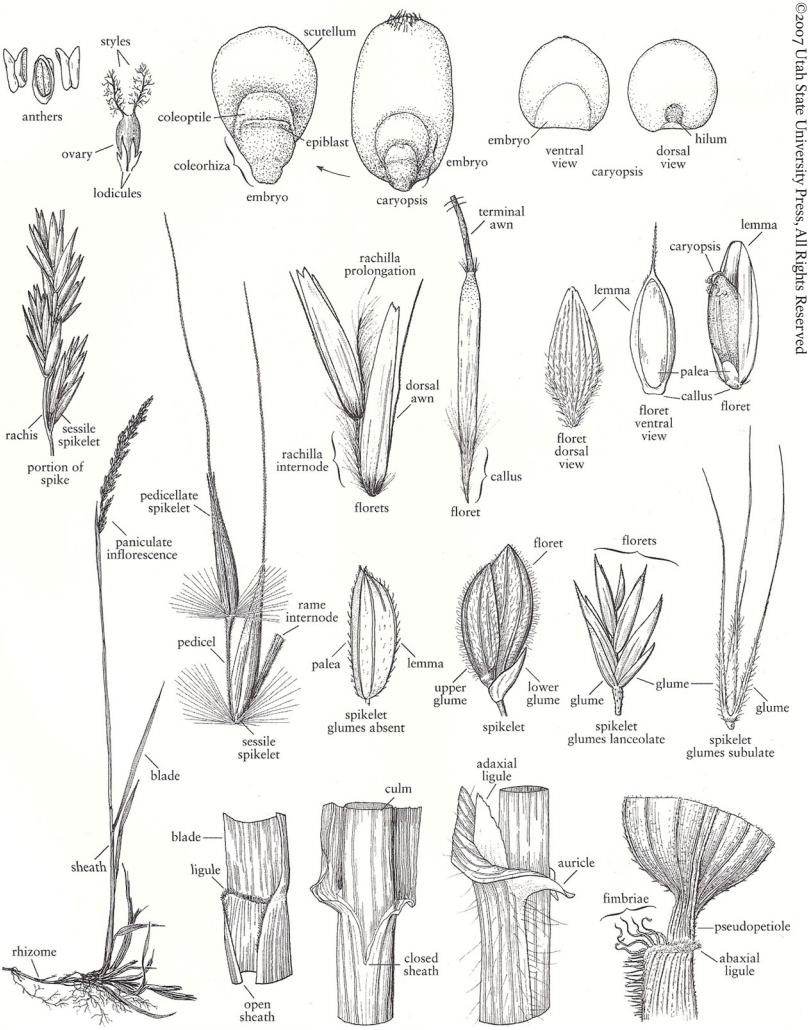
Grasses are the single most important plant family to human beings. If you had cereal this morning, or enjoyed bread with your sandwich, or really liked that corn tortilla you ate, then you have grasses to thank. Grasses account for the majority of our food calories as a human family and most of these grasses come from a limited number of species.

Wild grasses on the other hand, are not so limited in their diversity and are a significant proportion of the biomass that is found in our forests and woodlands and grasslands. While we might easily recognize a ryegrass or a corn plant, we are less likely to recognize vine mesquite (*Hopia obtusa*) or even the highly invasive buffelgrass (*Cenchrus ciliaris)*.

Grasses are herbaceous plants too, in that they are not woody and die back to their roots at the end of each growing season. What is different about grasses is that they do not have all the same plant structures that angiosperms have. The grasses notably lack the vibrant color of flowers, or lack petals for that matter, but they do have pollen and once pollinated grasses produce seed the same as other plants do.

There is only one grass family, the Poaceae, but there are other families that look like grasses. Sedges have edges and rushes are round, goes a simple mnemonic that all botany students are taught. We include only grasses in this guide because these two other families are notoriously difficult to get down to the species level. The translation is that the family Cyperaceae (sedges) have three sides and so have edges, while the family Juncaceae (rushes) are round and often hollow like grasses.

Grass structures



Aristida purpurea

purple threeawn

General: Erect, small, annual/perennial bunchgrass, elliptical stem, can be (but not often) branched at lower nodes, 30–60 cm tall. **Vegetative:** Blades 0.5 mm wide, 2–8 cm long, rolled, curved, rough, ribs indistinct, margin occasionally hairy, sheath smooth, round, open, ligule ciliate, about 0.5 mm long, collar with hairy margin, bearded. **Inflorescence:** Panicles 10–25 cm long, flexuous and curving in fruit, weighed down, spikelets reddish–violet; glumes very unequal, lower glume 6–7 mm long, upper 12–15 mm. Lemma 10–11 mm to base of awns; awn column 1–2 mm long, awn 3–4.5 cm long, fine and delicate, deeply colored. **Ecology:** Rocky or sandy plains and slopes, found commonly along roadsides from 1,000–7,000 ft (305–2134 m); flowers April–October. **Notes:** Blades rolled, thread–like, curved, short collar bearded; ligule has conspicuous hairs, purple awns 2–5 cm long. Awns can cause abscesses to the mouths and nostrils of grazing animals and injury to skin when caught on fur. This is a large complex of species with great variation and many varietites. Of note is *Aristida purpurea* var. *purpurea*, a species that is similar but distinct and can be told apart chiefly by its smaller spikelets; the first glume is 4–5 mm long; lemma 7–8 mm long, and awns about 2 cm long. *A. purpurea* var. *purpurea* is formerly referred to as *A. roemeriana*. Another notable variety is var. *parishii*, which is distinguished by the lower glumes being three–quarters to equaling the upper glumes. All these varieties intergrade, so take a sample. **Etymology:** Aristo is Greek for best. Purpurea is Latin for purple. **Synonyms:** None

Aristida ternipes

spidergrass

General: Coarse, tufted perennials 0.5–1 m, flowers in first season; roots tough and wiry. **Vegetative:** Leaf blades firm, narrow, involute on drying; upper surface glabrous or with short, rough hairs; ligules glabrous or with a sparse tuft of loose hairs. **Inflorescence:** Openly branched panicles, branches spreading to approximately 90 degrees, glumes subequal (spikelets at first often showing only one glume, lower glume develops with age); branchlets and spiklets conspicuously appressed along the primary branches; lemma tapering to short, stout, scabrous, straight or only slightly twisted awn column. **Ecology:** Found on rocky slopes and plateaus, as well as disturbed soils from 2,500–5,500 ft (762–1676 m); flowers summer. **Notes:** There are two varieties in the region var. *gentilis* and var. *ternipes*. Var. *gentilis* has an upper glume 12–14.5 mm, lemma 10–12 mm; 3 well developed awns, 12–20 mm. Var. *ternipes* has an upper glume 10–15 mm, lemma 13–19 mm, often moderately curved, with one well–developed awn, straight or sometimes curved, 11–14 mm. **Etymology:** From Latin arista for awn, while purpurea is Latin for purple, ternipes is from Latin terni, three and the suffix –pes referring to the stalk. **Synonyms:** Var. *gentilis: Aristida hamulosa, A. ternipes* var. *hamulosa, A. ternipes* var. *minor.* Var. *ternipes:* None

Bothriochloa barbinoidis

cane beardstem

General: Robust tufted perennial from 0.75–1 m, usually villous with dense tufts of long, white hairs at nodes, at ligules and on inflorescences. **Vegetative:** Leaves drying reddish–brown, the bases semipersistent, flat. **Inflorescence:** Panicle cottony and white, 7–11 cm, with numerous branches clustered at the top of the tail, nearly naked stems; rachis joints and pedicels with hairs to 6–8 mm. Glumes equal but different shapes, lower glume broad, green and flat to concave on the back, upper glume markedly humpbacked or V–shaped with a blunt keel. **Ecology:** Found in open range lands, on dry, rocky or sandy slopes and plains, abundant on some graded roadsides from 1,000–6,000 ft (305–1829 m); flowers August–September. **Notes:** The dense tuft at the nodes is diagnostic. This plant responds very well to fire and is a prolific seed producer. The reddish tint of the cured herbage is notable. **Ethnobotany:** Other species in the genera have medicinal uses. **Etymology:** Botriochloa is from the Greek bothros, a pit or hole, and chloe or chloa, grass. **Synonyms:** *Andropogon barbinodis, A. perforatus, Bothriochloa barbinodis* var. *palmeri, B. barbinodis* var. *perforata, B. palmeri*

Bouteloua chondrosioides

sprucetop grama

General: Tufted perennial, culms firm but not rhizomatous and hard at the base, mostly 30–60 cm tall. **Vegetative:** Rounded sheaths, blades glaucous, short, flat, 1–2.5 mm broad, mostly in a basal clump; not curled. **Inflorescence:** Usually three to seven broad, dense, erect or slightly spreading, more or less pectintate spicate branches mostly 1–1.5 cm long, excluding the awns, these borne on the upper 2–6 cm of the culm axis; spicate branches with a flattened, densely hairy rachis and numerous closely placed spikelets, deciduous as a whole; all exposed structures of the spikelets more or less hairy; fertile lemma three–cleft, the divisions with short awns; rudiment large, long–awned, cleft nearly to the base, the middle awn broadly winged below. **Ecology:** Found on dry rocky slopes and rolling desert grassland with fine–textured soils from 2,500–6,000 ft (762–1829 m); flowers August–October. **Notes:** Good for forage, distinguishable from the similar *B. repens* by the pubescence on all surfaces of the spikelets. **Ethnobotany:** Unknown, see other species in genera for other uses. **Etymology:** Bouteloua named for brothers Claudio (1774–1842) and Esteban (1776–1813), Spanish botanists and horticulturalists. **Synonyms:** *Chondrosum humboldtianum, Dinebra chondrosioides*

Bouteloua curtipendula

sideoats grama

General: Large, erect, perennial, tufted bunchgrass; elliptical–round stem, rarely branched, 35–100 cm tall; fibrous roots with short rhizomes (slender or stout), solitary or in large groups. **Vegetative:** Blades evenly distributed, flat or folded when dry, long, drooping, rough above, pustular–based hairs on margin of blade near collar, 2–7 mm wide, 2–30 cm long, sheath with papery margin, open, rounded, ligule thin and translucent, truncate, irregularly toothed, 0.2–0.6 mm long, collar with hairy margin and occasionally glandular. **Inflorescence:** Panicle with 20–50 short, deciduous spicate branches (1 cm long) that hang off main inflorescence stem, branches 10–30 mm with 2–7 short awned spikelets; spikelets with 1 perfect floret and 1 rudimentary floret; glumes unequal, half as long as upper glume, upper glume as broad and long as lemma, lemma 4–7 mm, with short awns or awnless; usually short awns on glumes and lemmas, palea unawned, slightly shorter than lemma; anthers red to yellow. **Ecology:** Found on limestone outcrops, rocky slopes, woodlands and forest openings from 2,500–7,000 ft (762–2134 m); flowers June–November. **Notes:** There are generally two varieties in Arizona: var. *curtipendula* and var. *caespitosa*. Var. *curtipendula* can be distinguished by being long–rhizomatous, with culms solitary or in small clumps. Var. *caespitosa* are not long–rhizomatous, bases sometimes knotty with short rhizomes, culms in large or small clumps. A third variety, var. *tenuis* is endemic to Mexico, but a single collection has been made in the Huachuca Mountains. This variety does not have very long rhizomes, and has conspicuously curled blades. **Ethnobotany:** Tewa made dried grass bundles into brooms, and brushes. **Etymology:** Bouteloua named for brothers Claudio (1774–1842) and Esteban (1776–1813), Spanish botanists and horticulturalists, Curtipendula is Latin for shortened hanging pendant. **Synonyms:** None

Bouteloua hirsuta

hairy grama

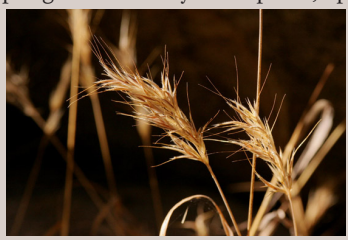
General: Moderately tufted perennial, occasionally stoloniferous, culms 15–75 cm, erect or decumbent, sometimes branched basally, others aerial; internodes glabrous or sparsely to densely pubescent. **Vegetative:** Leaf blades sparsely papillose–hirsute or ciliate, basal or cauline, 1–30 cm long, 1–2.5 mm wide, flat to involute; sheaths glabrous, pilose near ligules; ligules ciliate 0.2–0.5 mm. **Inflorescence:** Panicles with 0.7–18 cm rachises with 1–6 branches, sometimes digitate; rachis curved or deflexed at stout, pubescent base; branches 10–40 mm with 20–50 spikelets; disarticlation above glumes; glumes lanceolate, awn–tipped; spikelets pectinate, green to dark purple; lemma usually 4–5 mm long, more or less appressed–pubescent. **Ecology:** Found on rocky slopes to shaded openings to rocky soils from 4,000–6,500 ft (1219–1981 m); flowers August–October. **Notes:** Pay attention to the tip of the rachis and how it extends past the florets, that is diagnostic. Var. *hirsuta* was formerly *B. glandulosa*, which can be told apart by its conspicuously papillose–hirsute culms and slightly longer awn, making the spike more bristly. Var. *hirsuta* is also not as densely tufted. Similar in appearance to *B. gracilis* but distinctly hirsute, often with a bluish tinge to the hairs at anthesis. **Ethnobotany:** Used ceremonially and as fodder. **Etymology:** Bouteloua named for brothers Claudio (1774–1842) and Esteban (1776–1813), Spanish botanists and horticulturalists, while hirsuta means covered with hair. **Synonyms:** None

H M L Impact risk level

Bromus rubens

red brome

General: Introduced invasive annual, 20–50 cm tall, often less on dry slopes. **Vegetative:** Lower sheaths and blades pubescent, blades 1–2 mm wide, 2–6 cm long, flat; sheath closed to within a few cm of ligule; ligule membranous, erose to lacerate, 1–2.5 mm long. **Inflorescence:** Panicle several–flowered, 4–8 cm long including awns, dense, branches short and erect; spikelets, especially the awns, usually dark reddish brown or purple tinged at maturity; lemma awns 1.5–2.5 cm long, straight or curved, margin of lemma hyaline. **Ecology:** Widespread exotic that spreads on overgrazed rangeland below 7,000 ft (2134 m); flowers spring. **Notes:** Very widespread, spreads with fire and overgrazing, sheep will eat it but only for a short period. **Ethnobotany:** Unknown **Etymology:** Bromus comes from Greek bromo for stinking, while rubens means red. **Synonyms:** *Anisantha rubens, Bromus madritensis* ssp. *rubens, B. matritensis* ssp. *rubens*



Impact risk level H M L

Cenchrus ciliaris

buffelgrass

General: Wickedly invasive, introduced perennial bunchgrass with erect culms 10-150 cm tall, forming thick mats or tussocks with dense, usually stoloniferous roots. **Vegetative:** Sheaths scabrous, leaf blades bluish-green, 3-30 cm long, 2-6 mm broad, papillose-hispid to occasionally hirsute; ciliate near the ligule; ligule densely ciliate, membranous portion very short. **Inflorescence:** Usually 5-10, cylindrical in outline, 2-14 cm long; spikelets clustered, surrounded by spreading bristles, slender or some flattened and broad, reddish-brown to purple, scabrous to plumose or ciliate, 1-1.5 cm long; spikelets 4-5 mm long, first glume half as long as spikelet, second glume and sterile lemma equal. **Ecology:** Found widespread in disturbed habitats, spreads very quickly on abandoned land below 3,000 ft (914 m); flowers July-October. **Notes:** This plant is rapidly altering the fire regime of the Sonoran Desert, enormous concern over the fate of this species. Was still being seeded into the 1980s, while the Mexicans have continued to seed depleted rangeland with this species. **Ethnobotany:** Unknown **Etymology:** Cenchrus is thought to be from Greek kenchros, millet, while ciliare means edged with hairs. **Synonyms:** *Pennisetum ciliare*

H M L

Impact risk level

Cenchrus setaceus

crimson fountaingrass

General: Cespitose perennial with erect culms 40–150 cm, pubescent beneath the panicle, with glabrous nodes. **Vegetative:** Green leaves, sometimes glaucous, glabrous sheaths with ciliate margins; ligules 0.5–1 mm, blades 20–65 cm long, 2–3.5 mm wide, convolute or folded, scabrous, with a noticeably thickened midvein. **Inflorescence:** Panicle 8–32 cm long, 40–52 mm wide, erect or arching, pink to dark burgundy with a pubescent rachises; spikelets in fascicles 8–10 per cm, axes 2–4.5 mm, with 1–4 spikelets; two sets of bristles, outer 28–65, 1–19 mm long, inner 8–16, 8–27 mm, ciliate; spikelets 4.5–7 mm, sessile or pedicellate, pedicels to 0.1 mm; lower glumes absent or to 0.3 mm, veinless, upper glumes 1–3.5 mm, 1–veined, lower florets usually sterile. **Ecology:** Found in a variety of habitats throughout the desert regions; flowers spring. **Notes:** Native to the Mediterranean this was a popular ornamental that has become a problem invasive weed. Easily distinguished by its red and almost plumose panicle. **Ethnobotany:** Unknown **Etymology:** Pennisetum is form Latin penna, feather and seta, a bristle, while setaceum means bristled. **Synonyms:** *Pennisetum setaceum, P. ruppelii, Phalaris setacea*

H M L

Impact risk level

Cynodon dactylon

Bermudagrass

General: Perennial with stolons and rhizomes, obvious internodes that forms extensive mats, culms mostly creeping and stoloniferous, short internodes. **Vegetative:** Leaves 2–ranked, flat, short, narrow, usually 1–3 mm broad, ligule a fringe of short hairs and lateral tufts of long stiff hairs. **Inflorescence:** Spikes 4–7, digitate, slender, often 2.5–6 cm, purplish to green, spikelets sessile and closely appressed, in two rows on narrow, triangular rachis. **Ecology:** Found everywhere, very widespread weed below 6,000 ft (1829 m). **Notes:** One of the most common introduced grasses in Arizona. In many places it has been planted as a pasture grass, which makes it particularly common along the Santa Cruz River and other waterways in southern Arizona. **Etymology:** Cynodon is from Greek meaning dog tooth, and dactylon is from Greek daktylos, finger or toe. **Synonyms:** *Capriola dactylon, Cynodon aristiglumis, C. incompletes, Panicum dactylon*

Dasyochloa pulchella

fluffgrass

General: Dwarf, tufted perennial, appears annual, numerous culms, 5–14 cm, wiry, mainly of single elongated internode bearing clustered fascicle of leaves and spikelets at apex; fascicle bends over to ground and rarely takes root. **Vegetative:** Blades 1–5 cm long, 0.5 mm wide, involute, margins firm and often white; ligule a low ciliate fringe less than 0.5 mm long, sheath open, striate, margins ciliate, collar glabrous except for long marginal hairs. **Inflorescence:** Compact and dense, capitate clusters of sessile or short–pedicelled spikelets, exceeded in length by subtending leaf blades; spikelets 7–13 mm long, 6–12 flowered, glumes subequal, acuminate, scarious, as long as spikelet but spreading, glumes and lemmas papery, sometimes purple–tinged, glumes with green midvein; lemmas 3–5 mm, densely pilose with long hairs on each of the 3 green veins, tip deeply 2–lobed with stout awn 1–2 mm long between lobes. **Ecology:** Found on dry rocky slopes and flats below 6,000 ft (1829 m); flowers summer and fall. **Notes:** This is one of the most hardy of the small perennial grasses, it responds to very little rainfall and is often found on overgrazed or denuded soils. **Etymology:** Dasyochloa is from the Greek dasys, shaggy, thick, hairy, rough, while pulchella is derived from the Latin for beautiful. **Synonyms:** *Erioneuron pulchellum, Tridens pulchellus, Triodia pulchella*

Digitaria californica

Arizona cottontop

General: Erect culms from swollen, knotty base, 40–100 cm tall, glabrous. **Vegetative:** Sheaths longer than internodes, open, lower ones pubescent; blades flat or folded, glaucous, bluish–green, 3–4 mm wide, 8–12 cm long, pustulate hairs on upper side near ligule, sometimes sparse; ligule membranous, obtuse, erose, 1.5–2.5 mm long. **Inflorescence:** Contracted panicle 8–20 cm long with few branches, these erect, appressed; spikelets 3–4 mm long, excluding hairs, second glume narrow densely villous with soft white–silky, hairs tinged with purple, 2–4 mm long; sterile lemma broad, three–nerved, villous on margins but glabrous on internerves; caryopsis ovate–lanceolate, narrowing to short awn. **Ecology:** Found on open, well–drained soils, often on steep, rocky slops from 1,000–6,000 ft (305–1829 m); flowers August–November. **Notes:** Cottony spikelet, along with its upright habit and erect culms help to distinguish this species. **Ethnobotany:** Unknown **Etymology:** Digitaria is from Latin digitus, a finger and californica is for California. **Synonyms:** *Trichachne californica*

Eragrostis intermedia

plains lovegrass

General: Densely tufted erect perennial, culms 55–90 cm tall. **Vegetative:** Sheaths rounded on the back, keeled, lower compressed, one margin ciliate; blades involute, 1–3 mm wide, 10–25 cm long, flat, glabrous except for few long hairs above ligule; ligule a dense row of white hairs 0.5 mm long; collar pilose, margins pilose. **Inflorescence:** Panicles broadly pyramidal, open, decompound, 20–40 cm long, 15–30 cm wide, branches ascending to spreading, lower sometimes reflexed, slender, flexuous, solitary or sub–opposite, 10–25 cm long, axils pilose; spikelets oblong to narrowly lanceolate, compressed, grayish–green to purple tinged, 4– mm long, 1.5–2 mm wide, 5–11 flowered, rachilla disarticulated; glumes hyaline, compressed, keeled, scabrous on the keel, first acuminate, lanceolate second acute, ovate; lemmas ovate, acute, rounded on back, loosely imbricate, inconspicuous lateral nerves; caryopsis oblong, striate. **Ecology:** Found on sandy and rocky slopes and plains, from 4,000–5,000 ft (1219–1524 m); flowers June–October. **Notes:** The combination of the open, broadly pyramid–shaped, and reddish inflorescence are diagnostic. Panicles will break loose and roll in the wind after anthesis. **Etymology:** Eragrostis is from Greek eros, love and agrostis, grass, intermedia means intermediate. **Synonyms:** None

Impact risk level H M L

Eragrostis lehmanniana

Lehmann lovegrass

General: Tufted perennial, erect or ascending, sometimes decumbent and geniculate at lower nodes, 45–60 cm tall; stems bent at lower nodes. **Vegetative:** Sheaths one–third to one–half the length of the internodes, open, glabrous except for sparse pilose apex of margins; blades involute, about 1 mm wide, 2–10 cm long, stiffly ascending, sometimes grossly flexuous, 5–15 cm long; ligule ciliate, 0.5–1 mm long; collar pilose at the margins. **Inflorescence:** Narrowly oblong to lanceolate, open, 10–15 cm long, 4–8 cm wide, rachis glabrous to slightly scabrous, branches ascending to slightly spreading; spikelets slightly compressed, often dark gray–green to straw colored, several to 12–flowered, rachilla disrticulating; glumes hyaline, keeled, scarcely compressed, first lanceolate 1–1.5 mm, second ovate–lanceolate about 1.5 mm long; lemmas oblong, obtuse, very little compressed or keeled; caryopsis ellipsoidal. **Ecology:** Introduced widely beginning in the 1930s, now widespread in grasslands and along roadsides from 3,000–4,500 ft (914–1372 m); flowers June–August. **Notes:** One of the most charismatic of the African introductions from earlier in the century, it was used extensively as an erosion control and range revegetation plant, but now it is changing fire–regimes and altering greater areas every year, often the first and sometimes only grass greening up in the landscape. **Etymology:** Eragrostis is from Greek eros, love and agrostis, grass, lehmanniana is named for German botanist Johann Georg Christian Lehmann (1792–1860). **Synonyms:** None

Heteropogon contortus

tanglehead

General: Small tufted perennial, 20–150 cm, smooth reddish sheaths, compressed–keeled, mostly glabrous with few long hairs at junction with blade, branches well above base. **Vegetative:** Blades 10–15 cm long, 2–7 mm wide, folded or occasionally flat, glabrous but for occasional pustulate hairs on margins, prominent midvein; ligule half membranous, half ciliate, 0.5–1 mm, membranous portion often brown, hairs white. **Inflorescence:** Racemes 3–7 cm long, second with 12–22 brown to reddish–brown, sessile–pedicellate spikelet pairs, rachis joints readily disarticulating at maturity; glumes of staminate spikelet 7 mm long, bright green, several–nerved, variously hirsute or sparsely papillose–hispid, without impressed glands; fertile spikelets about 1 cm long from the base of long, stiffly–hispid callus to the glume apex; awn of fertile lemma stout, twisted, twice geniculate 6–10 cm, pubescent below with spreading hairs. **Ecology:** Found on open, dry, rocky and sandy plains and slopes from 1,000–5,500 ft (305–1676 m); flowers August–October. **Notes:** Occupies a variety of habitats, including disturbed habitats where it establishes well. **Ethnobotany:** Unknown **Etymology:** Heteropogon is from Greek for differently or variously bearded, while contortus means twisted. **Synonyms:** *Andropogon contortus*

Hilaria mutica

tobosagrass

General: Rhizomatous perennial, culms 30–60 cm, erect, geniculate at the middle nodes, slender, tough and wiry; glabrous or scabrous–puberulent at the nodes. **Vegetative:** Sheaths glabrous or sparsely pilose on the margins, blades 2–4 mm wide, 5–10 cm long, flat or rolled, glabrous to scabrous with papillose–based hairs behind the ligules; ligules 0.5–2 mm, lacerate with few hairs 2 mm behind the ligule; collar margins villous. **Inflorescence:** Spikes 4–8 cm long with 8–25 spikelet clusters, mostly 6–9 mm long, the three spikelets subequal, with tuft of hairs mostly 1–3 mm long at the base; glumes thin, papery, dorsally awned, awns not exceeding apices, veins excurrent, lemmas exceeding glumes. **Ecology:** Found on dry, exposed, sandy to rocky slopes and plains from 2,000–6,000 ft (610–1829 m); flowers throughout the year. **Notes:** Very drought tolerant, has the ability to become totally dormant as soil moisture drops. Once seeds drop at maturity they leave a zigzag seed stalk. **Ethnobotany:** Unknown **Etymology:** Hilaria is named for Auguste St. Hilaire, a French naturalist, while mutica means blunt. **Synonyms:** *Hilaria mutica*

Hopia obtusa

vine mesquite

General: Stoloniferous perennial, sod–forming, 20–80 cm tall, wiry culms, glabrous with swollen and densely hairy nodes; rhizomes to 1 m or more. **Vegetative:** Sheath open, glabrous occasionally villous at base; blades light blush green, flat, 2–7 mm wide, 5–20 cm long, midvein prominent and white; ligule membranous, 1–2 mm long, obtuse, entire or sometimes lacerate. **Inflorescence:** Contracted raceme 13 mm or less broad, 3–14 cm long with short, mostly simple and appressed branches; spikelets oblong or obovate, mostly 3.5–4 mm long, glabrous, subsessile on one side of branches; first glume equaling or slightly shorter than second; fertile lemma 3 mm long, smooth, obovate. **Ecology:** Found on swales, mud flats, heavy–soiled lowlands, marshlands from 1,000–6,000 ft (305–1829 m); flowers May–October. **Notes:** Cures light reddish then grayish tan; large brown seeds help set it apart. **Ethnobotany:** Plant was used as fodder, while roots were used as shampoo, and the seeds were eaten. **Etymology:** Panicum is a classical Latin name for millet, obtusum means blunted. **Synonyms:** *Panicum obtusum*

Muhlenbergia emersleyi

bullgrass

General: Erect, tall perennial bunchgrass; elliptical stem, not branched. **Vegetative:** Blades firm, long, slender, usually folded, 2–5 mm wide, 15–35 cm long; rough–textured on the lower surface, margins very rough–textured; 3–4 veins on each side of midrib. Sheath open, basal ones are compressed–keeled, smooth and veined. Ligule 10–25 mm long, thin and translucent, thin and often rayed/broken at slender tip, edges can appear torn. **Inflorescence:** Panicle 10–40 cm long, many flowered, usually dense (never widely spreading). Inflorescence bare of spikelets near the base. Glumes broad, membranous, awnless, exceed lemma. Lemma 2–3.5 mm long, usually pubescent below. Awn 1–2 cm long, born between minutely notched apex. **Ecology:** Rocky slopes, ledges, forest openings, in dry soil from 3,500–6,500 ft (1065–1980m); flowers June–November. **Notes:** A perennial bunchgrass which is common on slopes in the desert grasslands. Distinguished from the similar *M. longiligula* by virtue of the compressed keeled culm, check near the base where it meets the tussock. *M. longiligula* has the long ligule and rounded culms. **Ethnobotany:** Unknown **Etymology:** Muhlenbergia is named for Gotthilf Heinrich Ernst Muhlenberg (1753–1815), while emersleyi is named for John D. Emersley an American botanist who collected in the Southwest in the 1880s–1890s. **Synonyms:** *Muhlenbergia gooddingii*

Muhlenbergia montana

mountain muhly

General: Densely tufted perennial with culms 10–80 cm, rounded near the base, glabrous internodes, smooth to scabridulous internodes, becoming flattened, papery, occasionally spirally coiled in age. **Vegetative:** Blades 6–25 cm long, 1–2.5 mm wide, flat, becoming involute, scabrous below, hirsute above, ligule membranous and delicate, 4–14 mm, acute to acuminate. **Inflorescence:** Panicles 4–25 cm long, 2–6 cm wide, not dense, yellowish green to purple tinged, primary branches 0.5–10 cm, appressed or diverging up to 40 degrees from the rachises, pedicels shorter than spikelets, spikelets 3–7 mm; glumes subequal, 1.5–3 mm, thin and smooth or scabridulous toward tip, lower glume with 1–vein, awn less than 1 mm, upper one third to half as long as the lemmas, 3–veined, truncate to acute, teeth sometimes awned, awns to 1.5 mm; lemmas 3–4.5 mm, lanceolate, scabrous or variously pubescent on back or the base, blotched with purple, topped with an awn 6–25 mm, flexuous. **Ecology:** Found on rocky slopes, in forest openings, dry meadows and ridge tops from 4,500–11,500 ft (1676–3505 m); flowers July–November. **Notes:** Distinctive bunch grass in the pine forests, it is difficult to distinguish from *M. straminea* which overlaps in distribution but has leaves that are much more tightly curled as they dry and flowers in spring, rather than fall. **Ethnobotany:** Unknown **Etymology:** Muhlenbergia is named for Gotthilf Heinrich Ernst Muhlenberg (1753–1815), while montana means of the mountains. **Synonyms:** *Muhlenbergia trifida*

Muhlenbergia rigens

deergrass

General: Stiffly erect perennial bunchgrass with densely clumped stems from a hard knotty base, 60–150 cm tall. **Vegetative:** Blades firm, grayish, usually margins rolled upward, 10–50 cm long, tapering to a tip; sheaths rounded, flat with age; ligule thin and translucent, truncate, with slight lobes on either side, 0.5–2 mm long. **Inflorescence:** Panicle dense, spicate 15–60 cm long, seldomly more than 1 cm thick; glumes subequal, lance–shaped, rough–textured, taper to a pointed tip or tipped with an abrupt, sharp point, half to nearly as long as lemma; lemma 2.5–4 mm long, inconspicuously nerved, slightly pilose on callus, tapers to a pointed tip, occasionally with short, abrupt, sharp tip. **Ecology:** Found along gravelly or sandy canyon bottoms or washes, often in moist soil, less frequently on dry plateaus and meadows from 3,000–8,500 ft (914–2286 m); flowers July–October. **Notes:** Perennial bunchgrass with long, narrow, spicate inflorescence that is very distintictive. **Ethnobotany:** Unknown **Etymology:** Muhlenbergia is named for Gotthilf Heinrich Ernst Muhlenberg (1753–1815), while rigens is Latin word for stiff. **Synonyms:** *Epicampes rigens, Muhlenbergia marshii, M. mundula*

Piptochaetium fimbriatum

piñon ricegrass

General: Perennial bunchgrass with culms 35–95 cm, usually glabrous, pubescent below the 2–3 nodes, nodes often dark, glabrous; with smooth glabrous sheaths. **Vegetative:** Blades usually involute to filiform, fine, mostly 1 mm or less in diameter, 6–26 cm long, rarely flat, usually in basal tuft; ligules truncate to rounded, to 2 mm in upper leaves. **Inflorescence:** Open panicle 6.5–25 cm, partially enclosed in upper leaf sheath, with 20–60 spikelets, branches flexuous and slender, pedicels 4–12 mm, flattened; glumes subequal, thin, broad and acuminate 4–6.2 mm long, 1.5–3 mm wide, 5–7 veined, partially purplish, florets 3–5.5 mm long, 0.5–2 mm thick, laterally compressed, rectangular to obovate in profile, disarticulating above the glumes; calluses 0.5–2 mm, blunt to acute, strigose; lemma thick pubescent, tan to light brown, with twice geniculate persistent awns 11–20 mm, lower segments twisted and scabrous. **Ecology:** Found in oak and piñon woodlands from 5,000–7,000 ft (1524–2134 m); flowers July–September. **Notes:** Distinctive with its fine blades in a large bunch, along with the twice geniculate awns and the curving slender culms at anthesis, distinguished from the similar *P. pringlei* by the shorter florets, the lemma hairs that can be easily rubbed off, and the more acute calluses. **Ethnobotany:** Unknown **Etymology:** Piptochaetium is from Greek pipto, to fall and chaite, for bristle or long hair, while fimbriatum means fringed. **Synonyms:** *Piptochaetium fimbriatum*, *Stipa fimbriata*

Setaria leucopila

streambed bristlegrass

General: Tufted perennial, 20–100 cm, usually pale or glaucuous, erect culms or geniculate from cespitose base, compressed, scabrous below panicle and nodes, often pubescent below nodes. **Vegetative:** Sheaths compressed–keeled, glabrous except near scabrous summit and keel, villous along upper margins; ligule 1–2.5 mm long, densely ciliate; leaf blades 2–5 mm wide, flat or folded, 8–25 cm long, scabrous on both surfaces or nearly glabrous beneath. **Inflorescence:** Densely flowered panicle, 6–15 cm long, pale green, columnar, often interrupted below, axis scabrous or villous; bristles mostly solitary below each spikelet, three–fourths to nearly equaling spikelet, 5–nerved; sterile lemma and fertile one about equal; fertile lemma apiculate, finely rugose transversely, sterile palea one–half to three–fourths as long as fertile palea. **Ecology:** Found in grasslands and open ground from 3,000–7,000 ft (914–2134 m); flowers May–October. **Notes:** One of the most common of the perennial plains bristlegrasses. Pay particular attention to the interruption on the lower part of the stem. Some authors equate this species with *Setaria macrostachya* as we have here. **Etymology:** Setaria is from Latin saeta, a bristle or hair, leucopila is from Greek leukos and Latin pilus, a hair. **Synonyms:** *Chaetochloa leucopila*, *Setaria macrostachya*

Sporobolus cryptandrus

sand dropseed

General: Erect, tufted perennial; round stem, not branched, 0.3–1 m tall. **Vegetative:** Blades 2–8 mm wide, 5–20 cm long and flat, margins becoming rolled upward towards tip with 3–4 veins on each side of midrib, the margin toothed, the sheaths open and with one margin ciliolate but strongly overlapping and smooth, the ligule densely ciliate, 0.5 mm long and hairy, these 2–3 mm on margin. **Inflorescence:** Terminal panicle partially included in sheath to 25 cm long and 16 cm wide, pyramidal shaped, with spikelets that are pale to leaden colored, these 2–2.5 mm long and 1–flowered, the lower glume a third to half as long as lemma and palea while the upper glume is as long as the lemma and palea. **Ecology:** Found on sandy soils of dry plains and slopes often in open ground from 3,500–6,500 ft (1065–1980 m), flowers May–September. **Notes:** The pyramidal shape of the panicle and the partial concealment by the sheath help to distinguish it. **Etymology:** Sporobolus is Greek for "seed–caster." Cryptandrus is Greek for hidden–male. **Synonyms:** *Agrostis cryptandra*

Sporobolus wrightii

big sacaton

General: Large, coarse stemmed perennial bunchgrass 1–2 m tall, culms 4–6 mm thick at base. **Vegetative:** Sheath open, rounded, glabrous, one margin occasionally slightly ciliolate near collar; collar glabrous, a few hairs at margins; blades 3–6 mm wide, 20–60 cm long, sparsely pilose at base behind ligule, midvein prominent, flat to involute; ligule ciliate, 1–2 mm long. **Inflorescence:** Open, loosely branched panicle mostly 35–60 cm long, narrow, densely flowered, secondary branches closely appressed to primary branches; densely flowered nearly to base, spikelets 2–2.5 mm long; first glume about one–half as long as spikelet, second one–half to two–thirds as long as floret. **Ecology:** Found on river banks, in sandy washes, plains, valley flats, and floodplains from 2,000–6,500 ft (610–1981 m); flowers March–November. **Notes:** One of the largest grasses in the region, often found in clumps more than 1 m in diameter. Had much more extensive range historically, covering the valley bottoms that were overgrazed and often plowed up for agriculture. **Etymology:** Sporobolus is Greek for "seed–caster" while wrightii is named for William Greenwood Wright (1831–1912) a Californian lepidopterist. **Synonyms:** *Sporobolus airioides* var. *wrightii*

Zulogaea bulbosa

bulb panicgrass

General: Tufted perennial with short knotty rhizomes with slender culms 20–200 cm tall, 1–8 mm thick, erect or geniculate at the lower nodes, nodes glabrous or pilose, bulbous swellings at the base. **Vegetative:** Sheaths shorter than the internodes, keeled, glabrous or pilose, hairs near the throat papillose–based; blades 20–75 cm long, 1.5–15 mm wide, flat; ligule a fringe of hairs, more or less connate and membranous at base. **Inflorescence:** Pyramidal panicle 9–75 cm long, width to about two thirds length; branches straight or flexible, spreading lower branches, strongly ascending to reflexed; pedicels 0.2–5 mm; spikelets 2.5–5.5 mm long, 1–2 mm wide; lower glumes one third to two thirds as long as the spikelet, 3–5 veined; upper glume glabrous, pointed or somewhat rounded at the apex; fertile lemma finely rugose, mostly about 3 mm long, tapering to a point or a short stout beak. **Ecology:** Found on moist slopes, along gravelly river banks, canyons slopes or alongside roads from 4,000–8,000 ft (1219–2438 m); flowers July–October. This is a recent taxonomic movement to *Zuloagaea*, you'll know this plant as a *Panicum*. **Notes:** Easy to identify by its open loose pyramidal panicle, which has a delicate purple tinge, and if uncertain dig into the base and look for the bulbs. **Ethnobotany:** Seeds were winnowed, ground and made into flour for bread, and were also mixed into gravy. **Etymology:** Panicum is a classical Latin name for millet, while bulbosum means bearing a bulb. **Synonyms:** *Panicum bulbosum, P. bulbosum var. minor, P. plenum*

A

Abaxial: the side away from the axis
Acaulescent: stemless
Accumbent: a term referring to seeds in which the embryonic root is wrapped around and lies along the edges of the two cotylodons (compare **incumbent**)
Acerose: needle-shaped
Achene: a small, dry, one-seeded, indehiscent fruit (i.e. one that does not split open), deriving from a one-chambered ovary, typical of the Asteraceae
Acicular: needle-shaped, as applied to some kinds of foliage
Acorn: hard, dry, indehiscent with a single large seed and a cupule
Actinomorphic: radially symmetrical
Aculeate: pointed or prickly
Acuminate: tapering gradually to a pointed apex with more or less concave sides along the tip
Acute: tapering to a sharp-pointed apex with more or less straight sides along the tip
Acyclic: with the floral parts arranged spirally rather than in whorls
Adaxial: the side toward the axis
Adenophorous: gland-bearing
Adherent: two or more organs appearing to be fused but actually separable
Adnate: grown together, used only to describe unlike parts (compare **connate**)
Adventitious: occurring in unusual or unexpected locations such as roots on aerial stems or buds on leaves. Also meaning: out of the usual place, introduced but not yet naturalized
Aestivation: the arrangement of floral parts in a bud
Aggregate: densely clustered
Albumen: the nutritive tissue in a seed
Alkaline: soils that contain high amounts of various salts of potassium and/or sodium, as well as other soluble minerals, and are basic rather than acidic with a Ph greater than 7.0
Allelopathy: a characteristic of some plants according to which chemical compounds are produced that inhibit the growth of other plants in the immediate vicinity
Allopatric: occupying different geographic regions
Alternate: a leaf arrangement along the axis in which the leaves are not opposite to each other or whorled
Alveolate: Honeycombed, with pits separated by thin, ridged partitions
Ament: an inflorescence consisting of a dense spike or raceme or apetalous, unisexual flowers, another name for a catkin
Ammophilous: sand-loving
Amplexicaul: describing a sessile leaf that has its base completely surrounding the stem
Anandrous: without stamens
Ananthous: without flowers
Androecium: a collective term for the stamens of a flower (compare **gynoecium**)
Androgynous: having staminate and pistillate flowers in the same inflorescence
Anemophilous: wind-pollinated
Angled: sided, as in the shape of stems or fruits
Angular: having sharp angles or corners, generally used in reference to structures such as stems to contrast them with rounded stems

Annual: a plant that completes its life cycle from the its germination as a seed to the production of new seeds in a single year and then dies
Anterior: on the front side away from the axis
Anther: the pollen-bearing portion of a stamen
Anthesis: time during which the flower is open
Antrorse: pointing forward or upward (compare **retrorse**)
Aperturate: with one or more openings or apertures
Apetalous: lacking petals
Apex: the tip of a plant part
Aphyllous: without leaves
Apiculate: ending in an abrupt slender tip which is not stiff
Applanate: flattened
Appressed: lying flat against or nearly parallel to, as leaves on a stem or hairs on a leaf
Arborescent: approaching the size and habit of a tree
Arcuate: arching or curved like a bow
Areole: a raised area on a cactus from which spines develop
Aristate: with an awn or stiff bristle, typically at the apex
Armed: provided with prickles, spines or thorns
Ascending: growing obliquely upward
Asymmetrical: not divided into like and/or equal parts
Attenuate: gradually narrowing to a tip or base
Auricle: a small earlike lobe or appendage
Auriculate: having earlike appendages
Autophilous: self-pollinated
Awn: a slender, stiff terminal bristle attached at its base to another structure or organ such as a leaf or grass stem
Axil: the upper angle formed between two structures or organs, such as a leaf and the stem from which it grows
Axillary: borne or carried in the axil
Axis: the main stem

B

Banner: the upper petal of a pea flower
Barbed: with a backward-facing tip
Barbellate: with short, stiff hairs or barbs
Basal: at or near the base, often describing leaves and where they attach
Basifixed: attached by the base (compare dorsifixed, versatile)
Beak: a firm, pointed terminal appendage
Berry: a fleshy, indehiscent fruit in which the seeds are not encased in a stone and are typically more than one
Biennial: a plant that takes two years to complete its life cycle, usually growing vegetation in the first year and producing flowers and seeds in the second, then dying
Bifurcate: divided into two forks or branches
Bilabiate: two-lipped
Bipinnate: twice pinnately compound
Bipinnatifid: two times pinnately cleft
Bisexual: having both stamens and pistils
Bladdery: thin-walled and inflated
Blade: the expanded terminal portion of a leaf, petal or other structure, i.e. that portion of the leaf that does not include the stalk

Bloom: a white, powderlike coating sometimes found on a leaf or stem surface
Bole: the trunk or stem of a tree
Brackish: a mixture of salt and fresh water, somewhat saline
Bract: a modified leaf which may be reduced in size or different in other characteristics from the foliage leaves and which usually subtends a flower or an inflorescence
Bracteole: a small bract, often secondary in nature, a bractlet
Bristle: a stiff hair, usually erect or curving away from its attachment point
Bud: a developing leaf, stem or flower
Bulb: an underground plant part derived from a shoot that is enclosed in numerous overlapping thickened leafy scales whose purpose is to store food
Bundle scar: scar left on a twig by the vascular bundles when a leaf falls
Bur: a prickly or spiny seed or fruit
Burl: a woody swelling where the stem joins the roots

C

Caducous: falling off very early compared to similar structures in other plants
Caespitose (Cespitose): having a densely clumped, tufted or cushion-like growth form with the flowers extending above the clump
Callus: a hardened or thickened area at the point of attachment
Calyptra: a hood or lid
Calyx: the outer whorl of the perianth, composed of the sepals, usually but not always green, which enclose other flower parts in bud
Campanulate: bell-shaped
Canescent: with gray or white short hairs, often having a hoary appearance
Capillary: very slender and hairlike
Capitate: in a globular or head-shaped cluster
Capsule: a dry, generally many-seeded fruit divided into two or more seed compartments that dehisces or splits open longitudinally with the line of dehiscence either through the locule (**loculicidal**) or through the septa (**septicidal**), or, less commonly, through pores (**poricidal**) or around the circumference (**circumscissile**)
Carnose: with a fleshy texture
Carpel: a simple pistil, or a single unit of a compound pistil, the ovule-bearing portion of a flower
Caruncle: a protuberance or appendage near the hilum of seed
Caryopsis: the grain or fruit of grasses
Catkin: a spikelike, often pendulous, inflorescence of petalless unisexual flowers, either staminate or pistillate
Caudate: bearing a tail or slender tail-like appendage
Caudex: the persistent, often woody base of an otherwise annual herbaceous stem
Cauline: attached to or referring to the stem, as opposed to 'basal', often used to describe leaf position
Ceraceous: waxy in texture or appearance
Cernuous: drooping or nodding
Chaff: thin scales or bracts subtending individual flowers in many species of the Asteraceae
Chaparral: an area characterized by dense, leathery-leaved, evergreen shrubs
Chartaceous: with a papery texture, usually not green
Cilia: marginal hairs

Ciliate: with a row of fine hairs along the margin of a structure such as a leaf
Ciliolate: with a marginal fringe of minute hairs
Cinereous: ash-colored, light-gray due to a covering of short hairs
Circumboreal: distributed around the globe at northern latitudes
Circumsessile: dehiscing along a transverse circular line around the fruit or anther, so that the top separates or falls off like a lid
Clasping: having the lower edges of a leaf blade partly surrounding the stem
Clavate: club-shaped, gradually thickened or widened toward the apex
Claw: the narrow, basal stalklike portion of some sepals and petals
Cleft: deeply cut, usually more than one-half the distance from the margin to the midrib or base
Cleistogamous: flowers which self-fertilize without opening
Collar: found in grasses, the outer side of the leaf at the junction of the sheath and blade
Colleter: a glandular hair
Column: a structure formed by the union of staminal filaments
Coma: a tuft of hairs, often at the tip of seeds
Complete: describing flowers that contain petals, sepals, pistils and stamens
Compound: made up of two or more similar parts, as in a leaf which has leaflets
Compressed: flattened
Concolor: of uniform color
Conduplicate: folded together lengthwise with the upper surface within, as the leaves of many grasses
Cone: a dense cluster of sporophylls on an axis
Confluent: running together or blending of one part into another
Connate: Describing similar structures that are joined or grown together (compare **adnate**)
Connivent: converging, but not actually fused or united
Contracted: narrowed or shortened as opposed to open or spreading
Convergent: meeting together, as leaf veins which come together at the apex
Convex: rounded or curved outward on the surface
Convolute: rolled up longitudinally, with one edge inside the other and the upper surface on the inside (compare **revolute**, **involute**)
Coppice: a thicket of bushes or small trees; sprouts arising from a stump
Cordate: heart-shaped
Coriaceous (Coreaceous): leathery in texture
Corm: an enlarged underground structure of stem tissue and thin scales
Corneous: horny
Corniculate: having little horns or hornlike appendages
Corolla: the inner whorl of the perianth, between the calyx and the stamens, a collective term for the petals of a flower
Corolla tube: the hollow, cylindric portion of a corolla of united petals
Corona: petal-like or crown-like structures between the petals and stamens in some flowers
Coroniform: crown-shaped
Corrugated: wrinkled, folded
Corymb: a broad, flat-topped inflorescence in which the flower stalks arise from different points on the main stem and the marginal flowers are the first to open (compare **cyme**)
Costa (pl. costae): a rib or prominent mid-vein
Cotyledon: a primary leaf of the embryo; a seed leaf
Crenate: with shallow roundish or bluntish teeth on the margin, scalloped

Crenulate: similar to crenate, but with smaller, rounded teeth
Crisped: curled on the margin like a strip of bacon
Cristate: with a terminal tuft or crest
Crosier: the curled top of a young fern frond
Cruciform: cross-shaped
Crustaceous: dry and brittle
Cucullate: hooded or hood-shaped
Culm: a hollow or pithy slender stem such as is found in the grasses and sedges
Cultivar: a form of a plant derived from cultivation
Cuneate: wedge-shaped, with the narrow part at the point of attachment
Cupule: a cup-shaped involucre, as in an acorn
Cuspidate: tipped with an abrupt short, sharp, firm point (compare **mucronate**)
Cuticle: the waxy layer on the surface of a leaf or stem
Cyathiform: cup-shaped
Cyathium: the specialized inflorescence characteristic of the Euphorbiaceae, consisting of a flower-like, cup-shaped involucre which carries the several true flowers within
Cyme: a broad, flat-topped inflorescence in which the central flower is the first to open (compare **corymb**)
Cymose: with flowers in a cyme
Cypselae: dry, single-seeded, indehiscent fruit with an adnate calyx, essentially an achene

D

Deca-: a prefix meaning ten
Decompound: more than once-compound, the leaflets again divided
Decumbent: prostrate at the base but ascending at the end
Decurrent: adnate to the petiole or stem and extending downward, as a leaf base that extends downward along the stem (compare **surcurrent**)
Decussate: arranged in pairs along the stem with each pair at right angles to the one above and below
Deflexed: Bent downward or backward
Defoliation: the shedding of leaves
Dehiscent: opening spontaneously when ripe to discharge the seed content (compare **indehiscent**)
Deltoid: broadly triangular in shape
Dendritic: with a branching patter similar to that in a tree, describes a hair type
Dense: congested, describing the disposition of flowers in an inflorescence (compare **open**)
Dentate: with sharp, outward-pointing teeth on the margin
Depauperate: starved or stunted, describing small plants or plant communities that are growing under unfavorable conditions
Determinate: describes an inflorescence in which the terminal flower blooms first, thereby halting further elongation of the flowering stem (compare **indeterminate**)
Dextrorse: turned to the right or spirally arranged to the right (compare **sinistrorse**)
Di-: prefix meaning two or twice
Diadelphous: stamens united into two, often unequal, sets by their filaments
Diandrous: having two stamens
Dichasium: a cymose inflorescence in which each axis produces two opposite or

subopposite lateral axes
Dichotomous: branching regularly and repeatedly in pairs
Diclinous: with the stamens and pistils in separate flowers, imperfect
Dicotyledon: a plant having two seed leaves, one of the two major divisions of flowering plants (compare **monocotyledon**)
Didymous: twinned, being in pairs
Didynamous: with two pairs of stamens of unequal length
Diffuse: looosely branching or spreading
Digitate: radiating from a common point, having a fingered shape, i.e. a shape like an open hand
Digynous: having two pistils
Dimorphic: having two forms
Dioecious: having staminate and pistillate flowers on separate plants (compare **monoecious**)
Diploid: with two full sets of chromosomes in each cell
Disarticulating: separating at maturity at a joint
Disciform: having a flowering head that contains both filiform and disk flowers, referring to members of the Asteraceae
Discoid: having only disk flowers, referring to flower heads in the Asteraceae
Disjunct: separated from the main distribution of the population
Disk: the central portion of composite flowers, made up of a cluster of disk flowers
Dissected: finely cut or divided into many, narrow segments
Distal: the end opposite the point of attachment, away from the axis (compare **proximal**)
Distichous: two-ranked, that is with leaves on opposute sides of a stem and in the same plane
Distinct: having separate, like parts, those not at all joined to each other, often describing the petals on a flower (compare **united**)
Disturbed: referring to habitats that have been impacted by the actions of people
Dithecal anthers: anthers lacking septi between the loculi, so there are only two anther cells
Diurnal: growing in the daytime
Divaricate: widely diverging or spreading apart
Divergent: diverging or spreading
Divided: cut deeply, nearly or completely to the midrib
Dolabriform: ax-shaped or cleaver-shaped; pick-shaped; attached at some point other than the base, usually near the middle
Dorsal: referring to the back or outer surface
Dorsifixed: attached at the back (compare **basifixed**, **versatile**)
Drooping: erect or spreading at the base, then bending downwards
Drupe: a fleshy indehiscent fruit enclosing a nut or hard stone containing generally a single seed such as a peach or cherry

E

E-: prefix usually meaning without, from, or away
Echinate: prickly
Ecotone: transition zone between two adjoining communities
Ecotype: those individuals adapted to a specific environment or set of conditions

Edaphic: due to, or pertaining to, the soil
Elater: structures attached to spores to aid in dispersal
Elliptic: broadest near the middle and tapering gradually to both ends
Elongate: stretched out, many times longer than broad
Emarginate: with a shallow notch at the apex
Endemic: confined to a limited geographic area
Endocarp: the inner layer of the pericarp, which is the wall of the ripened ovary or fruit (compare **mesocarp**, **exocarp**)
Endogenous: growing from, or originating from within
Ensiform: sword-shaped, as applied to a leaf
Entire: describing a leaf that has a continuous, unbroken margin with no teeth or lobes
Entomophilous: insect-pollinated
Ephemeral: describes a plant or flower that lasts for only a short time or blooms only occasionaly when conditions are right
Epi-: meaning upon
Epicalyx: an involucre which resembles an outer calyx
Epigynous: with stamens, pistils, and sepals attached to the top of the ovary (compare hypogynous)
Epipetalous: attached to the petals
Episepalous: attached to the sepals
Equilateral: with sides of equal shape and length
Equitant: overlapping or straddling in two ranks, as in *Iris*
Erose: having an irregular margin as if it has been gnawed
Erosulate: more or less erose
Escapee: a plant escaped from cultivation that now reproduces on its own
Esculent: edible
Estipulate: without stipules
Evanescent: fleeting, lasting for only a short time
Even-pinnate: a pinnately-compound leaf ending in a pair of leaflets (compare **odd-pinnate**)
Excurrent: extending beyond the apex, as the midrib in some leaves
Exfoliating: peeling off in thin layers or flakes
Exocarp: the outer layer of the pericarp of a fruit (compare **endocarp**, **mesocarp**)
Exotic: not native, introduced from another area
Exserted: projected from or extending beyond, as stamens from a flower
Extant: still surviving, not completely extinct
Extirpated: destroyed or no longer surviving in the area being referred to, but may survive outside of that area
Extrorse: turned or opening outward away from the axis (compare **introrse**)
Exudate: a substance exuded or secreted from a plant

F

Falcate: scimitar- or sickle-shaped
Farinose: covered with a mealy or whitish powdery substance
Fascicle: a small cluster or bundle, a fairly common leaf arrangement
Faveolate: honeycombed or pitted: **alveolate**
Fenestrate: with small slits or areas thinned so as to be translucent
Ferruginous: rust-colored
Fertile: having the capacity to produce fruit, having a pistil
Fetid: with an offensive odor, stinking

Fibril: a delicate fiber or hair
Filament: the basal, sterile portion of a stamen below the anthers
Filiform: (1) threadlike; (2) a type of flower in the Asteraceae which is pistillate and has a very slender, tubular corolla
Fimbriate: having fringed margins
Fistulose: hollow like a tube or pipe
Flaccid: soft and weak, limp
Flagellate: with long, slender runners
Flange: a projecting rim or edge
Fleshy: thick and pulpy, succulent
Flexuose or **flexuous**: with curves or bends, somewhat zigzagged
Floccose: bearing tufts of long, soft, tangled hairs
Floret: a small individual flower in a flower head
Fluted: with furrows or grooves
Foliar: pertaining to the leaves, leaf-like
Foliolate: of or pertaining to, or having leaflets
Follicle: a dry, many-seeded fruit derived composed of a single carpel and opening along one side only like a milkweed pod
Forb: a non-grasslike herbaceous plant
Fringed: with hairs or bristles along the margin
Frond: a fern leaf
Fructiferous: fruit-bearing
Frutescent: shrubby or bushy in the sense of being woody
Fugacious: falling or withering early; ephemeral
Fulvous: dull yellowish-brown or yellowish-gray, tawny
Funiculus: the stalk connecting the ovule to the placenta, the stalk of a seed
Funnelform: gradually widening upwards, as in the flowers of morning glory
Furcate: forked
Fuscous: dark grayish-brown, dusky
Fusiform: spindle-shaped, thickest in the middle and drawn out at both ends

G

Galbulus: a cone of *Cupressus*
Gall: an abnormal growth on a plant that is caused by insects
Geniculate: bent abruptly like a knee or a stove pipe
Gibbous: swollen or enlarged on one side, ventricose
Glabrate: becoming glabrous in age
Glabrous: smooth, without hairs
Gland: a depression or protuberance that exists for the purpose of secreting
Glandular: producing tiny globules of sticky or oily substance
Glans: a dry dehiscent fruit borne in a cupule, such as the acorn
Glaucescent: slightly glaucous
Glaucous: covered with a thin, light-colored waxy or powdery bloom
Globose: globe-shaped, spherical
Glochids: barbed bristles on cacti
Glomerate: crowded, congested or compactly clustered
Glume: in grasses, the bracts (generally two) that form the lowermost parts of the spikelet
Glutinous: having a sticky surface
Gracile: slender and graceful
Grain: the fruit of grasses
Gregarious: growing in groups or colonies

Gynobase: an elongation or enlargement of the receptacle that supports the carpels or nutlets, as in many species of the Boraginaceae
Gynoecium: a collective term for the pistils of a flower (compare **androecium**)

H

Habit: the overall appearance of a plant
Halophyte: a plant that can tolerate an abnormal amount of salt in the soil
Haploid: with a single full set of choromosomes in each cell
Hastate: spear- or arrowhead-shaped with the basal lobes facing outward
Haustorium: a specialized root-like organ used by parasitic plants to draw nourishment from host plants (*Phoradendron*)
Head: a dense cluster of sessile or subsessile flowers, found in Asteraceae
Helicoid: coiled spirally like a spring or a snail shell
Heliotropic: the movement of plant parts in response to a light source
Hemiparasite: a plant that derives its energy both from parasitism and from photosynthesis
Herbaceous: fleshy-stemmed, not woody
Heteromorphic: of one or more kind or form
Heterostylous: having different kinds of style (and stamen) lengths
Hexa-: a prefix meaning six
Hibernal: flowering or appearing in the winter
Hilum: a scar on a seed indicating its point of attachment
Hip: a fleshy, berry-like fruit, as in some members of the Rosaceae
Hirsute: pubescent with stiff, coarse hairs
Hirsutulous: pubescent with very small, coarse, stiff hairs
Hispid: rough-haired with firm, stiff hairs
Hoary: covered with white or gray, short, fine hairs
Holosericeous: covered with fine, silky hairs
Homomorphic: all of the same kind or form
Hood: a hollow, arched covering, found in *Asclepias*
Hooked: abruptly curved at the tip
Host: a plant providing nourishment to a parasite
Humifuse: spreading along or over the ground
Humistrate: lying on the ground
Hyaline: thin, translucent or transparent
Hydrophytic: adapted to growing in water
Hypanthium: a cup-shaped enlargement of the receptacle, creation by the fusion of sepals, petals and stamens
Hypogynous: with stamens, petals and sepals atteched below the ovary (compare **epigynous**)

I

Imbricate: overlapping, like shingles on a roof
Imparipinnate: odd-pinnate, unequally pinnate
Imperfect: describes a flower that has stamens or pistils but not both
Implicate: twisted together, intertwined
Incised: cut, often deeply, usually irregularly, but seldom as much as one-half the distance to the midrib or base
Incumbent: a term referring to seeds in which the embronic root is wrapped around and lies adjacent to the back of one of the two cotylodons (compare **accumbent**)
Indehiscent: not opening by itself, said of a seed pod (compare **dehiscent**)
Indeterminate: describes an inflorescence in which the outer or lower flowers

bloom first, allowing an indefinite elongation of the flowering stem (compare **determinate**)
Indigenous: native to an area
Induplicate: with petals or sepals edge to edge along their entire length, the margins rolled inward
Indurate: hardened and/or stiffened
Indusium: a scale-like outgrowth on a fern leaf which forms a covering for the sporangia
Inferior ovary: one that is situated below the point of attachment of the sepals and petals, and possibly below the point of attachment of all other flower parts and embedded in the floral stem
Inflexed: turned abruptly or bent inwards
Inflorescence: the flowering portion of a plant
Infra-: a prefix meaning below or beneath
Infraspecific: below the species level
Infundibular: funnel-shaped
Innate: borne at the apex
Inserted: attached to or growing out of
Integument: the covering of the ovule which will become the seed coat
Inter-: a prefix meaning between or among
Internode: the portion of a stem between two successive nodes
Interrupted: not continuous, with gaps
Introrse: turned or opening inward toward the axis as an anther toward the center of a flower (compare **extrorse**)
Invaginated: sheathed, folded
Involucel: a secondary involucre as in the Apiaceae
Involucre: a set of bracts subtending a flower or an inflorescence
Involute: with both edges inrolled toward the midnerve on the upper surface (compare **revolute**)
Irregular: describes a flower that is not radially symmetric, the similar parts of which are unequal in size or form

J

Joint: the point on a plant stem from which a leaf or leaf-bud grows, more commonly termed a node
Jugate: with parts in pairs
Junciform: rush-like in appearance

K

Keel: the two lower petals of most pea flowers, united or partially joined to form a structure similar to the keel of a boat
Knee: a joint or articulate, as in grass
Krummholz: literally crooked forest, low wind-contorted forest that can be found at timberline

L

Labellum: lip, an exceptional petal found in some flowers, like Orchidaceae
Labiate: lipped
Lacerate: irregularly cut or cleft
Laciniate: cut into slender lobes
Lacustrine: growing around lakes

Laevigate: lustrous, shining
Lamella: erect scale inserted on the petal in some corollas and forming part of the corona
Laminar: thin, flat, and expanded, as the blade of a leaf (laminar stamens)
Lanate: with long tangled wooly hairs
Lanceolate: significantly longer than wide and widest below the middle, gradually tapering toward the apex
Lanulose: with very short hairs, minutely downy or wooly
Lateral: borne at or on the side of
Latex: a milky sap
Latifoliate: with broad leaves
Leaflet: one segment of a compound leaf
Legume: a dry, dehiscent fruit derived from a single carpel and usually opening along two lines of dehiscence like a pea pod
Lemma: in grasses, the lower and usually larger of the two bracts of the floret
Lenticel: Raised, corky , lens-shaped area on the surface of a young stem.
Lepidote: covered with small scurfy scales
Liana: a herbaceous or woody, usually perennial, climbing vine that roots in the ground and is characteristic especially of tropical forests
Ligneous: woody
Ligule: strap-shaped organ, membranous appendage arising from inner surface of leaf at the junction with the leaf sheath in many grasses and some sedges
Ligulate: (1) Describing a floral head in the Asteraceae that contains only ray flowers, or ligules; (2) strap-shaped
Limb: the upper, expanded portion of a corolla which has fused petals
Linear: long and narrow with sides that are parallel or nearly so
Lingulate: tongue-shaped
Lip: one of the two projections or segments of an irregular, two-lipped corolla or calyx
Littoral: growing along the shore
Livid: pale grayish-blue
Lobate: in the form of a lobe, lobed
Lobe: usually a rounded segment of an organ
Lobed: more or less deeply cut but not as far as the midrib
Lobulate: with small lobes
Locule: a cavity of the ovary which contains the ovules
Loculicidal: said of a capsule, longitudinally dehiscent through the ovary wall at or near the center of each chamber or locule (compare **poricidal**, **septicidal**)
Lodicule: paired, rudimentary scales at the base of the ovary in grass flowers
Loment: a legume which is constricted between the seeds
Lunate: crescent-shaped
Lurid: pale brown to yellowish-brown
Lustrous: shiny or glossy
Lyrate: lyre-shaped, pinnatifid with the terminal segment large and rounded and the lower lobes increasingly smaller toward the base

M

Machaerantheroid: having involucral bracts with recurved tips
Macro-: prefix meaning large or long
Macrophyllous: having large leaves
Maculate: spotted or blotched

Malvaceous: mallow-like
Mammilate: with nipple-like protuberances
Manicate: with a thick, interwoven pubescence
Margin: the edge, as of a leaf blade
Marginate: distinctly margined
Mealy: describing a surface that is covered with minute, usually rounded particles
Medial: of the middle, situated in the middle
Mega-: prefix meaning large
Membranous: thin, flexible and more or less translucent, like a membrane
Meristem: undifferentiated, actively dividing tissues at the growing tips of shoots and roots
-merous: a suffix utilized to indicate the number of parts or divisions in a particular structure or organ, as in 4-merous or 4-parted
Mesic: describes a habitat that is generally moist throughout the growing season (compare **xeric**)
Meso-: prefix meaning middle
Mesocarp: the middle layer of the pericarp of a fruit (compare **endocarp**, **exocarp**)
Mesophytic: adapted to growing under medium or average conditions, especially relating to water supply
Micro-: prefix meaning small
Microphyllous: bearing small leaves
Midnerve: the central nerve
Midrib: the main or central rib or vein of a leaf, a midvein
Monadelphous: having stamens with filaments united in a single group, bundle or tube
Mono-: prefix meaning one
Monocarpic: flowering and bearing fruit only once and then dying, the term may be applied to perennials, biennials, or annuals
Monochasium: a type of cymose inflorescence with only a single main axis
Monocotyledon: a plant having only one seed-leaf (compare **dicotyledon**)
Monoecious: having both male and female flowers on the same plant (compare **dioecious**)
Monotypic: describing a genus that contains only a single species
Montane: of or pertaining to, or growing in, the mountains
Mucilaginous: slimy and moist
Mucro: a short, sharp, abrupt point, usually at the tip of a leaf or other organ
Mucronate: having a short projection at the tip, as of a leaf
Mucronulate: tipped with a very small mucro
Multi-: prefix meaning many
Multifid: cleft into very many narrow lobes or segments
Multiflorus: many-flowered
Multifoliate: bearing many leaves
Muricate: rounded or roughened with short, hard or warty points
Mycorrhizal: having a symbiotic relationship between a fungus and the root of a plant

N

Nacreous: having a pearly luster

Naked: lacking hairs, structures or appendages, as in a flower lacking a perianth
Nascent: in the process of being formed
Nebulose: indistinct, as in a fine, diffuse inflorescence
Nectariferous: with nectar
Nectary: a plant part that secretes nectar, a sweet liquid that attracts bees, insects and birds
Needle: a slender, needle-shaped leaf
Nerve: a prominent, simple vein or rib of a leaf or other organ
Net-veined: in the form of a network, reticulate
Netted: same as reticulated, in the form or pattern of a network
Neuter: lacking a pistil or stamens
Nidulent: lying within a cavity, embedded within a pulp
Nitid: lustrous, shining
Nocturnal: functioning at night, as in flowers which open at night
Nodding: hanging down
Node: a point on a stem where leaves or branches originate
Numerous: eleven or more, same as 'many'
Nut: a dry, usually one-seeded, indehiscent fruit with a hard-walled exterior
Nutlet: a small nut or one of the sections of the mature ovary of some members of the Boraginaceae, Verbenaceae or Lamiaceae

O

Ob-: prefix signifying inversion or reversal of normal direction
Obcordate: inversely heart-shaped, attached at the point
Oblanceolate: inversely lanceolate
Oblate: spheroidal and flattened at the poles
Obligate: restricted to particular conditions or circumstances
Oblique: with sides unequal, usually describing the base of a leaf
Oblong: two to four times longer than broad with nearly parallel sides, but broader than 'linear'
Obovate: inversely ovate
Obovoid: inversely ovoid, with the attachment at the narrower end
Obtuse: blunt or rounded at the apex
Obverse: describing a leaf that is narrower at the base than at the apex
Obvolute: a vernation in which two leaves are overlapping in the bud in such a manner that one-half of each is external and the other half is internal, i.e. each leaf both overlaps the next and is in turn overlapped by the one before
Ochroleucous: yellowish-white; cream-colored
Ocrea: a sheath around the stem derived from the leaf stipules, primarily used in the Polygonaceae
Octo-: prefix meaning eight
Odd-pinnate: describing a pinnately-compound leaf with a single terminal leaflet (compare **even-pinnate**)
Open: uncongested, usually describing the organization of flowers in an inflorescence (compare **dense**)
Opposite: describing leaves that are situated in pairs at each node along an axis
Orbicular: circular
Oval: broadly elliptic, the width over half the length
Ovary: the basal portion of a pistil where female germ cells develop into seeds after germination
Ovate: egg-shaped, wider below the middle

Ovoid: an egg-shaped solid
Ovule: the structure that develops into the seed inside the ovary

P
Palate: an appendage or raised area on the lower lip of the corolla which partially blocks the throat
Palea: in grasses, the upper and generally smaller of the two bracts of the floret
Pallid: pale
Palmate: radiating from a single point like the spreading fingers of an outstretched hand
Palmate-pinnate: with the primary leaflets palmately arranged and the secondary leaflets pinnately arranged
Palmatifid: palmately cleft or lobed
Palustrine: same as paludose
Pandurate: fiddle-shaped
Panicle: a compound inflorescence in which the branches are racemose and the flowers are pedicelled on the branches
Papilla: short, rounded nipple-like bump or projection
Pappose: pappus-bearing
Pappus: collectively, the bristles, hairs or scales at the apex of an achene in the Asteraceae
Parasite: a plant which derives most or all of its food from another organisim to which it attaches itself
Parietal: attached to the wall of the ovary instead of the axis
Paripinnate: even pinnate, lacking a terminal leaflet
Parted: lobed or cut in over half-way and often very close to the base or midrib
Pectinate: describing a pinnatifid leaf whose segments are narrow and arranged like the teeth of a comb
Pedicel: the stalk of a single flower that is part of an inflorescence
Peduncle: the stalk of a flower cluster, or of a solitary flower not associated with others in an inflorescence
Pellucid: transparent or translucent
Peltate: a type of leaf having its petiole attached to the center of the lower surface of the blade
Pendent: hanging downward or drooping
Penicillate: with a tuft a short hairs at the end, like a brush
Penta-: prefix meaning five
Pepo: a fleshy, indehiscent fruit with a hard, more or less thickened rind and a single many-seeded locule, characteristic of the Cucurbitaceae
Perennial: a plant living for more than two years
Perfect: containing both stamens and pistils
Perfoliate: the stem apparently piercing the leaf or surrounded by basally joined opposite leaves
Perianth: a collective term for the calyx and corolla
Pericarp: the outer wall of mature fruit
Perigynous: situated around but not attached to the ovary directly, describing a flower whose stamens and pistils are joined to the calyx tube and the ovary is superior

Pernicious: harmful, destructive, or deadly in nature
Persistent: remaining attached after the usual time of falling
Petal: a single segment of a divided corolla
Petaloid: having the appearance of a petal
Petiole: the stalk of a leaf
Petiolule: the stalk of a leaflet of a compound leaf
Phloem: the food conducting tissue of vascular plants, bark
Phyllary: one of the bracts below the flowerhead in the Asteraceae
Pilose: having long, soft, straight hairs
Pilosulose: bearing minute, long, soft, straight hairs
Pinnate: with separate segments which are arranged feather-like on either side of a common axis
Pinnatifid: so deeply cleft or cut as to appear pinnate
Piriform: pear-shaped
Pistil: the central reproductive organ of a flower, consisting of ovary, style and stigma
Pistillate: a female flower that has two or more pistils but no functional stamens
Pith: the spongy central tissue in some stems and roots
Plane: with a flat surface
Planoconvex: flat on one side and rounded on the other
Plumose: appearing plumelike or feathery from fine hairs that line two sides of a central axis
Pod: any dry, dehiscent fruit, especially a legume or follicle
Pollinum: a mass of waxy pollen grains, in *Asclepias* and Orchidaceae
Poly-: prefix meaning many
Polyandrous: with many stamens
Polyanthous: with many flowers
Polycephalous: with many flower heads
Polygamous: having both unisexual and bisexual flowers on the same plant
Polyploid: with three or more complete sets of chromosomes in each cell
Pome: a fleshy indehiscent fruit derived from an inferior, compound ovary and consisting of a modified floral tube surrounding a core with several seeds, such as an apple
Poricidal: opening by pores, like a poppy capsule (compare **loculicidal**, **septicidal**)
Posterior: on the side next to the axis (compare **anterior**)
Praemorse: terminating abruptly, as if bitten off
Prehensile: adapted for grasping, as in a tendril
Prickle: a superficial, sharp-pointed outgrowth of the bark or epidermis
Procumbent: lying flat or trailing but not rooting at the nodes
Prostrate: lying flat
Proximal: nearest the axis or base (compare **distal**)
Prurient: causing itching
Ptero-: prefix meaning winged
Pterocarpous: with winged fruits
Puberulence: fine, short hairs
Puberulent: minutely pubescent
Pubescent: covered with short, soft hairs
Pulvinus: a swelling or enlargement at the base of a petiole or petiolule
Punctate: dotted with pits or with translucent, sunken glands or colored dots

Puncticulate: minutely punctate
Punctiform: reduced to a point
Pungent: tipped with a sharp, rigid point
Pustulose: with small blisters or pustules, often at the base of a hair
Pyrene: the stone or pit of a drupe or drupelet
Pyriform: pear-shaped
Pyxis: a circumscissile capsule, the top coming off as a lid

Q

Quadrate: square, rectangular
Quadri-: prefix meaning four
Quilled: with tubular florets, especially in cases whre the florets are typically ligulate, as in some Asteraceae
Quinate: with five nearly similar structures from a common point
Quinque-: prefix meaning five

R

Raceme: an elongate, unbranched inflorescence with pedicelled flowers on the main stem
Racemose: raceme-like or bearing racemes
Rachilla: a small rachis, in particular the axis of a grass spikelet
Rachis: the main stalk of a flower cluster or of a compound leaf, also that part of a fern frond stem that bears the leaflets
Radical: belonging to or proceeding from the root
Radiate: describing a flower head in the Asteraceae that contains both ray and disk flowers
Radicant: rooting from the stem
Radicle: part of the plant embryo which will develop into the primary root
Ramose: with many branches, branching
Rank: a vertical row usually of leaves or bracts that can be either opposite or alternate
Ray: strap-like portion of a ligulate flower in Asteraceae
Receptacle: the expanded apex of a flower stalk which bears the floral organs, either such structures as individual petals, sepals etc., or entire flowers in head-like inflorescences such as is typical of the Asteraceae
Recumbent: leaning or reposing upon the ground
Recurved: curved backwards or outwards
Reflexed: abruptly bent or curved downward
Regular: describes a flower with petals or sepals all of equal size and shape, i.e. radially symmetrical or capable of being divided into mirror images on either side of any plane that passes through the center
Reniform: kidney-shaped or rounded with a notch at the base
Repand: with an undulating margin, less strongly wavy than 'sinuate'
Replum: partition or septum between the two valves or compartments of silicles or siliques in the Brassicaceae
Resupinate: upside down due to twisting of the pedicel
Reticulate: having a netted pattern
Retrorse: bent backward or downward, reflexed (compare **antrorse**)
Retuse: having a rounded apex with a shallow notch
Revolute: having the margins inrolled toward the underside (compare **convolute**, **involute**)

Rhizomatous: rhizome-like, with rhizomes
Rhizome: an underground stem capable of producing new stems or plants at its nodes
Rhombic: with the shape of a diamond
Rosette: a cluster of leaves in a circular arrangement at the base of a plant, often called the basal rosette
Rostrum: a beak-like structure
Rotate: a rotate corolla is wheel-shaped with a short tube and a wide horizontally flaring limb
Ruderal: growing in disturbed habitats, weedy
Rudiment: an imperfectly developed organ, a vestige
Rufous: reddish-brown
Rugose: wrinkled
Rugulose: slightly wrinkled
Rucinate: sharply pinnatifid or cleft, the segments directed downward
Runner: a slender stolon or prostrate stem rooting at the nodes or at the tip

S

Saccate: with a sac, or in the shape of a sac
Sagittate: arrowhead-shaped, with two retrorse basal lobes
Salient: projecting outward
Salverform: with a slender tube abruptly expanded into a rotate limb
Samara: dry fruit with wings that do not open when mature, as in maple trees
Sanguineous: blood-red
Saponaceous: soapy
Saprophytic: deriving food from dead or decaying organic material in the soil and usually lacking in chlorophyll
Scaberulent: slightly scabrous
Scabrous: rough to the touch
Scale: a greatly reduced leaf or other outgrowth on a plant surface
Scape: a leafless flowering stem arising directly from the ground
Scapose: with flowers borne on a scape
Scarify: to roughen, score or scrape the hard, outer coating of a seed to assist in the absorption of moisture before germination, a process that many desert wash seeds require
Scarious: thin, dry, membranous and more or less translucent
Schizocarp: a dry, indehiscent fruit which splits into separate one-seeded segments (carpels) at maturity
Scissile: splitting easily
Sclerphyllous: with stiff, firm leaves
Scobina: the zigzag rachilla of some grass spikelets
Scorpioid: describing a coiled inflorescence
Scurfy: covered with small scale-like or bran-like particles or projections
Secund: borne from only one side of an axis
Semi-: prefix meaning half
Sepal: a single segment of a divided calyx
Septicidal: said of a capsule, longitudinally dehiscent through the ovary wall at or near the center of each septa, preserving each locule as an intact entity (compare **loculicidal**, **poricidal**)
Septum: any kind of a partition, specifically the wall between chambers in a compound ovary
Seriate: arranged in rows or series

Sericeous: covered with long, soft, straight, appressed hairs giving a silky appearance
Serpentine: refers to soils that are low in calcium and high in magnesium and iron, derived from greenish or gray-green rocks that are essentially magnesium silicate, other characteristics of which are a high nickel and chromium content, and a low content of nutrients such as nitrogen
Serrate: having sharp, forward-pointing teeth on the margin
Serrulate: serrate with very small teeth
Sessile: attached directly and without a petiole, pedicel or other type of stalk, said of either leaves or flowers
Setaceous: bristle-like, with bristles
Sheath: leafy, tubular structure on a sedge or grass that envelops the stem
Shrub: a small, woody plant with several stems
Silicle: fruit similar to a silique, but much shorter, not much longer than wide
Silique: a type of capsule found in the Brassicaceae, either half of which peels away from a central, transparent, dividing membrane
Simple: a leaf that has one part, not subdivided into leaflets
Sinuate: strongly or deeply wavy, usually referring to a leaf margin
Sinuous: of a wavy or serpentine form
Sinus: the space or division, usually on a leaf, between two lobes or teeth
Sori: clusters of spore sacs on a fern frond (singular: sorus)
Sp: abbreviation for 'species'
Spadix: a floral spike or head in which the flowers are borne on a fleshy axis
Spathe: a large bract or pair of bracts subtending and usually partially enclosing an inflorescence
Spatulate: spoon-shaped, gradually widening to a rounded apex
Specific epithet: second part of a scientific name which identifies the species
Spicate: arranged in a spike
Spike: an elongated, unbranched inflorescence with sessile or nearly-sessile flowers
Spikelet: in grasses, the smallest aggregation of florets plus any subtending glumes
Spine: sharp-pointed rigid structure, usually a highly modified leaf or stipule
Spinose: having a stiff and tough acuminate tip
Spinulose: bearing very small spines
Sporangium: a spore-case or sac in which spores are produced in a fern
Spore: a reproductive cell resulting from meiotic cell division in a sprangium, representing the first cell of the gametophyte generation
Spp: abbreviation for the plural of 'species'
Spray: a slender shoot or granch with its leaves, flowers, or fruits
Spur: a hollow extension of a petal or sepal such as characterizes the larkspurs, and which often produces nectar
Squarrose: having spreading, recurved tips
Ssp: abbreviation for 'subspecies'
Stamen: the male or pollen-bearing organ of a flower, composed of filament and anthers
Staminate: describing a male flower that contains one or more stamens but no functional pistils
Staminode: a sterile stamen or other nonfunctional structure occupying the position and having the overall appearance of a stamen
Standard: also called a banner, this is the upper petal or segment of a papilionaceous flower

Stellate: starlike, with radiating branches and often referring to the pattern of hairs on the surface of a leaf
Stem: the main upward-growing axis of a plant which bears the leaves and flowers
Stigma: the terminal portion of a pistil, which receives the pollen
Stipe: that portion of a fern frond below the rachis, i.e. below where the leaflets are attached
Stipitate: borne on a stipe or stalk
Stipule: an appendage at the base of a petiole, usually in pairs
Stolon: an elongated horizontal shoot above or below the ground, rooting at the nodes or apex
Stomate: a small pore or opening on the surface of a leaf through which gaseous exchange takes place, i.e. the diffusion of carbon dioxide, oxygen and water vapor
Stone: the hard, woody endocarp enclosing the seed of a drupe
Stramineus: straw-colored
Strap-shaped: elongated and flat
Striate: with fine longitudinal lines or ridges
Strigose: covered with rough, stiff, sharp hairs that are more or less parallel to a particular surface
Strobilus: a cone-like cluster of sporophylls on an axis, a cone
Style: the narrowed portion of a pistil between and connecting the ovary and the stigma
Sauveolent: fragrant
Sub-: prefix meaning under, slightly, somewhat or almost
Suber: cork
Suberose: corky in texture
Subshrub: a suffrutescent perennial plant
Subspecies: a group of plants within a species that has consistent, repeating, genetic and structural distinctions
Subtend: to occupy a position below and adjacent to
Subulate: awl-shaped
Succulent: fleshy, juicy and thickened
Sucker: a shoot originating from below ground
Suffrutescent: somewhat shrubby, slightly woody at the base
Sulcate: with longitudinal grooves or furrows
Summer annual: plant with seeds germinating in spring or early summer and completing flowering and fruiting in late summer or early fall (compare **winter annual**)
Superior ovary: one that is located above the perianth and free of it
Surcurrent: extending upward from the point of insertion, as a leaf base that extends up along the stem
Surficial: growing near the ground, or spread over the surface of the ground
Suture: a junction or seam of union, or a line of dehiscence
Swale: a depression or shallow hollow in the ground, typically moist
Sympatric: growing together with, or having the same range as
Sympetalous: having the petals more or less united
Syn-: prefix meaning united
Synandrous: with united anthers
Synoecious: having male and female flowers in the same flowerhead
Synsepalous: having the sepals more or less united

T

Taproot: the primary root continuing the axis of the plant downward often quite deeply into the ground
Taxon: any group of plants occupying a particular hierarchical category, such as genus or species
Tendril: a slender portion of a leaf or stem, modified for twining
Tepal: a collective term for sepals and petals, used when they cannot be easily differentiated
Terete: round in cross-section, cylindrical
Terminal: at the end of the branch or stem
Ternate: in three's, as a leaf which is divided into three leaflets
Tetra-: prefix meaning four
Thallus: a plant body which is not obviously differentiated into stems, roots, and leaves
Theca: a pollen sac or cell of the anther
Thorn: a short, stiff, sharp-pointed branch
Three-ranked: in three vertical ranks or rows around an axis
Throat: in some corollas with fused petals, the point of juncture between the tube and limb, a somewhat difficult point to distinguish
Thryse: a compact, cylindrical, or ovate panicle with an interderminate main axis and cymose subaxes
Tiller: in grasses the young vegetative shoots
Tomentose: wooly, with long, soft, matted hairs
Toothed: having small lobes or points along the margin (as on a leaf)
Transpiration: emission of water vapor from the leaves
Transverse: at a right angle to the longitudinal axis of a structure
Tri-: prefix meaning three
Triad: a cluster of three, as spikelets of Hordeum or Hilaria
Triandrous: having three stamens
Trichome: a hair-like outgrowth from the epidermis
Trichotomous: three-forked
Trifid: three-cleft to about the middle
Trifoliate: having three leaves
Trifoliolate: having three leaflets
Tripinnate: thrice divided
Tripinnatifid: thrice pinnately cleft
Tropism: the turning of a plant part such as a leaf in response to some external stimuli
Truncate: with a base or apex appearing as if cut straight across
Tube: the lower or narrower portion of a corolla or calyx
Tuber: a short, thickened underground stem which bears numerous buds
Tubercle: a knoblike projection
Tufted: in a dense cluster
Tumescent: somewhat tumid, swelling
Turbinate: shaped like a top or inverted cone
Turgid: swollen, expanded or inflated
Twining: climbing by coiling around some support
Two-ranked: in vertical ranks or rows on opposite sides of an axis (compare, **distichous**)

U

Umbel: a flat-topped or convex inflorescence with the pedicels arising more or less form a common point, like the struts of an umbrella
Umbellulate: in the form of or having the appearance of an umbel
Unarmed: lacking thorns or prickles
Uncinate: hooked near the apex or having the form of a hook
Unctuous: greasy, oily
Undulate: wavy
Uni-: prefix meaning one
Unilocular: having only a single locule in the ovary
Uniseriate: arranged in one row or series
Unisexual: bearing either stamens or pistils but not both
United: describes petals that are fused together
Urceolate: urn-shaped or pitcher-like, contracted at the mouth
Utricle: a small, thin-walled, single-seeded, bladdery-inflated fruit
Uva: a grape-like berry formed from a superior ovary

V

Vaginate: provided with or surrounded by a sheath
Valvate: opening by valves or provided with valves
Valve: one of the parts or segments into which a dehiscent fruit splits
Varicose: swollen or enlarged in places
Variegated: having a variety of colors
Vascular: containing both xylem, the principal water and mineral-conducting tissue, and phloem, food conducting tissue
Vein: the vascular portion of a leaf
Velutinous: velvety
Venation: the arrangement of veins in a leaf
Ventral: on the inner or axis side of an organ or the upper surface of a leaf
Ventricose: inflated or swollen unequally on one side
Vermicular: worm-shaped or wormlike, or of worm-eaten appearance
Vernation: the arrangement of leaves within a bud
Versatile: referring to an anther which attaches at or near its middle and is able to turn freely on its support (compare **basifixed**, dorsifixed)
Verticil: an arrangement of similar parts around a central axis or point of attachment, a whorl
Verticillate: same as 'whorled'
Vesicle: a bladder or cavity
Vespertine: opening or functioning in the evening
Villous: with fine, long, unmatted hairs
Vine: a plant with the stem not self-supporting, but climbing or trailing on some support
Virgate: wand-like, straight, slender, and erect
Viscid: sticky or greasy
Vitreous: transparent

W

Wanting: absent, lacking, nonexistent
Weed: a troublesome or aggressive plant that intrudes where it is not wanted, especially a plant that vigorously colonizes disturbed areas
Whorl: a circle of three or more structures radiating outward from the same node

Wing: a thin, paperlike flat margin bordering or extending from a seed capsule, stem or flower
Winter annual: plant with seeds germinating in late summer or fall and completing flowering and fruiting in spring or summer (compare **summer annual**)
Woolly: having soft, woollike hairs

X

X: a symbol which when placed before a specific epithet indicates a hybrid of two species
Xeric: pertaining to arid or desert conditions, implying a minimal water supply throughout most of the year (compare **mesic**)
Xero-: prefix meaning dry
Xerophytic: adapted to dry or arid conditions, places where fresh water is scarce or where water absorption is difficult due to an excess of dissolved salts
Xylem: the water-conducting tissue of vascular plants
Xylocarp: a hard, woody fruit such as the coconut

Z

Zygomorphic: with inequality in the size or form of similar parts, specifically bilaterally symmetric and capable of being bisected into equal mirror-image halves along one plane only

Works Cited

Botany is an aggregative science and it is impossible to write a field guide without liberally depending upon the work of others. The entries in this field guide are to be considered edited because they are compilations of other descriptions. In compiling entries, multiple sources were used to get the best description for field identification. In most cases, language was used that is directly from the work of others. The frequency in which editorial choices were made renders in-text attribution impossible due to space limitations. Please consider this list for further consultation and as a complete listing of those resources utilized in the editing of this volume. Any errors are the editors and you have our apologies.

Albach, D.C., H.M. Meudt, and B. Oxelman. 2005. Piecing together the "new" Plantaginaceae. *American Journal of Botany* 92(2): 297-315.

Al-Shehbaz, I.A. and S.L. O'Kane, Jr.. 2002. Lesquerella is united with Physaria (Brassicaceae). *Novon* 12(3): 319-329.

Anderson, John L. 2007. Anacardiaceae. *Canotia* 3(2): 13-34.

Austin, Daniel F. 1998. Convolvulaceae. *Journal of the Arizona-Nevada Academy of Science*, 30(2): 61-78.

Bair, Allison, Marissa Howe, Daniela Roth, Robin Taylor, Tina Ayers, and Robert W. Kiger. 2006. Portulacaceae. *Canotia* 2(1): 1-22.

Barnard, Carolyn and Loren D. Potter. 1984. New Mexico Grasses: A vegetative key. Albuquerque: University of New Mexico Press.

Beardsley, P.M. and R.G. Olmstead. 2002. Redefining Phrymaceae: The placement of Mimulus, Tribe Mimuleae, and Phryma. *American Journal of Botany* 89(7): 1093-1102.

Bennett, J. and S. Mathews. 2006. Phylogeny of the parasitic plant family Orobanchaceae inferred from phytochrome A. *American Journal of Botany* 93(7): 1039-1051.

Benson, Lyman. 1974. The Cacti of Arizona. Tucson: University of Arizona Press.

Benson, Lyman. 1982. The Cacti of the United States and Canada. Palo Alto: Stanford University Press.

Benson, Lyman and Robert A. Darrow. 1981. Trees and Shrubs of the Southwestern Deserts. Tucson: University of Arizona Press.

Brasher, Jeffrey W. Rosaceae. Part One. Rubus. *Journal of the Arizona-Nevada Academy of Science*, 33(1): 50-57.

Bye, Robert. 2001. Solanaceae. Part One. Datura. *Journal of the Arizona-Nevada Academy of Science*, 33(1): 58-64.

Christie, Kyle et al. 2006. Rhamnaceae. *Canotia* 2(1): 23-46.

Cronquist, Arthur et al. 1977. Intermountain Flora: Volume Six, The Monocotyledons. New York: Columbia University Press.

Daniel, Thomas F. 1984. The Acanthaceae of the Southwestern United States. *Desert Plants* 5(4): 162-179.

Daniel, Thomas F. 2004. Acanthaceae of Sonora: Taxonomy and Phytogeography. *Proceedings of the California Academy of Sciences*, 55(35): 690-805.

Der, Joshua P. and Daniel L. Nickrent. 2008. A molecular phylogeny of Santalaceae (Santalales). *Systematic Botany* 33(1): 107-116.

Dittmer, H.J., E.F. Castetter, O.M. Clark. 1954. The Ferns and Fern Allies of New Mexico. Albuquerque: University of New Mexico Press.

Ecological Restoration Institute. 2005. Plants of Northern Arizona Forests. Flagstaff: Ecological Restoration Institute.

eFloras. 2008. Published on the Internet http://www.efloras.org [accessed August-December 2008] Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA.

Endress, M. and W. Stevens. 2001. The Renaissance of the Apocynaceae SL: Recent advances in systematics, phylogeny, and evolution. *Annals of the Missouri Botanical Garden* 88(4): 517-522.

Eriksson, T. and M.J. Donoghue. 1997. Phylogenetic relationships of Sambucus and Adoxa (Adoxoideae, Adoxaceae) based on Nuclear ribosomal ITS sequences and preliminary morphological data. *Systematic Botany* 22(3): 555-573.

Felger, Richard Stephen. 2000. Flora of the Gran Desierto and Rio Colorado of northwestern Mexico. Tucson: University of Arizona Press.

Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 12+ vols. New York and Oxford.

Fryxell, Paul A. 1993. Malvaceae. Part One. *Journal of the Arizona-Nevada Academy of Science*, 27 (2): 222-236.

Gould, Frank W. 1951. Grasses of the Southwestern United States. Tucson: University of Arizona Press.

Harris, James G. and Melinda Woolf Harris. 1994. Plant Identification Glossary. Spring Lake, UT: Spring Lake Publishing.

Hitchcock, A. S. 1971. Manual of the Grasses of the United States. New York: Dover. 2 Volumes.

Hodgson, Wendy C. 1993. Bixaceae. *Journal of the Arizona-Nevada Academy of Science*, 27(2): 188-189.

Hodgson, Wendy C. 2001. Food Plants of the Sonoran Desert. Tucson: University of Arizona Press.

Huisinga, Kristin and Tina Ayers. 1999. Plantaginaceae. *Journal of the Arizona-Nevada Academy of Science*, 32(1): 62-76.

Huisinga, Kristin, Lori Makarick, and Kate Watters. 2006. River and Desert Plants of the Grand Canyon. Missoula: Mountain Press Publishing Company.

Humphrey, Robert R. 1970. Arizona Range Grasses. Tucson: University of Arizona Press.

Kearney, Thomas and Robert Peebles. 1969. Arizona Flora. Berkeley: University of California Press.

Lamb, Susan and Sandra Scott. 1993. Tumacácori National Historical Park. Southwest Parks and Monuments Association, Tucson, AZ.

Lellinger, David B. 1985. A Field Manual of the ferns and fern-allies of the United States and Canada. Washington D.C.: Smithsonian Institution Press.

Logan, Michael. 2002. The Lessening Stream. University of Arizona Press, Tucson, AZ.

Martin, Paul et al. 1998. Gentry's Rio Mayo Plants. Tucson: University of Arizona Press.

MacDougal, John M. 2001. Passifloraceae. *Journal of the Arizona-Nevada Academy of Science* 33(1): 41-45.

Martin, W.C. and C.R. Hutchins. 1980. A Flora of New Mexico. Germany: J. Cramer.

Meerow, A.W., C.L. Guy, Q.L. Li, and S.L. Yang. 2000b. Phylogeny of the American Amaryllidaceae based on nrDNA ITS sequences. *Systematic Botany* 25: 708-726.

Neyland, Ray. 2001. A phylogeny inferred from large ribosomal subunit (26S) rDNA sequences suggests that Cuscuta is a derived member of Convolvulaceae. *Brittonia* 53(1): 108-115.

Nguyen, N.H., H.E. Driscoll, C.D. Specht. 2008. A molecular phylogeny of the wild onions (Allium: Alliaceae) with a focus on the western North American center of diversity. *Molecular Phylogenetics and Evolution* 47: 1157-1172.

Olmstead, R.G., C. DePamphilis, A. Wolfe, N. Young, W. Elisons, and P. Reeves. 2001. Disintegration of the Scrophulariaceae. *American Journal of Botany* 88(2): 348-361.

Ownbey, Gerald B., Jeffrey W. Brasher, and Curtis Clark. 1998. Papaveraceae. *Journal of the Arizona-Nevada Academy of Science* 30(2): 120-130.

Oxelman, B., P. Kornhall, R. Olmstead, B. Bremer. 2005. Further disintegration of Scrophulariaceae. *Taxon* 54(2): 411-425.

Pires, J.C., K.J. Sytsma. 2002. A phylogenetic evaluation of a biosystematic framework: Brodiaea and related petaloid monocots (Themidaceae). *American Journal of Botany* 89: 1342-1359.

Powell, B. F, C. A. Schmidt, and W. L. Halvorson. 2006. Vascular Plant and Vertebrate Inventory of Fort Bowie National Historic Site. USGS Open-File Report 2005-1167. U.S. Geological Survey, Southwest Biological Science Center, Sonoran Desert Research Station, University of Arizona, Tucson, AZ.

Puente, Raul and Robert B. Faden. 2001. Commelinaceae. *Journal of the Arizona-Nevada Academy of Science*, 33(1): 19-26.

Rea, Amadeo. 1997. At the Desert's Green Edge. Tucson: University of Arizona Press.

Richardson, David M., ed. 1998. Ecology and Biogeography of *Pinus*. Cambridge: Cambridge University Press.

Robinett, Dan. 1990. Tohono O'odham Range History. *Rangelands* 12(6): 296-300.

Shreve, Forrest and Ira L. Wiggins. 1964. Vegetation and Flora of the Sonoran Desert. Stanford:Stanford University Press. 2 Volumes.

Spicer, Edward. 1962. Cycles of Conquest. University of Arizona Press, Tucson, AZ.

Springer, J., M. Daniels, and M. Nazaire. 2009. *Field Guide to Forest and Mountain Plants of Northern Arizona.* Flagstaff, AZ: Ecological Restoration Institute.

Stefanovic, S., D.F. Austin, R.G. Olmstead. 2003. Classification of Convolvulaceae: a phylogenetic approach. *Systematic Botany* 28(4): 791-806.

Stefanovic, S., L. Krueger, R.G. Olmstead. 2002. Monophyly of the Convolvulaceae and circumscription of their major lineages based on DNA sequences of multiple chloroplast LOCI. *American Journal of Botany* 89(9): 1510-1522.

Tamura, MN, J. Yamashita, S. Fuse, and M. Haraguchi. 2004. Molecular phylogeny of monocotyledons inferred from combined analysis of plastid matK and rbcL gene sequences. *Journal of Plant Research* 117(2): 109-120.

Tank, D., J.M. Egger, and R.G. Olmstead. 2009. Phylogenetic classification of subtribe Castillejinae (Orobanchaceae). *Systematic Botany* 34(1): 182-197.

Turner, Raymond M., Janice E. Bowers, Tony L. Burgess. 1995. Sonoran Desert Plants: An Ecological Atlas. Tucson: University of Arizona Press.

Webb, Robert H., Stanley A. Leake, and Raymond M. Turner. 2007. The Ribbon of Green. University of Arizona Press, Tucson, AZ.

Whittemore, Alan T. 2005. Genetic structure, lack of introgression, and taxonomic status in *Celtis laevigata–C. reticulata* complex (Cannabaceae). *Systematic Botany* 30(4): 809-817.

Wilken, Dieter H. and J. Mark Porter. 2005. Polemoniaceae. *Canotia* 1: 1-37.

Wolfe, A., C. Randle, S. Datwyler, J. Morawetz, N. Arguedas, and J. Diaz. 2006. Phylogeny, taxonomic affinities, and biogeography of *Penstemon* (Plantaginaceae) based on ITS and cpDNA sequence data. *American Journal of Botany* 93(11): 1699-1713.

Woodson, R.E., R.W. Schery, and W.G. D'Arcy. 1979. Flora of Panama. Part IX. Family 171. Scrophulariaceae. *Annals of the Missouri Botanical Garden* 66(2): 173-274.

Yarborough, S.C. and A.M. Powell. 2002. Ferns and Fern allies of the Trans-Pecos and Adjacent Areas. Lubbock: Texas Tech University Press.

Web resources

The single best online resource for collections information in Arizona is the Southwest Environmental Information Network. This website is a digital archival project of all the herbariums in Arizona with a searchable database, plant photos, descriptions, and distribution data.

http://seinet.asu.edu/seinet/index.php

SEINet is also an online repository for NPS checklists from this and other national parklands in the region. All these lists are associated with all known collections found on NPS lands and include photographs and interactive keys to help identify plants. Visit the NPS Flora page at:

http://swbiodiversity.org/seinet/projects/index.php?proj=5

Plant etymology information is drawn from:
Charters, Michael L. 2003-2008 California Plant Names.

http://www.calflora.net/botanicalnames/index2.html

Most ethnobotanical information is drawn from:
Moerman, Daniel. 2003. Native American Ethnobotany.

http://herb.umd.umich.edu/

eFloras is the portal to the online Flora of North America. The site is also a link to many other useful floras.

http://www.efloras.org

Nomenclature and synonymy come from these sources:

Tropicos: http://www.tropicos.org
The Plant List: http://www.theplantlist.org
Integrated Taxonomic Information System: http://www.itis.gov
USDA Plants DB: http://plants.usda.gov

Notes on the Photography

The photography in this field guide is drawn from a number of different sources. The decision to utilize photographs that are under copyright was made with the understanding that this guide an educational, non-commercial tool for resource managers, educators, researchers, and the public. In the spirit of this non-commerical use, the decision to utilize copyrighted material was made according to the fair-use provision of United States copyright law. Under the fair-use provision, all copyright holders have been notified and permission requested where appropriate, permissions are noted with the image. The images in this field guide have been scaled to 300 dpi to assure the quality of the images for printing. Most of the images are smaller than 500 x 500 pixels. All photographs under copyright have been properly attributed with the photo's author and year. Many thanks to the photographers and publishers willing to allow reproduction of this work.

Large online sources for photos used in this volume:

Alexander, Patrick. 2003-2011. Polyploid.net.
http://www.polyploid.net/plants.html

Charters, Michael L. 2002-2009. Wildflowers and Other Plants of Southern California. http://www.calflora.net/bloomingplants

Kinsey, T. Beth. 2003-2008. Wildflowers of Tucson.
http://www.fireflyforest.com/flowers/

Western New Mexico University, Zimmerman Herbarium. 2007.
Vascular plants of the Gila Wilderness.
http://www.wnmu.edu/academic/nspages2/gilaflora/index.html

Works Cited

Tucson Mountain District Checklist

This checklist was compiled as part of the Flora of the Sonoran Desert Network Project, a project of the Vegetation Mapping program at the Sonoran Desert Network (http://science.nature.nps.gov/im/units/sodn/index.cfm). It was derived from baseline inventory data, herbarium records, the phylogenetic and ecological literature, and agency study records originating within the park boundary.

It is important to note that the Tucson Mountain District (TMD) flora listed here consists of voucher specimens collected within the boundaries of Saguaro National Park, but is only a portion of the much larger Tucson Mountains range. The Tucson Mountains Flora was completed in 1991 by Rondeau et al. (http://ag.arizona.edu/herbarium/projects/floras/tucson-mountains) and represents the more substantial frame within which to consider the flora of Saguaro National Park in the Tucson Mountains. The blank spaces on the checklist indicate that the plant was collected for 1991 Rondeau et al., but not within the boundaries of Saguaro National Park.

Important statistics on the flora of the Tucson Mountain District:
Total of species that have been vouchered: 383
Total Taxa (including subspecies and variety) vouchered: 389

Guide to the codes in the Status column:
X = known voucher collection made within Park boundaries
O = observed in park, but never collected
U =Unconfirmed or Uncertain
blank space= found in Flora of the Tucson Mountains, no voucher for park

Family	Scientific Name	Common Name	Status
Acanthaceae	Anisacanthus thurberi	Thurber's desert honeysuckle	X
	Carlowrightia arizonica	Arizona wrightwort	X
	Justicia californica	Beloperone	X
	Justicia longii	Longflower tube tongue	X
	Ruellia nudiflora	Violet wild petunia	X
Aizoaceae	Trianthema portulacastrum	Desert horsepurslane	O
Amaranthaceae	Amaranthus fimbriatus	Fringed amaranth	X
	Amaranthus palmeri	Carelessweed	X
	Amaranthus venulosus	Fringed amaranth	
	Amaranthus x tucsonensis	Unnamed	
	Atriplex canescens	Fourwing saltbush	X
	Atriplex canescens var. linearis	Thinleaf fourwing saltbush	X
	Atriplex elegans	wheelscale saltbush	X
	Atriplex elegans var. elegans	Wheelscale saltbush	
	Atriplex lentiformis ssp. lentiformis	Big saltbush	
	Atriplex polycarpa	Cattle saltbush	
	Chenopodium berlandieri	Pitseed goosefoot	
	Chenopodium incanum	Mealy goosefoot	X
	Chenopodium murale	Nettleleaf goosefoot	
	Chenopodium neomexicanum	New Mexico goosefoot	X
	Gomphrena sonorae	Sonoran globe amaranth	
	Monolepis nuttalliana	Nuttall's povertyweed	
	Salsola kali	Prickly Russian thistle	X
	Salsola tragus	Prickly Russian thistle	U
	Tidestromia lanuginosa	Woolly tidestromia	X
Amaryllidaceae	Zephyranthes longifolia	Copper zephyrlily	X
Anacardiaceae	Rhus lancea	African sumac	
	Rhus trilobata var. pilosissima	Pubescent skunkbush sumac	X
Apiaceae	Bowlesia incana	Hoary bowlesia	X
	Coriandrum sativum	Coriander	
	Cyclospermum leptophyllum	Marsh parsley	
	Daucus pusillus	American wild carrot	X
	Lomatium nevadense var. nevadense	Nevada biscuitroot	X
	Lomatium nevadense var. parishii	Nevada biscuitroot	X
	Spermolepis echinata	Bristly scaleseed	X
	Yabea microcarpa	False carrot	X
Apocynaceae	Asclepias nyctaginifolia	Mojave milkweed	X
	Cynanchum arizonicum	Arizona swallow-wort	

Apocynaceae	Haplophyton crooksii	Cockroachplant	X
	Matelea parvifolia	Spearleaf	X
	Matelea producta	Texas milkvine	X
	Sarcostemma cynanchoides ssp. cynanchoides	Fringed twinevine	
	Sarcostemma cynanchoides ssp. heterophyllum	Hartweg's twinevine	
Aristolochiaceae	Aristolochia watsonii	Watson's dutchman's pipe	X
Asparagaceae	Agave americana var. expansa	American century plant	
	Agave parryi ssp. neomexicana	Parry's agave	
	Agave schottii	Schott's century plant	X
	Yucca baccata	Banana yucca	X
	Yucca elata	Soaptree yucca	X
Asteraceae	Acourtia nana	Dwarf desertpeony	X
	Acourtia wrightii	Brownfoot	X
	Adenophyllum porophylloides	San Felipe dogweed	X
	Ambrosia ambrosioides	Ambrosia leaf bur ragweed	X
	Ambrosia confertiflora	Weakleaf bur ragweed	X
	Ambrosia cordifolia	Tucson bur ragweed	
	Ambrosia deltoidea	Triangle bur ragweed	
	Ambrosia dumosa	Burrobush	
	Artemisia ludoviciana ssp. albula	White sagebrush	
Asteraceae	Artemisia ludoviciana ssp. sulcata	White sagebrush	X
	Baccharis brachyphylla	Shortleaf baccharis	X
	Baccharis salicifolia	Mule-fat	
	Baccharis sarothroides	Desertbroom	
	Bahia absinthifolia	Hairyseed bahia	
	Baileya multiradiata	Desert marigold	
	Bebbia juncea	Sweetbush	X
	Brickellia baccharidea	Resinleaf brickellbush	
	Brickellia californica	California brickellbush	
	Brickellia coulteri	Coulter's brickellbush	X
	Calycoseris parryi	Yellow tackstem	
	Calycoseris wrightii	White tackstem	
	Carthamus tinctorius	Safflower	
	Centaurea melitensis	Maltese star-thistle	
	Chaenactis carphoclinia	Pebble pincushion	X
	Chaenactis stevioides	Esteve's pincushion	X
	Chaetopappa ericoides	Rose heath	
	Cirsium neomexicanum	New Mexcio thistle	
	Conyza bonariensis	Asthmaweed	
	Conyza canadensis	Canadian horseweed	
	Dieteria asteroides	Fall tansyaster	
	Dimorphotheca sinuata	Glandular cape marigold	X
	Eclipta prostrata	False daisy	
	Encelia farinosa	Brittlebush	X
	Encelia frutescens	Button brittlebush	X
	Ericameria cuneata	Cliff goldenbush	X
	Ericameria laricifolia	Turpentine bush	X
	Erigeron colomexicanus	Running fleabane	
	Erigeron divergens	Spreading fleabane	X
	Erigeron lobatus	Lobed fleabane	X
	Eriophyllum lanosum	White easterbonnets	X
	Evax verna var. verna	Spring pygmycudweed	
	Gaillardia arizonica	Arizona blanketflower	
	Gaillardia pulchella	Firewheel	
	Gamochaeta purpurea	Spoonleaf purple everlasting	
	Gutierrezia arizonica	Arizona snakeweed	
	Gutierrezia microcephala	Threadleaf snakeweed	
	Gymnosperma glutinosum	Gumhead	X
	Hedosyne ambrosiifolia	Ragged marsh-elder	
	Helianthus annuus	Common sunflower	
	Helianthus petiolaris	Prairie sunflower	
	Heliomeris longifolia var. annua	Longleaf false goldeneye	X
	Hemizonia kelloggii	Kellogg's tarweed	
	Heterotheca subaxillaris	Camphorweed	
	Hymenoclea salsola	Burrobrush	
	Hymenothrix wislizeni	Trans-Pecos thimblehead	X
	Isocoma tenuisecta	Burroweed	
	Koanophyllon solidaginifolium	Shrubby thoroughwort	
	Lactuca serriola	Prickly lettuce	
	Laennecia coulteri	Coulter's horseweed	
	Lasthenia californica	California goldfields	
	Layia glandulosa	Whitedaisy tidytips	
	Logfia arizonica	Arizona cottonrose	X
	Logfia californica	California cottonrose	X
	Logfia depressa	Dwarf cottonrose	X
	Machaeranthera tagetina	Mesa tansyaster	X
	Malacothrix clevelandii	Cleveland's desertdandelion	X
	Malacothrix coulteri	Snake's head	
	Malacothrix fendleri	Fendler's desertdandelion	
	Malacothrix glabrata	Smooth desertdandelion	
	Malacothrix stebbinsii	desert dandelion	X
	Matricaria discoidea	Disc mayweed	
	Microseris lindleyi	Lindley's silverpuffs	
	Monoptilon bellioides	Mojave desertstar	
	Parthenium incanum	Mariola	X
	Pectis cylindrica	Sonoran chinchweed	
	Pectis filipes	Fivebract chinchweed	
	Pectis linifolia	Romero macho	
	Pectis papposa	Manybristle chinchweed	X
	Perityle emoryi	Emory's rockdaisy	X
	Perityle lemmonii	Lemmon's rockdaisy	X
	Porophyllum gracile	Slender poreleaf	X
	Prenanthella exigua	Brightwhite	
	Pseudognaphalium canescens	cudweed	X
	Pseudognaphalium canescens ssp. canescens	Wright's cudweed	X
	Pseudognaphalium leucocephalum	White cudweed	

Asteraceae	Psilostrophe cooperi	Whitestem paperflower	
	Rafinesquia californica	California plumeseed	X
	Rafinesquia neomexicana	New Mexico plumeseed	X
	Sanvitalia abertii	Abert's creeping zinnia	
	Senecio flaccidus var. monoensis	Smooth threadleaf ragwort	X
	Senecio lemmonii	Lemmon's ragwort	X
	Sonchus asper	Spiny sowthistle	
	Sonchus oleraceus	Common sowthistle	
	Stephanomeria pauciflora	Brownplume wirelettuce	
	Stylocline gnaphalioides	Mountain neststraw	
	Stylocline micropoides	Woolly neststraw	X
	Stylocline sonorensis	Sonoran neststraw	
	Symphyotrichum divaricatum	Southern annual saltmarsh aster	
	Thymophylla acerosa	Pricklyleaf dogwees	
	Thymophylla concinna	Sonoran pricklyleaf	
	Thymophylla pentachaeta	Fiveneedle pricklyleaf	
	Trixis californica	American threefold	X
	Verbesina enceloides ssp. exauriculata	Golden crownbeard	
	Xanthisma gracile	Slender goldenweed	X
	Xanthisma spinulosum	Lacy tansyaster	X
	Xanthium strumarium	Rough cocklebur	
	Zinnia acerosa	Desert zinnia	X
Bignoniaceae	Chilopsis linearis	Desert willow	
	Tecoma stans	Yellow trumpetbush	X
Boraginaceae	Amsinckia menziesii var. intermedia	Common fiddleneck	X
	Amsinckia tessellata	Bristly fiddleneck	X
	Cryptantha angustifolia	Panamint cryptantha	X
	Cryptantha barbigera	Bearded cryptantha	X
	Cryptantha decipiens	Gravelbar cryptantha	X
	Cryptantha maritima	Guadalupe cryptantha	X
	Cryptantha micrantha	Redroot cryptantha	X
	Cryptantha nevadensis	Nevada cryptantha	X
	Cryptantha pterocarya	Wingnut cryptantha	X
	Eucrypta chrysanthemifolia	Spotted hideseed	X
	Eucrypta micrantha	Dainty desert hideseed	X
	Harpagonella palmeri	Palmer's grapplinghook	X
	Lappula occidentalis	Flatspine stickseed	X
	Lappula occidentalis var. cupulata	Flatspine stickseed	X
	Nama demissum	Purplemat	X
	Nama hispidum	Bristly nama	X
	Pectocarya heterocarpa	Chuckwalla combseed	
	Pectocarya platycarpa	Broadfruit combseed	X
	Pectocarya recurvata	Curvenut combseed	X
	Phacelia affinis	Limestone phacelia	
	Phacelia arizonica	Arizona phacelia	
	Phacelia bombycina		X
	Phacelia caerulea	Skyblue phacelia	X
	Phacelia campanularia	Desertbells	
	Phacelia crenulata	Cleftleaf wildheliotrope	X
	Phacelia distans	Distant phacelia	X
	Pholistoma auritum	Blue fiestaflower	X
	Plagiobothrys arizonicus	Arizona popcornflower	X
	Plagiobothrys pringlei	Pringle's popcornflower	
	Tiquilia canescens	Woody crinklemat	
Brassicaceae	Boechera perennans	Perennial rockcress	X
	Brassica nigra	Black mustard	
	Brassica rapa var. rapa	Field mustard	
	Brassica tournefortii	Asian mustard	X
	Capsella bursa-pastoris	Shepherd's purse	X
	Caulanthus lasiophyllus	California mustard	X
	Descurainia pinnata	Western tansymustard	X
	Descurainia sophia	Herb sophia	X
	Draba cuneifolia	Wedgeleaf draba	X
	Dryopetalon runcinatum	Rockmustard	X
	Eruca vesicaria ssp. sativa	Rocketsalad	
	Lepidium lasiocarpum	Shaggyfruit pepperweed	X
	Lepidium thurberi	Thurber's pepperweed	
	Lepidium virginicum var. medium	Intermediate pepperweed	X
	Lesquerella gordonii	Gordon's bladderpod	X
	Lesquerella purpurea	Rose bladderpod	X
	Lesquerella tenella	Moapa bladderpod	
	Matthiola bicornis	Night scented stock	
	Sisymbrium irio	London rocket	
	Sisymbrium orientale	Indian hedgemustard	X
	Streptanthus carinatus	Lyreleaf jewelflower	X
	Streptanthus carinatus ssp. arizonicus	Lyreleaf jewelflower	X
	Thysanocarpus curvipes	Sand fringepod	X
Cactaceae	Carnegiea gigantea	Saguaro	
	Cylindropuntia acanthocarpa	Buckhorn cholla	X
	Cylindropuntia acanthocarpa x spinosior	Buckhorn and Walkingstick hybrid	
	Cylindropuntia arbuscula	Arizona pencil cholla	X
	Cylindropuntia bigelovii var. bigelovii	Teddybear cholla	
	Cylindropuntia fulgida var. fulgida	Jumping cholla	
	Cylindropuntia fulgida var. mamillata	Jumping cholla	
	Cylindropuntia leptocaulis	Christmas cactus	
	Cylindropuntia leptocaulis x spinosior	Christmas and walkingstick hybrid	
	Cylindropuntia spinosior	Walkingstick cactus	X
	Cylindropuntia versicolor	Staghorn cholla	
	Cylindropuntia x kelvinensis	Kelvin's pricklypear	X
	Cylindropuntia x vivipara	rat-tail cholla	
	Echinocereus fasciculatus	Pinkflower hedgehog cactus	
	Echinocereus triglochidiatus	Kingcup cactus	X
	Ferocactus cylindraceus	California barrel cactus	X
	Ferocactus wislizeni	Candy barrelcactus	
	Mammillaria grahamii	Graham's nipple cactus	
	Mammillaria thornberi	Thornber's nipple cactus	
	Mammillaria viridiflora	Greenflower nipple cactus	

Cactaceae	Opuntia chlorotica	Dollarjoint pricklypear	
	Opuntia engelmannii	Cactus apple	
	Opuntia engelmannii var. linguiformis	Cactus apple	X
	Opuntia microdasys	Angel's-wings	
	Opuntia phaeacantha var. major	Tulip pricklypear	
	Opuntia santa-rita	Santa Rita pricklypear	
	Peniocereus greggii	Nightblooming cereus	
Campanulaceae	Nemacladus glanduliferus	Glandular threadplant	X
	Triodanis biflora	Small Venus' looking-glass	
Cannabaceae	Cannabis sativa	Marijuana	O
Caprifoliaceae	Sambucus nigra ssp. cerulea	Blue elderberry	
Caryophyllaceae	Herniaria hirsuta	Hairy rupturewort	
	Loeflingia squarrosa	Spreading pygmyleaf	X
	Silene antirrhina	Sleepy silene	X
Cleomaceae	Polanisia dodecandra ssp. trachysperma	Sandyseed clammyweed	
Convolvulaceae	Convolvulus arvensis	Field bindweed	
	Cuscuta umbellata	Flatglobe dodder	
	Cuscuta salina	Saltmarsh dodder	
	Cuscuta tuberculata	Tubercle dodder	
	Evolvulus alsinoides	Slender dwarf morning-glory	X
	Evolvulus nuttallianus	Shaggy dwarf morning-glory	X
	Ipomoea barbatisepala	Canyon morning-glory	X
	Ipomoea costellata	Crestrib morning-glory	X
	Ipomoea cristulata	Trans-Pecos morning-glory	X
	Ipomoea hederacea	Ivyleaf morning-glory	
	Merremia dissecta	Noyau vine	
Crassulaceae	Crassula connata	Sand pygmyweed	X
Crossosomataceae	Crossosoma bigelovii	Ragged rockflower	X
Cucurbitaceae	Apodanthera undulata	Melon loco	X
	Citrullus lanatus	Watermelon	O
	Cucurbita digitata	Fingerleaf gourd	X
	Cucurbita foetidissima	coyote gourd	X
	Echinopepon wrightii	Wild balsam apple	X
	Tumamoca macdougalii	Tumamoc globeberry	
Cyperaceae	Cyperus esculentus	Yellow nutsdege	X
	Cyperus involucratus	Umbrella plant	
	Cyperus rotundus	Nutgrass	
	Cyperus squarrosus	Bearded flatsedge	
	Schoenoplectus maritimus	Cosmopolitan bulrush	
Ephedraceae	Ephedra aspera	Rough jointfir	X
	Ephedra trifurca	Longleaf jointfir	
Euphorbiaceae	Acalypha neomexicana	New Mexico copperleaf	X
	Argythamnia lanceolata	Narrowleaf silverbush	X
	Argythamnia neomexicana	New Mexico silverbush	X
	Argythamnia serrata	Yuma silverbush	
	Bernardia myricifolia	Mouse's eye	X
	Chamaesyce abramsiana	Abrams' sandmat	X
	Chamaesyce albomarginata	Whitemargin sandmat	
	Chamaesyce arizonica	Arizona sandmat	X
	Chamaesyce capitellata	Head sandmat	X
	Chamaesyce florida	Chiricahua Mountain sandmat	X
	Chamaesyce gracillima	Mexican sandmat	X
	Chamaesyce hyssopifolia	Hyssopleaf sandmat	X
	Chamaesyce melanadenia	Red-gland spurge	X
	Chamaesyce micromera	Sonoran sandmat	X
	Chamaesyce pediculifera	Carrizo Mountain sandmat	X
	Chamaesyce polycarpa	Smallseed sandmat	X
	Chamaesyce prostrata	Prostrate sandmat	
	Chamaesyce serrula	Sawtooth sandmat	
	Chamaesyce setiloba	Yuma sandmat	X
	Euphorbia eriantha	Beetle spurge	X
	Euphorbia exstipulata	Squareweed spurge	
	Euphorbia heterophylla	Mexican fireplant	X
	Jatropha cardiophylla	Sangre de cristo	
	Manihot angustiloba	narrow leaf cassava	X
	Tragia nepetifolia	Catnip noseburn	X
	Tragia ramosa	Branched noseburn	X
Fabaceae	Acacia angustissima	Prairie acacia	
	Acacia constricta	Whitethorn acacia	
	Acacia farnesiana	Sweet acacia	
	Acacia greggii	Catclaw acacia	
	Astragalus allochrous var. playanus	Halfmoon milkvetch	
	Astragalus arizonicus	Arizona milkvetch	X
	Astragalus didymocarpus	Dwarf white milkvetch	X
	Astragalus lentiginosus	Freckled milkvetch	X
	Astragalus nuttallianus	Smallflowered milkvetch	X
	Caesalpinia gilliesii	Bird-of-paradise shrub	
	Calliandra eriophylla	Fairyduster	X
	Coursetia glandulosa	Rosary babybonnets	X
	Dalea grayi	Gray's prairie clover	
	Dalea pogonathera	Bearded prairie clover	X
	Dalea pringlei	Pringle's prairie clover	
	Dalea wrightii	Wright's prairie clover	X
	Desmanthus covillei	Coville's bundleflower	
	Desmodium procumbens	Western trailing ticktrefoil	X
	Galactia wrightii	Wright's milkpea	X
	Hoffmannseggia glauca	Indian rushpea	X
	Lotus greenei	Greene's bird's-foot trefoil	
	Lotus humistratus	Foothill deervetch	X
	Lotus rigidus	Shrubby deervetch	
	Lotus salsuginosus var. brevivexillus	Coastal bird's-foot trefoil	
	Lotus strigosus	Strigose bird's-foot trefoil	X
	Lotus strigosus var. tomentellus	Strigose bird's-foot trefoil	X
	Lupinus concinnus	Bajada lupine	X
	Lupinus sparsiflorus	Coulter's lupine	X
	Marina parryi	Parry's false prairie-clover	X
	Medicago polymorpha	Burclover	

Fabaceae	Medicago sativa	Alfalfa	
	Melilotus indicus	Annual yellow sweetclover	
	Mimosa aculeaticarpa var. biuncifera	Catclaw mimosa	X
	Mimosa distachya var. laxiflora	Arizona mimosa	
	Nissolia schottii	Schott's yellowhood	
	Olneya tesota	Desert ironwood	
	Parkinsonia aculeata	Jerusalem thorn	
	Parkinsonia aculeata x microphylla	Unnamed hybrid	
	Parkinsonia florida	Blue paloverde	
	Parkinsonia microphylla	Yellow paloverde	
	Phaseolus acutifolius	Tepary bean	X
	Phaseolus acutifolius var. latifolius	Tepary bean	
	Phaseolus acutifolius var. tenuifolius	Tepary bean	
	Phaseolus filiformis	Slimjim bean	X
	Prosopis velutina	Velvet mesquite	
	Rhynchosia senna	Texas snoutbean	X
	Senna artemisioides	Silver senna	
	Senna bauhinioides	Twinleaf senna	
	Senna covesii	Coues' cassia	
	Sphinctospermum constrictum	Hourglass peaseed	
	Vicia ludoviciana	Louisiana vetch	X
	Zapoteca formosa	Schott's stickpea	
	Zapoteca formosa var. schottii	Schott's stickpea	
Fagaceae	Quercus turbinella	Sonoran scrub oak	X
Fouquieriaceae	Fouquieria splendens	Ocotillo	X
Gentianaceae	Centaurium calycosum	Arizona centaury	X
Geraniaceae	Erodium cicutarium	Redstem stork's bill	X
	Erodium texanum	Texas stork's bill	
Koeberliniaceae	Koeberlinia spinosa	Crown of thorns	
Krameriaceae	Krameria erecta	Littleleaf ratany	X
	Krameria grayi	White ratany	X
Lamiaceae	Hedeoma nana	Dwarf false pennyroyal	
	Hyptis emoryi	Desert lavender	X
	Lamium amplexicaule	Henbit deadnettle	
	Moluccella laevis	Shellflower	
	Salvia columbariae	Chia	X
	Salvia pinguifolia	Rock sage	
	Teucrium cubense	Small coastal germander	
Liliaceae	Allium macropetalum	Largeflower onion	X
	Asphodelus fistulosus	Onionweed	X
	Calochortus kennedyi	Desert mariposa lily	X
	Dasylirion wheeleri	Common sotol	
	Dichelostemma capitatum	Bluedicks	X
Linaceae	Linum grandiflorum	Flowering flax	
	Linum lewisii	Plains flax	X
	Linum puberulum	Plains flax	
Loasaceae	Mentzelia affinis	Yellowcomet	X
	Mentzelia albicaulis	Whitestem blazingstar	X
	Mentzelia jonesii	Jones' blazingstar	X
	Mentzelia multiflora var. multiflora	Adonis blazingstar	
	Mentzelia texana	Texas blazingstar	
Malpighiaceae	Janusia gracilis	Slender janusia	X
Malvaceae	Abutilon abutiloides	Shrubby Indian mallow	X
	Abutilon incanum	Pelotazo	X
	Abutilon malacum	Yellow Indian mallow	X
	Abutilon parishii	Parish's Indian mallow	
	Abutilon parvulum	Dwarf Indian mallow	
	Anoda pentaschista	Field anoda	
	Ayenia filiformis	Trans-Pecos ayenia	X
	Ayenia microphylla	Dense ayenia	
	Eremalche exilis	White mallow	
	Herissantia crispa	Bladdermallow	X
	Hermannia pauciflora	Santa Catalina burstwort	X
	Hibiscus biseptus	Arizona rosemallow	X
	Hibiscus coulteri	Desert rosemallow	X
	Hibiscus denudatus	Paleface	
	Horsfordia newberryi	Newberry's velvetmallow	X
	Malva parviflora	Cheeseweed mallow	
	Malvastrum bicuspidatum	Shrubby false mallow	
	Rhynchosida physocalyx	Buffpetal	
	Sida abutifolia	Spreading fanpetals	X
	Sphaeralcea ambigua	globemallow	X
	Sphaeralcea ambigua ssp. ambigua	Apricot globemallow	
	Sphaeralcea ambigua ssp. rosacea	Rose globemallow	X
	Sphaeralcea ambigua x emoryi	hybrid globemallow	X
	Sphaeralcea angustifolia	Copper globemallow	
	Sphaeralcea coulteri	Coulter's globemallow	X
	Sphaeralcea emoryi	Emory's globemallow	X
	Sphaeralcea hastulata	Spear globemallow	
	Sphaeralcea laxa	Caliche globemallow	X
Martyniaceae	Proboscidea althaeifolia	Desert unicorn-plant	X
	Proboscidea parviflora	Doubleclaw	
Meliaceae	Melia azedarach	Chinaberrytree	
Molluginaceae	Mollugo cerviana	Threadstem carpetweed	X
	Mollugo verticillata	Green carpetweed	
Moraceae	Morus microphylla	Texas mulberry	X
Nyctaginaceae	Allionia incarnata	Trailing windmills	
	Boerhavia coccinea	Scarlet spiderling	
	Boerhavia coulteri	Coulter's spiderling	
	Boerhavia erecta	Erect spiderling	
	Boerhavia gracillima	Slimstalk spiderling	
	Boerhavia intermedia	Fivewing spiderling	X
	Boerhavia megaptera	Tucson Mountain spiderling	X
	Boerhavia scandens	Climbing wartclub	X
	Boerhavia spicata	Creeping spiderling	
	Boerhavia wrightii	Largebract spiderling	X
	Mirabilis coccinea	Scarlet four o'clock	X

Nyctaginaceae	Mirabilis laevis var. villosa	Wishbone-bush	X
	Mirabilis multiflora	Colorado four o'clock	X
Oleaceae	Forestiera shrevei	Desert olive	X
	Menodora scabra	Rough menodora	X
Onagraceae	Camissonia californica	California suncup	X
	Camissonia chamaenerioides	Longcapsule suncup	X
	Camissonia claviformis	Browneyes	
	Gaura hexandra ssp. gracilis	harlequinbush	X
	Gaura mollis	Velvetweed	X
	Oenothera caespitosa	Tufted evening primrose	
	Oenothera primiveris	Desert evening primrose	
Orobanchaceae	Castilleja exserta ssp. exserta	Exserted Indian paintbrush	X
	Orobanche cooperi	Desert broomrape	X
Papaveraceae	Argemone gracilenta	Sonoran pricklypoppy	
	Argemone ochroleuca	Pale Mexican pricklypoppy	
	Corydalis aurea	Scrambled eggs	
	Eschscholzia californica ssp. mexicana	California poppy	X
	Papaver rhoeas	Corn poppy	
Passifloraceae	Passiflora arida	Passion flower	
Phrymaceae	Mimulus guttatus	Seep monkeyflower	X
	Mimulus rubellus	Little redstem monkeyflower	X
Plantaginaceae	Maurandya antirrhiniflora	Roving sailor	
	Nuttallanthus texanus	Texas toadlax	X
	Penstemon parryi	Parry's beardtongue	X
	Penstemon subulatus	Hackberry beardtongue	X
	Plantago bigelovii ssp. californica	Coast plantain	
	Plantago ovata	Desert Indianwheat	X
	Plantago patagonica	Woolly plantain	
	Plantago rhodosperma	Redseed plantain	
	Sairocarpus nuttallianus	Violet snapdragon	X
	Stemodia durantifolia	Whitewoolly twintip	X
	Veronica anagallis-aquatica	Water speedwell	
	Veronica peregrina	Neckweed	X
Plumbaginaceae	Plumbago scandens	Doctorbush	X
Poaceae	Achnatherum speciosum	Desert needlegrass	X
	Aristida adscensionis	Sixweeks threeawn	X
	Aristida purpurea var. longiseta	Fendler threeawn	
	Aristida purpurea var. nealleyi	Blue threeawn	X
	Aristida purpurea var. parishii	Parish's threeawn	X
	Aristida purpurea var. purpurea	Purple threeawn	X
	Aristida ternipes	Spidergrass	X
	Aristida ternipes var. gentilis	Spidergrass	
	Arundo donax	Giant reed	
	Avena fatua	Wild oat	X
	Bothriochloa barbinodis	Cane bluestem	X
	Bothriochloa ischaemum	Yellow bluestem	
	Bouteloua aristidoides	Needle grama	X
	Bouteloua barbata	Sixweeks grama	X
	Bouteloua chondrosioides	Sprucetop grama	
	Bouteloua curtipendula	Sideoats grama	X
	Bouteloua eriopoda	Black grama	X
	Bouteloua gracilis	Blue grama	
	Bouteloua hirsuta	Hairy grama	X
	Bouteloua repens	Slender grama	X
	Bouteloua rothrockii	Rothrock's grama	
	Bouteloua trifida	Red grama	X
	Bromus arizonicus	Arizona brome	X
	Bromus carinatus	California brome	
	Bromus catharticus var. catharticus	Rescuegrass	X
	Bromus diandrus	Ripgut brome	
	Bromus rubens	Red brome	
	Bromus tectorum	Cheatgrass	
	Chloris virgata	Feather fingergrass	X
	Cortaderia selloana	Uruguayan pampas grass	
	Cottea pappophoroides	Cotta grass	X
	Cynodon dactylon	Bermudagrass	X
	Dasyochloa pulchella	Low woollygrass	X
	Digitaria californica	Arizona cottontop	X
	Digitaria insularis	Sourgrass	
	Echinochloa colona	Jungle rice	X
	Elymus elymoides	Elymus elymoides	
	Enneapogon desvauxii	Nineawn pappusgrass	X
	Enneapogon mollis	Soft feather pappusgrass	
	Eragrostis barrelieri	Mediterranean lovegrass	
	Eragrostis cilianensis	Stinkgrass	X
	Eragrostis curvula	Weeping lovegrass	
	Eragrostis echinochloidea	African lovegrass	X
	Eragrostis intermedia	Plains lovegrass	
	Eragrostis lehmanniana	Lehmann lovegrass	X
	Eragrostis pectinacea	Tufted lovegrass	
	Eriochloa acuminata	Tapertip cupgrass	
	Heteropogon contortus	Tanglehead	X
	Hilaria belangeri	Curly-mesquite	X
	Hordeum murinum ssp. glaucum	Smooth barley	X
	Hordeum murinum ssp. leporinum	lepor barley	X
	Hordeum pusillum	Little barley	X
	Lamarckia aurea	Goldentop grass	
	Leptochloa dubia	Green sprangletop	
	Leptochloa fusca ssp. fascicularis	Bearded sprangletop	
	Leptochloa fusca ssp. uninervia	Mexican sprangletop	X
	Leptochloa panicea ssp. mucronata	Mucronate sprangletop	
	Lycurus setosus	Bristly wolfstail	
	Melinis repens ssp. repens	Rose Natal grass	X
	Muhlenbergia emersleyi	Bullgrass	X
	Muhlenbergia microsperma	Littleseed muhly	X
	Muhlenbergia porteri	Bush muhly	X
	Muhlenbergia rigens	Deergrass	X

Poaceae	Muhlenbergia tenuifolia	Slender muhly	X
	Panicum hirticaule	Mexican panicgrass	
	Panicum miliaceum	Broomcorn millet	
	Panicum obtusum	Vine mesquite	
	Pappophorum vaginatum	Whiplash pappusgrass	X
	Pennisetum ciliare	Buffelgrass	
	Pennisetum setaceum	Crimson fountaingrass	X
	Phalaris minor	Littleseed canarygrass	
	Phragmites australis	Common reed	
	Pleuraphis mutica	Tobosagrass	
	Poa bigelovii	Bigelow's bluegrass	X
	Polypogon monspeliensis	Annual rabbitsfoot grass	
	Schismus arabicus	Arabian schismus	X
	Schismus barbatus	Common Mediterranean grass	X
	Scleropogon brevifolius	Burrograss	
	Setaria adhaerens	Bur bristlegrass	
	Setaria arizonica	Arizona bristlegrass	
	Setaria grisebachii	Grisebach's bristlegrass	X
	Setaria leucopila	Streambed bristlegrass	X
	Setaria liebmannii	Liebmann's bristlegrass	
	Sorghum halepense	Johnsongrass	
	Sporobolus airoides	Alkali sacaton	
	Sporobolus contractus	Spike dropseed	X
	Sporobolus cryptandrus	Sand dropseed	
	Sporobolus wrightii	Big sacaton	X
	Tridens eragrostoides	Lovegrass tridens	
	Tridens muticus	Slim tridens	X
	Trisetum interruptum	Prairie false oat	
	Triticum aestivum	Common wheat	X
	Urochloa arizonica	Arizona signalgrass	X
	Vulpia microstachys var. ciliata	Eastwood fescue	X
	Vulpia myuros	Rat-tail fescue	
	Vulpia octoflora	sixweeks fescue	X
	Vulpia octoflora var. hirtella	Sixweeks fescue	X
	Vulpia octoflora var. octoflora	Sixweeks fescue	
Polemoniaceae	Eriastrum diffusum	Miniature woollystar	X
	Gilia capitata	Bullhead gilia	
	Gilia flavocincta ssp. australis	Lesser yellowthroat gilia	X
	Gilia stellata	Star gilia	X
	Ipomopsis longiflora	Flaxflowered ipomopsis	
	Leptosiphon aureus	Golden linanthus	
	Linanthus bigelovii	Bigelow's linanthus	
	Microsteris gracilis	Slender phlox	
	Phlox tenuifolia	Santa Catalina Mountain Phlox	X
Polygalaceae	Polygala macradenia	Glandleaf milkwort	X
Polygonaceae	Chorizanthe brevicornu	Brittle spineflower	X
	Chorizanthe rigida	Devil's spineflower	X
	Eriogonum abertianum	Abert's buckwheat	X
	Eriogonum deflexum	Flatcrown buckwheat	X
	Eriogonum inflatum	Desert trumpet	X
	Eriogonum maculatum	Spotted buckwheat	X
	Eriogonum palmerianum	Palmer's buckwheat	X
	Eriogonum polycladon	Sorrel buckwheat	
	Eriogonum reniforme	Kidneyleaf buckwheat	
	Eriogonum thurberi	Thurber's buckwheat	X
	Eriogonum trichopes	Little deserttrumpet	
	Eriogonum wrightii var. wrightii	Bastardsage	
Portulacaceae	Calandrinia ciliata	Fringed redmaids	X
	Cistanthe monandra	Common pussypaws	X
	Phemeranthus aurantiacus	Orange fameflower	X
	Portulaca halimoides	Silkcotton purslane	
	Portulaca oleracea	Little hogweed	X
	Portulaca suffrutescens	Shrubby purslane	X
	Portulaca umbraticola	Wingpod purslane	X
	Talinum paniculatum	Jewels of Opar	X
Primulaceae	Anagallis arvensis	Scarlet pimpernel	
	Androsace occidentalis	Western rockjasmine	X
Pteridaceae	Astrolepis cochisensis	Cochise scaly cloakfern	
	Astrolepis sinuata ssp. sinuata	Wavy scaly cloakfern	X
	Cheilanthes lindheimeri	Fairyswords	
	Cheilanthes parryi	Parry's lipfern	
	Cheilanthes pringlei	Pringle's lipfern	X
	Cheilanthes wootonii	Beaded lipfern	
	Cheilanthes wrightii	Wright's lipfern	X
	Cheilanthes yavapensis	Graceful lipfern	X
	Notholaena standleyi	Star cloak fern	
	Pellaea truncata	Spiny cliffbrake	
	Pellaea wrightiana	Wright's cliffbrake	
Ranunculaceae	Anemone tuberosa	Tuber anemone	
	Clematis drummondii	Drummond's clematis	
	Delphinium scaposum	Tall mountain larkspur	X
	Myosurus cupulatus	Arizona mousetail	X
Resedaceae	Oligomeris linifolia	Lineleaf whitepuff	
Rhamnaceae	Condalia correllii	Correll's snakewood	
	Condalia warnockii var. kearneyana	Kearney's snakewood	
	Ziziphus obtusifolia	Lotebush	X
Rosaceae	Vauquelinia californica	Arizona rosewood	X
Rubiaceae	Galium aparine	Stickywilly	X
	Galium proliferum	Limestone bedstraw	X
Rubiaceae	Galium stellatum ssp. eremicum	Starry bedstraw	X
Rutaceae	Thamnosma texana	Rue of the moutains	X
Salicaceae	Populus fremontii ssp. mesetae	Fremont cottonwood	X
	Salix gooddingii	Goodding's willow	
Santalaceae	Phoradendron californicum	Mesquite mistletoe	X
	Phoradendron serotinum ssp. tomentosum	Cory's mistletoe	
Sapindaceae	Dodonaea viscosa	Florida hopbush	
Selaginellaceae	Selaginella arizonica	Arizona spikemoss	X
Simmondsiaceae	Simmondsia chinensis	Jojoba	X

Solanaceae	Calibrachoa parviflora	Seaside petunia	X
	Datura discolor	Desert thorn-apple	X
	Datura wrightii	Wright's thorn-apple	
	Lycium andersonii	Water jacket	X
	Lycium berlandieri	Berlandier's wolfberry	X
	Lycium berlandieri var. longistylum	Berlandier's wolfberry	X
	Lycium exsertum	Arizona desert-thorn	X
	Lycium fremontii	Fremont's desert-thorn	
	Lycium macrodon	Desert wolfberry	
	Margaranthus solanaceus	Netted globecherry	X
	Nicotiana glauca	Tree tobacco	
	Nicotiana obtusifolia var. obtusifolia	Desert tobacco	X
	Physalis acutifolia	Sharpleaf groundcherry	
	Physalis crassifolia	Yellow nightshade groundcherry	X
	Physalis hederifolia	ivyleaf groundcherry	X
	Quincula lobata	Chinese lantern	
	Solanum elaeagnifolium	Silverleaf nightshade	X
	Solanum nigrescens	Divine nightshade	
	Solanum rostratum	Buffalobur nightshade	
Tamaricaceae	Tamarix chinensis	Five-stamen tamarisk	
Typhaceae	Typha angustifolia	Narrowleaf cattail	
Ulmaceae	Celtis ehrenbergiana	Spiny hackberry	
Urticaceae	Parietaria floridana	Florida pellitory	
	Parietaria hespera	rillita pellitory	X
	Parietaria pensylvanica	Pennsylvania pellitory	X
Verbenaceae	Aloysia wrightii	Wright's beebrush	
	Glandularia gooddingii	Glandularia gooddingii	X
	Lantana camara	Lantana	
	Tetraclea coulteri	Coulter's wrinklefruit	
	Verbena neomexicana	Hillside vervain	
Violaceae	Hybanthus verticillatus	Babyslippers	X
Zygophyllaceae	Fagonia laevis	California fagonbush	
	Kallstroemia californica	California caltrop	X
	Kallstroemia grandiflora	Arizona poppy	X
	Kallstroemia parviflora	Warty caltrop	X
	Larrea divaricata ssp. tridentata	Creosote bush	
	Tribulus terrestris	Puncturevine	X

Rincon Mountains District Checklist

This checklist was compiled as part of the Flora of the Sonoran Desert Network Project, a project of the Vegetation Mapping program at the Sonoran Desert Network (http://science.nature.nps.gov/im/units/sodn/index.cfm). It has been derived from baseline inventory data, herbarium records, the phylogenetic and ecological literature, and agency study records.

The plants in this checklist represent nearly a hundred years of plant collecting, which was first put together as the Flora of the Rincon Mountains by Steve McLaughlin and Janice Bowers in 1983. The National Park Service completed an inventory of all vascular plants in the Rincon Mountains District in 2001, with Powell et al.. This checklist starts with these two efforts and builds on them by first evaluating and censusing all known plant collections that have ever been made in the Rincon Mountains. By aggregating up with all the known collections and all the verifiable sightings, a much larger list was able to be derived. This list represents a paring down of that larger list to reflect all the species thought to be in the Rincon Mountains District, or suspected to be in the Rincon Mountains as a whole landscape.

Important statistics on the flora of the Rincon Mountains District:
Total of species: 1182
Total Taxa (including subspecies and variety): 1216

Guide to the codes in the Status column:
X = known voucher collection made within Park boundaries
O = observed in park, but never collected
U =Unconfirmed or Uncertain
blank space= found in Flora of the Tucson Mountains, no voucher for park

Family	Scientific Name	Common Name	Voucher
Acanthaceae	Anisacanthus thurberi	Thurber's desert honeysuckle	X
	Carlowrightia arizonica	Arizona wrightwort	X
	Elytraria imbricata	purple scalystem	X
	Justicia longii	longflower tubetongue	X
	Ruellia nudiflora	violet wild petunia	X
	Tetramerium nervosum	hairy fournwort	X
Adoxaceae	Sambucus nigra ssp. canadensis	common elderberry	X
Aizoaceae	Trianthema portulacastrum	desert horsepurslane	X
Amaranthaceae	Amaranthus albus	prostrate pigweed	X
	Amaranthus blitoides	mat amaranth	O
	Amaranthus fimbriatus	fringed amaranth	X
	Amaranthus palmeri	carelessweed	X
	Amaranthus powellii	Powell's amaranth	X
	Atriplex canescens	fourwing saltbush	X
	Atriplex canescens var. linearis	thinleaf fourwing saltbush	X
	Atriplex elegans	wheelscale saltbush	O
	Atriplex elegans var. thornberi	wheelscale saltbush	X
	Chenopodium berlandieri	pitseed goosefoot	X
	Chenopodium desiccatum	aridland goosefoot	U
	Chenopodium fremontii	Fremont's goosefoot	X
	Chenopodium graveolens	fetid goosefoot	X
	Chenopodium incanum	mealy goosefoot	X
	Chenopodium murale	nettleleaf goosefoot	X
	Chenopodium neomexicanum	New Mexico goosefoot	X
	Chenopodium pratericola	desert goosefoot	X
	Froelichia arizonica	Arizona snakecotton	X
	Gomphrena caespitosa	tufted globe amaranth	X
	Gomphrena nitida	pearly globe amaranth	X
	Gomphrena sonorae	Sonoran globe amaranth	X
	Guilleminea densa	small matweed	X
	Iresine heterophylla	Standley's bloodleaf	X
	Salsola kali	Russian thistle	X
	Salsola tragus	prickly Russian thistle	O
	Tidestromia lanuginosa	woolly tidestromia	X

Amaryllidaceae	Allium bigelovii	Bigelow's onion	U
	Allium bisceptrum var. palmeri	aspen onion	U
	Allium geyeri	Geyer's onion	X
	Allium geyeri var. tenerum	bulbil onion	X
	Allium macropetalum	largeflower onion	X
	Nothoscordum texanum	Texas false garlic	X
	Zephyranthes longifolia	copper zephyrlily	X
Anacardiaceae	Rhus aromatica	fragrant sumac	X
	Rhus aromatica var. pilosissima	pubescent squawbush	X
	Rhus aromatica var. trilobata	skunkbush sumac	X
	Rhus lancea	African sumac	X
	Rhus microphylla	littleleaf sumac	O
	Rhus virens var. choriophylla	evergreen sumac	X
	Toxicodendron radicans ssp. divaricatum	eastern poison ivy	X
	Toxicodendron rydbergii	western poison ivy	O
Apiaceae	Bowlesia incana	hoary bowlesia	X
	Cymopterus multinervatus	purplenerve springparsley	X
	Daucus pusillus	American wild carrot	X
	Eryngium spp.	eryngo	O
	Lomatium nevadense	Nevada biscuitroot	X
	Lomatium nevadense var. nevadense	Nevada biscuitroot	X
	Pseudocymopterus montanus	alpine false springparsley	X
	Spermolepis echinata	bristly scaleseed	X
	Yabea microcarpa	false carrot	X
Apocynaceae	Apocynum androsaemifolium	spreading dogbane	X
	Apocynum cannabinum	Indianhemp	X
	Apocynum X floribundum	Unknown	U
	Asclepias angustifolia	Arizona milkweed	X
	Asclepias asperula	spider milkweed	X
	Asclepias glaucescens	nodding milkweed	X
	Asclepias hypoleuca	mahogany milkweed	X
	Asclepias lemmonii	Lemmon's milkweed	U
	Asclepias linaria	pineneedle milkweed	X
	Asclepias macrotis	longhood milkweed	X
	Asclepias nyctaginifolia	Mojave milkweed	X
	Asclepias pumila	plains milkweed	U
	Asclepias quinquedentata	slimpod milkweed	X
	Asclepias subverticillata	horsetail milkweed	O
	Asclepias tuberosa	butterfly milkweed	X
	Asclepias tuberosa ssp. interior	butterfly milkweed	X
	Asclepias viridiflora	green comet milkweed	U
	Cynanchum arizonicum	Arizona swallow-wort	X
	Funastrum crispum	wavyleaf twinevine	O
	Funastrum cynanchoides	fringed twinevine	X
	Funastrum cynanchoides ssp. cynanchoides	fringed twinevine	X
	Funastrum cynanchoides ssp. heterophyllum	Hartweg's twinevine	X
	Haplophyton crooksii	cockroachplant	X
	Macrosiphonia brachysiphon	Huachuca Mountain rocktrumpet	X
	Matelea arizonica	Arizona milkvine	X
	Matelea parvifolia	spearleaf	X
	Matelea producta	Texas milkvine	X
	Nerium oleander	oleander	X
Araliaceae	Aralia humilis	Arizona spikenard	X
Aristolochiaceae	Aristolochia watsonii	Watson's dutchman's pipe	X
Asparagaceae	Agave chiapensis	hybrid	U
	Agave chrysantha	goldenflower century plant	X
	Agave palmeri	Palmer's century plant	X
	Agave parryi	Parry's agave	U
	Agave schottii	Schott's century plant	X
	Agave schottii var. schottii	Schott's century plant	X
	Dasylirion wheeleri	common sotol	X
	Dichelostemma capitatum ssp. capitatum	bluedicks	O
	Maianthemum stellatum	starry false lily of the vally	X
	Nolina microcarpa	sacahuista	X
	Yucca elata	Schott's yucca	O
	Yucca madrensis	soaptree yucca	O
	Yucca x schottii	Madrean yucca	X
Aspleniaceae	Asplenium trichomanes	maidenhair spleenwort	X
Asteraceae	Achillea millefolium	common yarrow	X
	Acourtia nana	dwarf desertpeony	X
	Acourtia thurberi	Thurber's desertpeony	X
	Acourtia wrightii	brownfoot	X
	Adenophyllum porophylloides	San Felipe dogweed	X
	Ageratina herbacea	fragrant snakeroot	X
	Ageratina paupercula	Santa Rita snakeroot	X
	Ageratina rothrockii	Rothrock's snakeroot	U
	Ageratina wrightii	Wright's snakeroot	U
	Ambrosia ambrosioides	ambrosia leaf burr ragweed	X
	Ambrosia confertiflora	weakleaf burr ragweed	X
	Ambrosia cordifolia	Tucson burr ragweed	U
	Ambrosia deltoidea	triangle burr ragweed	X
	Ambrosia dumosa	burrobush	X
	Ambrosia psilostachya	Cuman ragweed	O
	Antennaria marginata	whitemargin pussytoes	X
	Antennaria microphylla	littleleaf pussytoes	U
	Antennaria parvifolia	small-leaf pussytoes	U
	Antheropeas lanosum	white easterbonnets	X

Asteraceae	Arida arizonica	arid tansyaster	U
	Artemisia dracunculus	tarragon	X
	Artemisia ludoviciana	white sagebrush	X
	Artemisia ludoviciana ssp. sulcata	white sagebrush	X
	Baccharis brachyphylla	shortleaf baccharis	X
	Baccharis pteronioides	yerba de pasmo	X
	Baccharis salicifolia	mule's fat	X
	Baccharis sarothroides	desertbroom	X
	Baccharis thesioides	Arizona baccharis	X
	Bahia absinthifolia	hairyseed bahia	X
	Bahia absinthifolia var. dealbata	Dealbata's bahia	X
	Bahia dissecta	ragleaf bahia	X
	Bahiopsis parishii	Parish goldeneye	X
	Baileya multiradiata	desert marigold	X
	Baileya pleniradiata	woolly desert marigold	U
	Bebbia juncea	sweetbush	X
	Bidens aurea	Arizona beggarticks	X
	Bidens heterosperma	Rocky Mountain beggarticks	X
	Bidens lemmonii	Lemmon's beggarticks	X
	Bidens leptocephala	fewflower beggarticks	X
	Brickellia amplexicaulis	earleaf brickellbush	X
	Brickellia baccharidea	resinleaf brickellbush	X
	Brickellia betonicifolia	betonyleaf brickellbush	X
	Brickellia brachyphylla	plumed brickellbush	U
	Brickellia californica	California brickellbush	X
	Brickellia coulteri	Coulter's brickellbush	X
	Brickellia eupatorioides var. chlorolepis	false boneset	X
	Brickellia grandiflora	tasselflower brickellbush	X
	Brickellia pringlei	Pringle's brickellbush	X
	Brickellia rusbyi	stinking brickellbush	X
	Brickellia simplex	Sonoran brickellbush	U
	Brickellia venosa	veiny brickellbush	X
	Brickelliastrum fendleri	Fendler's brickellbush	X
	Calycoseris parryi	yellow tackstem	U
	Calycoseris wrightii	white tackstem	X
	Carminatia tenuiflora	plumeweed	X
	Carphochaete bigelovii	Bigelow's bristlehead	X
	Centaurea melitensis	Maltese star-thistle	X
	Centaurea solstitialis	yellow star-thistle	U
	Chaenactis carphoclinia	pebble pincushion	X
	Chaenactis stevioides	Steve's dustymaiden	X
	Chaetopappa ericoides	rose heath	X
	Cirsium neomexicanum	New Mexico thistle	X
	Cirsium ochrocentrum	yellowspine thistle	U
	Cirsium undulatum	wavyleaf thistle	X
	Cirsium wheeleri	Wheeler's thistle	X
	Conyza bonariensis	asthmaweed	X
	Conyza canadensis	Canadian horseweed	X
	Coreocarpus arizonicus	little lemonhead	X
	Cosmos parviflorus	southwestern cosmos	X
	Dieteria asteroides	New Mexico tansyaster	X
	Dieteria canescens	hoary tansyaster	U
	Dimorphotheca sinuata	glandular cape marigold	U
	Encelia farinosa	goldenhills	X
	Encelia frutescens var. frutescens	button brittlebush	X
	Ericameria cuneata	cliff goldenbush	X
	Ericameria laricifolia	turpentine bush	X
	Erigeron colomexicanus	running fleabane	X
	Erigeron divergens	spreading fleabane	X
	Erigeron flagellaris	trailing fleabane	X
	Erigeron neomexicanus	New Mexico fleabane	X
	Erigeron oreophilus	chaparral fleabane	X
	Erigeron speciosus	aspen fleabane	X
	Fleischmannia pycnocephala	lavender thoroughwort	U
	Gaillardia pinnatifida	red dome blanketflower	X
	Gaillardia pulchella	firewheel	U
	Galinsoga parviflora	gallant-soldier	X
	Gamochaeta purpurea	spoonleaf purple everlasting	X
	Gnaphalium palustre	western marsh cudweed	U
	Guardiola platyphylla	Apache plant	X
	Gutierrezia arizonica	Arizona snakeweed	X
	Gutierrezia microcephala	threadleaf snakeweed	X
	Gutierrezia sarothrae	broom snakeweed	X
	Gutierrezia serotina	late snakeweed	X
	Gymnosperma glutinosum	gumhead	X
	Hedosyne ambrosiifolia	ragged marshelder	X
	Helenium thurberi	Thurber's sneezeweed	X
	Helianthella quinquenervis	fivenerve helianthella	X
	Helianthus annuus	common sunflower	X
	Heliomeris longifolia var. annua	longleaf false goldeneye	X
	Heliomeris multiflora	showy goldeneye	X
	Heliomeris multiflora var. multiflora	showy goldeneye	U
	Heliomeris multiflora var. nevadensis	Nevada goldeneye	X
	Heterosperma pinnatum	wingpetal	X
	Heterotheca fulcrata	rockyscree false goldenaster	X
	Heterotheca fulcrata var. fulcrata	rockyscree false goldenaster	X
	Heterotheca fulcrata var. senilis	rockyscree false goldenaster	X

Asteraceae	Heterotheca grandiflora	telegraph weed	U
	Heterotheca subaxillaris	camphorweed	X
	Hieracium carneum	Huachuca hawkweed	X
	Hieracium fendleri	yellow hawkweed	X
	Hieracium lemmonii	Lemmon's hawkweed	X
	Hymenoclea monogyra	singlewhorl burrobrush	X
	Hymenoclea salsola	burrobrush	X
	Hymenopappus filifolius	fineleaf hymenopappus	U
	Hymenopappus filifolius var. lugens	Idaho hymenopappus	U
	Hymenopappus mexicanus	Mexican woollywhite	X
	Hymenothrix wislizeni	TransPecos thimblehead	X
	Hymenothrix wrightii	Wright's thimblehead	X
	Hymenoxys hoopesii	owl's-claws	X
	Hymenoxys quinquesquamata	rincon rubberweed	U
	Isocoma tenuisecta	burroweed	X
	Koanophyllon solidaginifolium	shrubby thoroughwort	X
	Lactuca serriola	prickly lettuce	X
	Laennecia coulteri	conyza	X
	Laennecia eriophylla	Cochise marshtail	X
	Laennecia schiedeana	pineland marshtail	X
	Laennecia sophiifolia	leafy marshtail	X
	Lasianthaea podocephala	San Pedro daisy	X
	Lasthenia californica	California goldfields	X
	Layia glandulosa	whitedaisy tidytips	U
	Leibnitzia lyrata	Seeman's sunbonnets	X
	Logfia arizonica	Arizona cottonrose	X
	Logfia californica	California cottonrose	X
	Machaeranthera tagetina	mesa tansyaster	X
	Malacothrix clevelandii	Cleveland's desertdandelion	X
	Malacothrix fendleri	Fendler's desertdandelion	O
	Malacothrix glabrata	smooth desertdandelion	U
	Malacothrix sonorae	Sonoran desertdandelion	X
	Malacothrix stebbinsii	Stebbins' desertdandelion	X
	Melampodium leucanthum	plains blackfoot	X
	Melampodium longicorne	Arizona blackfoot	U
	Melampodium strigosum	shaggy blackfoot	X
	Monoptilon bellioides	Mojave desertstar	O
	Packera neomexicana	New Mexico groundsel	X
	Packera neomexicana var. neomexicana	New Mexico groundsel	X
	Parthenice mollis	annual monsterwort	X
	Parthenium incanum	mariola	X
	Pectis cylindrica	Sonoran cinchweed	O
	Pectis filipes	fivebract cinchweed	X
	Pectis filipes var. subnuda	fivebract cinchweed	X
	Pectis longipes	longstalk cinchweed	X
	Pectis papposa	manybristle cinchweed	X
	Pectis papposa var. papposa	manybristle cinchweed	U
	Pectis prostrata	spreading cinchweed	X
	Perityle coronopifolia	crowfoot rockdaisy	X
	Perityle lemmonii	Lemmon's rockdaisy	X
	Porophyllum gracile	slender poreleaf	X
	Porophyllum ruderale	yerba porosa	O
	Porophyllum ruderale ssp. macrocephalum	yerba porosa	X
	Pseudognaphalium canescens	Wright's cudweed	X
	Pseudognaphalium canescens ssp. canescens	Wright's cudweed	O
	Pseudognaphalium leucocephalum	white cudweed	X
	Pseudognaphalium macounii	Macoun's cudweed	X
	Pseudognaphalium pringlei	Pringle's cudweed	X
	Pseudognaphalium stramineum	cottonbatting plant	X
	Pseudognaphalium viscosum	winged cudweed	O
	Psilactis asteroides	New Mexico tansyaster	U
	Psilostrophe cooperi	whitestem paperflower	X
	Rafinesquia californica	California plumseed	X
	Rafinesquia neomexicana	New Mexico plumseed	X
	Rudbeckia laciniata	cutleaf coneflower	X
	Sanvitalia abertii	Albert's creeping zinnia	X
	Senecio bigelovii	nodding ragwort	X
	Senecio flaccidus var. douglasii	Douglas' ragwort	X
	Senecio flaccidus var. monoensis	Mono ragwort	X
	Senecio lemmonii	Lemmon's ragwort	X
	Senecio parryi	mountain ragwort	X
	Senecio wootonii	Wooton's ragwort	X
	Solidago altissima	Canada goldenrod	X
	Solidago missouriensis	Missouri goldenrod	X
	Solidago velutina	threenerve goldenrod	X
	Solidago wrightii	Wright's goldenrod	X
	Solidago wrightii var. wrightii	Wright's goldenrod	X
	Sonchus asper	spiny sowthistle	X
	Sonchus oleraceus	common sowthistle	X
	Stephanomeria pauciflora	brownplume wirelettuce	X
	Stevia lemmonii	Lemmon's candyleaf	X
	Stevia plummerae	Plummer's candyleaf	X
	Stevia plummerae var. plummerae	Plummer's candyleaf	X
	Stevia serrata	sawtooth candyleaf	X
	Stylocline micropoides	woollyhead neststraw	X
	Symphyotrichum falcatum var. commutatum	white prairie aster	X
	Symphyotrichum praealtum var. praealtum	willowleaf aster	O

Asteraceae	Tagetes lemmonii	Lemmon's marigold	X
	Tagetes micrantha	licorice marigold	X
	Taraxacum laevigatum	rock dandelion	X
	Taraxacum officinale	common dandelion	U
	Thelesperma longipes	longstalk greenweed	X
	Thymophylla acerosa	pricklyleaf dogweed	X
	Thymophylla pentachaeta	fiveneedle pricklyleaf	X
	Thymophylla pentachaeta var. pentachaeta	fiveneedle pricklyleaf	X
	Trixis californica	American threefold	X
	Uropappus lindleyi	Lindley's silverpuffs	X
	Verbesina encelioides	golden crownbeard	X
	Verbesina encelioides ssp. exauriculata	golden crownbeard	U
	Verbesina rothrockii	Rothrock's crownbeard	X
	Viguiera cordifolia	heartleaf goldeneye	X
	Viguiera deltoidea	Parish's goldeneye	U
	Viguiera dentata	toothleaf goldeneye	X
	Viguiera dentata var. lancifolia	toothleaf goldeneye	X
	Xanthisma gracile	slender goldenweed	X
	Xanthisma spinulosum	lacy tansyaster	X
	Xanthium strumarium	rough cockleburr	X
	Xanthium strumarium var. canadense	Canada cockleburr	X
	Zinnia acerosa	desert zinnia	X
Berberidaceae	Berberis wilcoxii	Wilcox's barberry	X
Betulaceae	Alnus incana ssp. tenuifolia	thinleaf alder	X
	Alnus oblongifolia	Arizona alder	X
Bignoniaceae	Chilopsis linearis	desert willow	X
	Tecoma stans	yellow trumpetbush	X
Bixaceae	Amoreuxia palmatifida	Mexican yellowshow	O
Boraginaceae	Amsinckia menziesii var. intermedia	common fiddleneck	X
	Amsinckia tessellata	bristly fiddleneck	O
	Cryptantha angustifolia	Panamint cryptantha	X
	Cryptantha barbigera	bearded cryptantha	X
	Cryptantha decipiens	gravelbar cryptantha	X
	Cryptantha maritima	Guadalupe cryptantha	U
	Cryptantha micrantha	redroot cryptantha	X
	Cryptantha muricata	pointed cryptantha	X
	Cryptantha nevadensis	Nevada cryptantha	X
	Cryptantha pterocarya	wingnut cryptantha	X
	Cryptantha pterocarya var. cycloptera	wingnut cryptantha	O
	Harpagonella palmeri	Palmer's grapplinghook	X
	Lappula occidentalis var. occidentalis	flatspine stickseed	X
	Lithospermum cobrense	smooththroat stoneseed	X
	Lithospermum incisum	narrowleaf stoneseed	X
	Lithospermum multiflorum	manyflowered stoneseed	X
	Macromeria viridiflora	giant-trumpets	X
	Pectocarya heterocarpa	chuckwalla combseed	X
	Pectocarya platycarpa	broadfruit combseed	X
	Pectocarya recurvata	curvenut combseed	X
	Pectocarya setosa	moth combseed	O
	Plagiobothrys arizonicus	Arizona popcornflower	X
	Plagiobothrys collinus	Cooper's popcornflower	X
	Plagiobothrys pringlei	Pringle's popcornflower	X
	Plagiobothrys tenellus	Pacific popcornflower	X
	Tiquilia canescens	woody crinklemat	X
Brassicaceae	Athysanus pusillus	common sandweed	X
	Boechera perennans	perennial rockcress	X
	Brassica nigra	black mustard	X
	Brassica tournefortii	Asian mustard	X
	Capsella bursa-pastoris	shepherd's purse	X
	Descurainia pinnata	western tansymustard	X
	Descurainia sophia	herb sophia	U
	Dimorphocarpa wislizeni	touristplant	U
	Draba cuneifolia	wedgeleaf draba	X
	Draba cuneifolia var. integrifolia	wedgeleaf draba	X
	Draba petrophila	Santa Rita Mountain draba	X
	Draba reptans	Carolina draba	X
	Dryopetalon runcinatum	rockmustard	X
	Guillenia lasiophylla	California mustard	X
	Lepidium lasiocarpum	shaggyfruit pepperweed	X
	Lepidium thurberi	Thurber's pepperweed	X
	Lepidium virginicum	Virginia pepperweed	X
	Lepidium virginicum var. medium	medium pepperweed	X
	Matthiola longipetala	night scented stock	U
	Noccaea montana var. fendleri	Fendler's pennycress	X
	Pennellia longifolia	longleaf mock thelypody	X
	Pennellia micrantha	mountain mock thelypody	X
	Pennellia tricornuta	Rincon Mountain rockcress	X
	Physaria fendleri	Feldler's bladderpod	O
	Physaria gordonii	gordon bladderpod	X
	Physaria purpurea	rose bladderpod	O
	Schoenocrambe linearifolia	slimleaf plainsmustard	X
	Sisymbrium irio	London rocket	X
	Streptanthus carinatus ssp. arizonicus	lyreleaf jewelflower	X
	Thelypodium spp.	thelypody	U
	Thysanocarpus curvipes	sand fringepod	X
Cactaceae	Carnegia gigantea	saguaro	X
	Cylindropuntia acanthocarpa	buckhorn cholla	U

Cactaceae	Cylindropuntia arbuscula	Arizona pencil cholla	X
	Cylindropuntia bigelovii	Teddybear cholla	U
	Cylindropuntia fulgida	jumping cholla	U
	Cylindropuntia fulgida var. fulgida	jumping cholla	X
	Cylindropuntia fulgida var. mamillata	jumping cholla	X
	Cylindropuntia imbricata	tree cholla	X
	Cylindropuntia imbricata var. imbricata	tree cholla	X
	Cylindropuntia leptocaulis	Christmas cactus	O
	Cylindropuntia leptocaulis x O. versicolor	hybrid	X
	Cylindropuntia spinosior	walkingstick cactus	X
	Cylindropuntia versicolor	staghorn cholla	X
	Cylindropuntia X tetracantha	Tucson pricklypear	U
	Echinocereus coccineus	scarlet hedgehog cactus	X
	Echinocereus fendleri	pinkflower hedgehog cactus	X
	Echinocereus fendleri ssp fendleri	pinkflower hedgehog cactus	U
	Echinocereus fendleri ssp. rectispinus	pinkflower hedgehog cactus	U
	Echinocereus fendleri var. fasciculatus	pinkflower hedgehog cactus	O
	Echinocereus ledingii	Leding hodgehog cactus	O
	Echinocereus pectinatus	rainbow cactus	U
	Echinocereus polyacanthus	Mojave mound cactus	U
	Echinocereus rigidissimus	rainbow hedgehog cactus	X
	Echinocereus triglochidiatus	kingcup cactus	U
	Epithelantha micromeris	pingpong ball cactus	U
	Escobaria vivipara	spinystar	U
	Escobaria vivipara var. bisbeeana	Bisbee spinystar	U
	Escobaria vivipara var. vivipara	spinystar	U
	Ferocactus cylindraceus	California barrel cactus	U
	Ferocactus wislizeni	candy barrelcactus	X
	Mammillaria barbata	greenflower nipple cactus	O
	Mammillaria grahamii	Graham's nipple cactus	O
	Mammillaria grahamii var. grahamii		O
	Mammillaria grahamii var. oliviae		O
	Mammillaria heyderi var. macdougalii	Macdougal's nipple cactus	O
	Opuntia basilaris	beavertail pricklypear	O
	Opuntia chlorotica	dollarjoint pricklypear	O
	Opuntia engelmannii	cactus apple	X
	Opuntia engelmannii var. engelmannii	cactus apple	O
	Opuntia ficus-indica	tuna cactus	O
	Opuntia macrocentra	purple pricklypear	
	Opuntia macrocentra var. macrocentra	purple pricklypear	U
	Opuntia phaeacantha	tulip pricklypear	X
	Opuntia phaeacantha var. laevis	tulip pricklypear	O
	Opuntia phaeacantha var. major	Mojave pricklypear	U
	Peniocereus greggii	nightblooming cereus	U
	Peniocereus greggii var. transmontanus	nightblooming cereus	U
	Sclerocactus spp.	fishhook cactus	U
Campanulaceae	Lobelia anatina	Apache lobelia	X
	Lobelia cardinalis	cardinalflower	X
	Nemacladus glanduliferus	glandular threadplant	X
	Nemacladus glanduliferus var. orientalis	glandular threadplant	O
	Triodanis holzingeri	Holzinger's Venus' looking-glass	X
	Triodanis perfoliata	clasping Venus' looking-glass	X
	Triodanis perfoliata var. biflora	clasping Venus' looking-glass	X
Cannabaceae	Celtis ehrenbergiana	spiny hackberry	X
	Celtis laevigata var. reticulata	netleaf hackberry	X
	Humulus lupulus	common hop	O
Cannabaceae	Humulus lupulus var. lupuloides	common hop	U
Caprifoliaceae	Lonicera arizonica	Arizona honeysuckle	X
	Lonicera interrupta	chaparral honeysuckle	X
	Symphoricarpos oreophilus	mountain snowberry	X
Caryophyllaceae	Arenaria languinosa	spreading sandwort	X
	Arenaria lanuginosa ssp. saxosa	spreading sandwort	X
	Arenaria lanuginosa var. longipedunculata	spreading sandwort	O
	Cerastium fontanum ssp. vulgare	big chickweed	O
	Cerastium gracile	slender chickweed	X
	Cerastium nutans	nodding chickweed	U
	Cerastium texanum	Texas chickweed	U
	Drymaria leptophylla	canyon drymary	X
	Drymaria molluginea	slimleaf drymary	O
	Herniaria hirsuta ssp. cinerea	hairy rupturewort	X
	Loeflingia squarrosa	spreading pygmyleaf	X
	Pseudostellaria jamesiana	tuber starwort	U
	Sagina decumbens ssp. occidentalis	western pearlwort	X
	Silene antirrhina	sleepy silene	X
	Silene scouleri ssp. pringlei	simple campion	X
	Stellaria nitens	shiny chickweed	X
Cleomaceae	Polanisia dodecandra ssp. trachysperma	sandyseed clammyweed	X
Commelinaceae	Commelina dianthifolia	birdbill dayflower	X
	Commelina erecta	whitemouth dayflower	X
	Commelina erecta var. angustifolia	whitemouth dayflower	O
	Tradescantia occidentalis	prairie spiderwort	X
	Tradescantia occidentalis var. scopulorum	prairie spiderwort	X
	Tradescantia pinetorum	pinewoods spiderwort	X
Convolvulaceae	Convolvulus arvensis	field bindweed	U
	Convolvulus equitans	Texas bindweed	X
	Cuscuta indecora	bigseed alfalfa dodder	X
	Cuscuta umbellata	flatglobe dodder	U

Convolvulaceae	Evolvulus alsinoides	slender dwarf morning-glory	X
	Evolvulus arizonicus	wild dwarf morning-glory	X
	Evolvulus nuttallianus	shaggy dwarf morning-glory	X
	Ipomoea barbatisepala	canyon morning-glory	X
	Ipomoea capillacea	purple moring-glory	U
	Ipomoea coccinea	redstar	O
	Ipomoea costellata	crestrib morning-glory	X
	Ipomoea cristulata	Transpecos morning-glory	X
	Ipomoea hederacea	ivyleaf morning-glory	X
	Ipomoea hederifolia	scarletcreeper	U
	Ipomoea plummerae	Huachuca Mountain morning-glory	X
	Ipomoea purpurea	tall morning-glory	X
	Ipomoea tenuiloba	spiderleaf	X
	Ipomoea ternifolia var. leptotoma	tripleleaf morning-glory	X
	Jacquemontia pringlei	Pringle's clustervine	X
Cornaceae	Cornus sericea ssp. sericea	redosier dogwood	X
Crassulaceae	Crassula connata	sand pygmyweed	X
	Graptopetalum bartramii	Patagonia Mountain leatherpetal	X
	Sedum cockerellii	Cockerell's stonecrop	O
	Sedum stelliforme	Huachuca Mountain stonecrop	U
Crossosomataceae	Crossosoma bigelovii	ragged rockflower	X
Cucurbitaceae	Apodanthera undulata	melon loco	X
	Cucurbita digitata	fingerleaf gourd	X
	Cucurbita foetidissima	Missouri gourd	X
	Echinopepon wrightii	wild balsam apple	X
	Marah gilensis	Gila manroot	X
Cupressaceae	Cupressus arizonica	Arizona cypress	X
	Juniperus coahuilensis	redberry juniper	X
	Juniperus deppeana	alligator juniper	X
Cyperaceae	Bulbostylis capillaris	densetuft hairsedge	X
	Bulbostylis funckii	Funck's hairsedge	X
	Carex agrostoides	grassleaf sedge	X
	Carex athrostachya	slenderbeak sedge	X
	Carex bonplandii	Bonpland's sedge	X
	Carex chihuahuensis	Chihuahuan sedge	X
	Carex foenea	dryspike sedge	O
	Carex geophila	White Mountain sedge	X
	Carex interior	inland sedge	X
	Carex lativena	broadvein sedge	X
	Carex leucodonta	Huachuca Mountain sedge	X
	Carex meadii	Mead's sedge	O
	Carex occidentalis	western sedge	X
	Carex praegracilis	clustered field sedge	X
	Carex senta	swamp carex	X
	Carex subfusca	brown sedge	X
	Carex thurberi	Thurber's sedge	X
	Carex vallicola	valley sedge	X
	Cyperus aggregatus	inflatedscale flatsedge	X
	Cyperus dipsaceus	Wright's flatsedge	X
	Cyperus esculentus	chufa flatsedge	X
	Cyperus fendlerianus	Fendler's flatsedge	X
	Cyperus mutisii	Mutis' flatsedge	X
	Cyperus odoratus	fragrant flatsedge	U
	Cyperus pallidicolor	pallid flatsedge	X
	Cyperus parishii	Parish's flatsedge	O
	Cyperus sphaerolepis	Rusby's flatsedge	X
	Cyperus squarrosus	bearded flatsedge	X
	Cyperus strigosus	strawcolored flatsedge	X
	Cyperus tetragonus	fourangle flatsedge	X
	Eleocharis montana	mountain spikerush	X
	Eleocharis montevidensis	sand spikerush	X
	Eleocharis parishii	Parish's spikerush	X
	Fimbristylis annua	annual fimbry	X
	Lipocarpha micrantha	smallflower halfchaff sedge	X
	Scirpus microcarpus	panicled bulrush	X
Dennstaedtiaceae	Pteridium aquilinum	western brackenfern	X
Dryopteridaceae	Cystopteris fragilis	brittle bladderfern	X
	Cystopteris reevesiana	Reeves' bladderfern	U
	Dryopteris filix-mas	male fern	X
	Woodsia cochisensis	Cochise cliff fern	X
	Woodsia mexicana	Mexican cliff fern	X
	Woodsia neomexicana	New Mexico cliff fern	X
	Woodsia phillipsii	Phillips' cliff fern	X
	Woodsia plummerae	Plummer's cliff fern	X
Elatinaceae	Elatine americana	American waterwort	X
	Elatine brachysperma	shortseed waterwort	X
Ephedraceae	Ephedra aspera	rough jointfir	U
	Ephedra trifurca	longleaf jointfir	X
Equisetaceae	Equisetum X ferrissii	horsetail	X
Ericaceae	Arbutus arizonica	Arizona madrone	X
	Arctostaphylos pringlei	Pringle manzanita	X
	Arctostaphylos pungens	pointleaf manzanita	X
Euphorbiaceae	Acalypha neomexicana	New Mexico copperleaf	X
	Argythamnia neomexicana	New Mexico silverbush	X
	Chamaesyce abramsiana	Abrams' sandmat	X
	Chamaesyce albomarginata	whitemargin sandmat	X
	Chamaesyce arizonica	Arizona sandmat	X
	Chamaesyce capitellata	head sandmat	X
	Chamaesyce dioica	royal sandmat	X

Euphorbiaceae	Chamaesyce florida	Chiricahua Mountain sandmat	X
	Chamaesyce gracillima	Mexican sandmat	X
	Chamaesyce hirta	pillpod sandmat	X
	Chamaesyce hyssopifolia	hyssopleaf sandmat	X
	Chamaesyce melanadenia	squaw sandmat	X
	Chamaesyce micromera	Sonoran sandmat	X
	Chamaesyce pediculifera	Carrizo Mountain sandmat	X
	Chamaesyce polycarpa	smallseed sandmat	X
	Chamaesyce revoluta	threadstem sandmat	X
	Chamaesyce serrula	sawtooth sandmat	O
	Chamaesyce setiloba	Yuma sandmat	U
	Croton pottsii	leatherweed	X
	Croton pottsii var. pottsii	leatherweed	X
	Croton texensis	Texas croton	X
	Euphorbia brachycera	horned spurge	X
	Euphorbia chamaesula	mountain spurge	X
	Euphorbia cuphosperma	spurge	X
	Euphorbia cyathophora	fire on the mountain	X
	Euphorbia dentata var. dentata	toothed spurge	U
	Euphorbia exstipulata	squareseed spurge	O
	Euphorbia heterophylla	Mexican fireplant	X
	Euphorbia spathulata	warty spurge	X
	Jatropha cardiophylla	sangre de cristo	X
	Manihot angustiloba	desertmountain manihot	X
	Tragia nepetifolia	catnip noseburn	X
	Tragia ramosa	branched noseburn	X
Fabaceae	Acacia angustissima var. filicioides	prairie acacia	X
	Acacia angustissima var. suffrutescens	prairie acacia	X
	Acacia constricta	whitethorn acacia	X
	Acacia greggii	catclaw acacia	X
	Acacia millefolia	milfoil wattle	X
	Amorpha californica	California false indigo	X
	Amorpha fruticosa	desert false indigo	X
	Astragalus allochrous	halfmoon milkvetch	X
	Astragalus allochrous var. allochrous	halfmoon milkvetch	X
	Astragalus arizonicus	Arizona milkvetch	X
	Astragalus didymocarpus	dwarf white milkvetch	X
	Astragalus humistratus	groundcover milkvetch	U
	Astragalus nothoxys	sheep milkvetch	X
	Astragalus nuttallianus	smallflowered milkvetch	X
	Calliandra eriophylla	fairyduster	X
	Calliandra humilis	dwarf stickpea	X
	Calliandra humilis var. humilis	dwarf stickpea	U
	Calliandra humilis var. reticulata	dwarf stickpea	X
	Chamaecrista nictitans ssp. nictitans	sensitive partridge pea	U
	Chamaecrista nictitans var. leptadenia	partridge pea	X
	Chamaecrista nictitans var. mensalis	partridge pea	X
	Clitoria mariana	Atlantic pigeonwings	X
	Cologania angustifolia	longleaf cologania	X
	Cologania obovata	Lemmon's cologania	X
	Coursetia caribaea	anil falso	X
	Coursetia glandulosa	rosary babybonnets	X
	Crotalaria pumila	low rattlebox	X
	Crotalaria sagittalis	arrowhead rattlebox	X
	Dalea albiflora	whiteflower prairie clover	X
	Dalea exigua	Chihuahuan prairie clover	X
	Dalea filiciformis		X
	Dalea filiformis	Sonoran prairie clover	X
	Dalea formosa	featherplume	X
	Dalea lumholtzii	Lumholtz's prairie clover	X
	Dalea pogonathera	bearded prairie clover	X
	Dalea polygonoides	sixweeks prairie clover	X
	Dalea pringlei	Pringle's prairie clover	X
	Dalea pulchra	Santa Catalina prairie clover	X
	Dalea versicolor	oakwoods prairie clover	X
	Dalea versicolor var. sessilis	oakwoods prairie clover	X
	Dalea wrightii	Wright's prairie clover	X
	Desmodium arizonicum	Arizona ticktrefoil	X
	Desmodium batocaulon	San Pedro ticktrefoil	X
	Desmodium cinerascens	spiked ticktrefoil	X
	Desmodium grahamii	Graham's ticktrefoil	X
	Desmodium gramineum	grassleaf ticktrefoil	X
	Desmodium neomexicanum	New Mexico ticktrefoil	X
	Desmodium procumbens	western trailing ticktrefoil	X
	Desmodium procumbens var. exiguum	western trailing ticktrefoil	X
	Desmodium psilocarpum	Santa Cruz Island ticktrefoil	X
	Desmodium rosei	Rose's ticktrefoil	X
	Erythrina flabelliformis	coralbean	X
	Eysenhardtia orthocarpa	Tahitian kidneywood	X
	Galactia wrightii	Wright's milkpea	X
	Hoffmannseggia glauca	Indian rushpea	X
	Indigofera sphaerocarpa	Sonoran indigo	X
	Lathyrus graminifolius	grassleaf pea	X
	Lathyrus lanszwertii var. leucanthus	Nevada pea	X
	Lotus greenei	Greene's bird's-foot trefoil	X
	Lotus humistratus	foothill deervetch	X
	Lotus plebeius	New Mexico bird's-foot trefoil	X

Fabaceae	Lotus rigidus	shrubby deervetch	X
	Lotus strigosus	strigose bird's-foot trefoil	U
	Lotus strigosus var. tomentellus	strigose bird's-foot trefoil	X
	Lotus wrightii	Wright's deervetch	X
	Lupinus bicolor	miniature lupine	U
	Lupinus concinnus	scarlet lupine	X
	Lupinus concinnus ssp. orcuttii	Orcutt's lupine	O
	Lupinus palmeri	bluebonnet lupine	X
	Lupinus sparsiflorus	Mojave lupine	X
	Lupinus sparsiflorus ssp. mohavensis	Mojave lupine	X
	Lysiloma watsonii	littleleaf false tamarind	X
	Macroptilium gibbosifolium	variableleaf bushbean	X
	Marina calycosa	San Pedro false prairie-clover	X
	Marina parryi	Parry's false prairie-clover	X
	Melilotus officinalis	yellow sweetclover	U
	Mimosa aculeaticarpa var. biuncifera	catclaw mimosa	X
	Mimosa grahamii	Graham's mimosa	X
	Parkinsonia florida	blue paloverde	X
	Parkinsonia microphylla	yellow paloverde	O
	Phaseolus acutifolius	tepary bean	X
	Phaseolus acutifolius var. tenuifolius	tepary bean	X
	Phaseolus angustissimus	slimleaf bean	X
	Phaseolus maculatus	spotted bean	X
	Phaseolus parvulus	Pinos Altos Mountain bean	X
	Phaseolus ritensis	Santa Rita Mountain bean	X
	Prosopis glandulosa	honey mesquite	U
	Prosopis velutina	velvet mesquite	X
	Rhynchosia senna var. texana	Texas snoutbean	X
	Robinia neomexicana	New Mexico locust	X
	Senna bauhinioides	twinleaf senna	X
	Senna covesii	Coves' cassia	X
	Senna hirsuta	woolly senna	X
	Senna hirsuta var. glaberrima	woolly senna	X
	Senna hirsuta var. leptocarpa	woolly senna	X
	Sphinctospermum constrictum	hourglass peaseed	U
	Tephrosia leiocarpa	smoothpod hoarypea	X
	Tephrosia vicioides	red hoarypea	X
	Trifolium pinetorum	woods clover	X
	Trifolium variegatum	whitetip clover	X
	Trifolium wildenovii	tomcat clover	X
	Vicia americana	American vetch	X
	Vicia leucophaea	Mogollon Mountain vetch	X
	Vicia ludoviciana	Louisiana vetch	X
	Vicia ludoviciana ssp. ludoviciana	Louisiana vetch	X
	Vicia pulchella	sweetclover vetch	X
	Zornia gemella	dos hoja zazabacoa de dos hojas	X
	Zornia leptophylla	horsekiller	X
Fagaceae	Quercus arizonica	Arizona white oak	X
	Quercus chrysolepis	canyon live oak	X
	Quercus dunnii	Palmer oak	X
	Quercus emoryi	Emory oak	X
	Quercus gambelii	Gambel oak	X
	Quercus hypoleucoides	silverleaf oak	X
	Quercus oblongifolia	Mexican blue oak	X
	Quercus rugosa	netleaf oak	X
	Quercus toumeyi	Toumey oak	X
	Quercus turbinella	Sonoran scrub oak	X
Fouquieriaceae	Fouquieria splendens	ocotillo	X
Garryaceae	Garrya wrightii	Wright's silktassel	X
Gentianaceae	Centaurium calycosum	Arizona centaury	X
	Centaurium exaltatum	desert centaury	X
	Centaurium nudicaule	Santa Catalina Mountain centaury	X
	Frasera speciosa	elkweed	O
	Gentiana affinis	pleated gentian	X
	Gentianella microcalyx	Chiricahua dwarf gentian	X
Geraniaceae	Erodium cicutarium	redstem stork's bill	X
	Erodium texanum	Texas stork's bill	O
	Geranium caespitosum	pineywoods geranium	X
	Geranium carolinianum	Carolina geranium	X
	Geranium richardsonii	Richardson's geranium	X
	Geranium wislizeni	Huachuca Mountain geranium	U
Hydrangeaceae	Fendlera rupicola	cliff fendlerbush	X
	Philadelphus argenteus	silver mock orange	X
	Philadelphus argyrocalyx	silvercup mock orange	X
	Philadelphus microphyllus	littleleaf mock orange	U
Hypericaceae	Hypericum scouleri ssp. scouleri	St. Johns wort	X
Iridaceae	Sisyrinchium arizonicum	Arizona blue-eyed grass	U
	Sisyrinchium cernuum	nodding blue-eyed grass	X
	Sisyrinchium demissum	stiff blue-eyed grass	X
	Sisyrinchium longipes	timberland blue-eyed grass	X
Juglandaceae	Juglans major	Arizona walnut	X
Juncaceae	Juncus acuminatus	tapertip rush	X
	Juncus arcticus var. balticus	Baltic rush	X
	Juncus bufonius	toad rush	X
	Juncus effusus	common rush	X
	Juncus effusus var. brunneus	lamp rush	X
Juncaceae	Juncus interior	inland rush	X

Juncaceae	Juncus marginatus	grassleaf rush	X
	Juncus saximontanus	Rocky Mountain rush	X
	Juncus tenuis	poverty rush	X
	Juncus torreyi	Torrey's rush	X
	Juncus xiphioides	irisleaf rush	X
	Luzula multiflora	common woodrush	X
Krameriaceae	Krameria erecta	littleleaf ratany	X
	Krameria grayi	white ratany	U
	Krameria lanceolata	trailing krameria	X
Lamiaceae	Agastache breviflora	TransPecos giant hyssop	X
	Agastache pallidiflora	Bill Williams Mountain giant hyssop	U
	Agastache wrightii	Sonoran giant hyssop	X
	Hedeoma dentata	dentate false pennyroyal	X
	Hedeoma hyssopifolia	mock false pennyroyal	X
	Hedeoma nana	dwarf false pennyroyal	X
	Hyptis emoryi	desert lavender	X
	Marrubium vulgare	horehound	X
	Monarda citriodora ssp. austromontana	lemon beebalm	X
	Monarda fistulosa var. menthifolia	wild bergamot	X
	Monardella odoratissima	mountain monardella	U
	Salvia arizonica	desert indigo sage	X
	Salvia columbariae	chia	X
	Salvia reflexa	lanceleaf sage	X
	Salvia subincisa	sawtooth sage	X
	Stachys coccinea	scarlet hedgenettle	X
	Trichostema arizonicum	Arizona bluecurls	X
Liliaceae	Calochortus ambiguus	doubting mariposa lily	X
	Calochortus kennedyi var. munzii	desert mariposa lily	X
Linaceae	Linum lewisii	prairie flax	X
	Linum neomexicanum	New Mexico yellow flax	X
	Linum puberulum	plains flax	X
Loasaceae	Mentzelia affinis	yellowcomet	X
	Mentzelia albicaulis	whitestem blazingstar	X
	Mentzelia asperula	Organ Mountain blazingstar	X
	Mentzelia isolata	isolated blazingstar	X
	Mentzelia jonesii	Jones' blazingstar	X
	Mentzelia montana	variegated-bract blazingstar	X
	Mentzelia multiflora	Adonis blazingstar	X
	Mentzelia nitens	shining blazingstar	U
Lythraceae	Cuphea wrightii	Wright's waxweed	X
Malpighiaceae	Janusia gracilis	slender janusia	X
Malvaceae	Abutilon abutiloides	shrubby indian mallow	O
	Abutilon berlandieri	Berlandier Indian mallow	X
	Abutilon incanum	pelotazo	X
	Abutilon mollicomum	Sonoran Indian mallow	X
	Abutilon reventum	yellowflower Indian mallow	X
	Anoda abutiloides	Indian anoda	X
	Anoda cristata	crested anoda	X
	Ayenia compacta	California ayenia	U
	Ayenia filiformis	TransPecos ayenia	X
	Ayenia insulicola	dwarf ayenia	O
	Ayenia microphylla	dense ayenia	O
	Gossypium thurberi	Thurber's cotton	X
	Herissantia crispa	bladdermallow	X
	Hibiscus biseptus	Arizona rosemallow	X
	Hibiscus coulteri	desert rosemallow	X
	Malva parviflora	cheeseweed mallow	O
	Rhynchosida physocalyx	buffpetal	X
	Sida abutifolia	spreading fanpetals	X
	Sida spinosa	prickly fanpetals	X
	Sphaeralcea emoryi	Emory's globemallow	X
	Sphaeralcea fendleri	Fendler's globemallow	X
	Sphaeralcea fendleri ssp. venusta	thicket globemallow	X
	Sphaeralcea laxa	caliche globemallow	X
	Waltheria indica	uhaloa	X
Martyniaceae	Proboscidea althaeifolia	desert unicorn-plant	X
	Proboscidea parviflora	doubleclaw	X
Molluginaceae	Mollugo cerviana	threadstem carpetweed	X
	Mollugo verticillata	green carpetweed	X
Monotropaceae	Pterospora andromedea	woodland pinedrops	X
Moraceae	Morus microphylla	Texas mulberry	X
Nyctaginaceae	Allionia incarnata	trailing windmills	X
	Boerhavia coccinea	scarlet spiderling	X
	Boerhavia coulteri	Coulter's spiderling	X
	Boerhavia erecta	erect spiderling	X
	Boerhavia gracillima	slimstalk spiderling	X
	Boerhavia intermedia	fivewing spiderling	X
	Boerhavia purpurascens	purple spiderling	X
	Boerhavia scandens	climbing wartclub	X
	Boerhavia spicata	creeping spiderling	X
	Boerhavia wrightii	largebract spiderling	X
	Mirabilis albida	white four o'clock	X
	Mirabilis coccinea	scarlet four o'clock	X
	Mirabilis comata	hairy-tuft four o'clock	X
	Mirabilis glabra	smooth four o'clock	U
	Mirabilis longiflora	sweet four o'clock	X
	Mirabilis longiflora var. wrightiana	sweet four o'clock	X

Nyctaginaceae	Mirabilis oxybaphoides	smooth spreading four o'clock	O
Oleaceae	Fraxinus anomala	singleleaf ash	X
	Fraxinus velutina	velvet ash	X
	Menodora scabra	rough menodora	X
Onagraceae	Calylophus hartwegii ssp. pubescens	Hartweg's sundrops	X
	Camissonia californica	California suncup	X
	Camissonia chamaenerioides	longcapsule suncup	X
	Epilobium canum ssp. latifolium	hummingbird trumpet	X
	Epilobium foliosum	California willowherb	X
	Gaura coccinea	scarlet beeblossom	X
	Gaura hexandra ssp. gracilis	harlequinbush	X
	Gaura mollis	velvetweed	O
	Oenothera albicaulis	whitest evening primrose	X
	Oenothera caespitosa	tufted evening-primrose	X
	Oenothera elata	Hooker's evening-primrose	X
	Oenothera elata ssp. hirsutissima	Hooker's evening-primrose	X
	Oenothera elata ssp. hookeri	Hooker's evening-primrose	X
	Oenothera laciniata	cutleaf evening-primrose	X
	Oenothera primiveris	desert evening-primrose	X
	Oenothera pubescens	silky evening-primrose	X
Orchidaceae	Corallorrhiza maculata var. occidentalis	summer coralroot	X
	Corallorrhiza striata var. vreelandii	hooded coralroot	X
	Hexalectris spicata var. arizonica	spiked crested coralroot	X
	Malaxis ehrenbergii	Ehrenberg's adder's-mouth orchid	U
	Malaxis soulei	Chiricahua adder's-mouth orchid	U
	Platanthera limosa	Thurber's bog orchid	U
	Spiranthes parasitica	parasitic ladies'-tresses	X
Orobanchaceae	Brachystigma wrightii	Arizona desert foxglove	X
	Castilleja austromontana	Rincon Mountain Indian paintbrush	X
	Castilleja exserta	exserted Indian paintbrush	X
	Castilleja exserta ssp. exserta	exserted Indian paintbrush	U
	Castilleja integra	wholeleaf Indian paintbrush	X
	Castilleja lanata	Sierra woolly Indian paintbrush	X
	Castilleja minor	lesser Indian paintbrush	X
	Castilleja sessiliflora	downy paintedcup	X
	Castilleja tenuiflora	Santa Catalina Indian paintbrush	X
	Orobanche cooperi	desert broomrape	X
	Orobanche fasciculata	clustered broomrape	X
	Pedicularis centranthera	dwarf lousewort	X
Oxalidaceae	Oxalis albicans	radishroot woodsorrel	X
	Oxalis albicans ssp. pilosa	radishroot woodsorrel	X
	Oxalis alpina	alpine woodsorrel	X
	Oxalis decaphylla	tenleaf woodsorrel	X
	Oxalis drummondii	Drummond's woodsorrel	U
Papaveraceae	Argemone polyanthemos	crested pricklypoppy	U
	Corydalis aurea	scrambled eggs	X
	Corydalis curvisiliqua ssp. occidentalis	curvepod fumewort	X
	Eschscholzia californica ssp. mexicana	California poppy	X
	Platystemon californicus	creamcups	O
Passifloraceae	Passiflora mexicana	Mexican passionflower	X
Phrymaceae	Mimetanthe pilosa	false monkeyflower	X
	Mimulus floribundus	manyflowered monkeyflower	X
	Mimulus guttatus	seep monkeyflower	X
	Mimulus rubellus	little redstem monkeyflower	X
Phytolaccaceae	Phytolacca americana	American pokeweed	U
	Phytolacca icosandra	Unknown	X
	Rivina humilis	rougeplant	X
Pinaceae	Abies concolor	white fir	U
	Pinus arizonica	Arizona pine	X
	Pinus discolor	border pinyon	X
	Pinus edulis	twoneedle pinyon	U
	Pinus engelmannii	Apache pine	U
	Pinus flexilis	limber pine	U
	Pinus leiophylla var. chihuahuana	Chihuahuan pine	X
	Pinus ponderosa var. scopulorum	ponderosa pine	X
	Pinus strobiformis	southwestern white pine	X
	Pseudotsuga menziesii	Douglas-fir	O
	Pseudotsuga menziesii var. glauca	Rocky Mountain Douglas-fir	O
Plantaginaceae	Maurandella antirrhiniflora	roving sailor	O
	Mecardonia procumbens	baby jump-up	X
	Nuttallanthus texanus	Texas toadflax	X
	Penstemon barbatus	beardlip penstemon	X
	Penstemon barbatus ssp. barbatus	beardlip penstemon	U
	Penstemon barbatus ssp. torreyi	Torrey's penstemon	U
	Penstemon dasyphyllus	Cochise beardtongue	O
	Penstemon linarioides	toadflax penstemon	X
	Penstemon parryi	Parry's beardtongue	X
	Penstemon pseudospectabilis	desert penstemon	X
	Penstemon pseudospectabilis ssp. connatifolius	desert beardtongue	U
	Plantago ovata	desert Indianwheat	X
	Plantago patagonica	woolly plantain	X
	Plantago virginica	Virginia plantain	X
	Sairocarpus nuttallianus	violet snapdragon	X
	Schistophragma intermedia	harlequin spiralseed	X
	Stemodia durantifolia	whitewoolly twintip	X
	Veronica anagallis-aquatica	water speedwell	X
	Veronica peregrina	neckweed	X

Platanaceae	Platanus wrightii	Arizona sycamore	X
Plumbaginaceae	Plumbago zeylanica	doctorbush	X
Poaceae	Achnatherum eminens	southwesterb needlegrass	O
	Aegopogon tenellus	fragilegrass	X
	Agrostis elliottiana	Elliott's bentgrass	X
	Agrostis exarata	spike bentgrass	X
	Agrostis gigantea	redtop	O
	Agrostis scabra	rough bentgrass	X
	Agrostis stolonifera	creeping bentgrass	O
	Alopecurus carolinianus	Carolina foxtail	X
	Aristida adscensionis	sixweeks threeawn	X
	Aristida arizonica	Arizona threeawn	U
	Aristida californica var glabrata	Santa Rita threeawn	X
	Aristida havardii	Havard's threeawn	X
	Aristida purpurea	purple threeawn	X
	Aristida purpurea var. longiseta	Fendler threeawn	O
	Aristida purpurea var. nealleyi	blue threeawn	O
	Aristida purpurea var. parishii	Parish's threeawn	X
	Aristida purpurea var. purpurea	purple threeawn	X
	Aristida purpurea var. wrightii	Wright's threeawn	O
	Aristida schiedeana	single threeawn	X
	Aristida schiedeana var. orcuttiana	Orcutt's threeawn	X
	Aristida ternipes	spidergrass	X
	Aristida ternipes var. gentilis	spidergrass	X
	Aristida ternipes var. ternipes	spidergrass	X
	Avena fatua	wild oat	X
	Avena sativa	common oat	X
	Blepharoneuron tricholepis	pine dropseed	X
	Bothriochloa barbinodis	cane bluestem	X
	Bothriochloa ischaemum	yellow bluestem	U
	Bouteloua aristidoides	needle grama	X
	Bouteloua barbata	sixweeks grama	X
	Bouteloua chondrosioides	sprucetop grama	X
	Bouteloua curtipendula	sideoats grama	X
	Bouteloua eludens	Santa Rita Mountain grama	O
	Bouteloua eriopoda	black grama	X
	Bouteloua gracilis	blue grama	X
	Bouteloua hirsuta	hairy grama	X
	Bouteloua radicosa	purple grama	X
	Bouteloua repens	slender grama	X
	Bouteloua rothrockii	Rothrock's grama	X
	Bouteloua trifida	red grama	X
	Bromus anomalus	nodding brome	X
	Bromus arizonicus	Arizona brome	X
	Bromus carinatus	California brome	X
	Bromus catharticus	rescuegrass	X
	Bromus ciliatus	fringed brome	X
	Bromus ciliatus var. richardsonii	fringed brome	X
	Bromus madritensis	compact brome	U
	Bromus rubens	red brome	X
	Bromus tectorum	cheatgrass	X
	Cenchrus longispinus	mat sandbur	U
	Cenchrus spinifex	coastal sandbur	U
	Chloris crinita	false Rhodes grass	X
	Chloris virgata	feather fingergrass	X
	Cortaderia selloana	Uruguayan pampas grass	U
	Cottea pappophoroides	cotta grass	X
	Cynodon dactylon	Bermudagrass	X
	Dactyloctenium aegyptium	Egyptian grass	X
	Danthonia californica	California oatgrass	X
	Dasyochloa pulchella	low woollygrass	X
	Dichanthelium acuminatum var. acuminatum	tapered rosette grass	X
	Dichanthelium oligosanthes var. scribnerianum	Scribner's rosette grass	X
	Digitaria californica	Arizona cottontop	X
	Digitaria ciliaris	southern crabgrass	X
	Digitaria cognata	Carolina crabgrass	X
	Digitaria cognata var. cognata	fall witchgrass	U
	Digitaria sanguinalis	hairy crabgrass	X
	Echinochloa colona	jungle rice	X
	Echinochloa crus-galli	barnyardgrass	X
	Elionurus barbiculmis	woolyspike balsamscale	X
	Elymus arizonicus	Arizona wheatgrass	X
	Elymus elymoides	squirreltail	X
	Enneapogon desvauxii	nineawn pappusgrass	X
	Eragrostis cilianensis	stinkgrass	X
	Eragrostis curvula	weeping lovegrass	U
	Eragrostis echinochloidea	African lovegrass	X
	Eragrostis intermedia	plains lovegrass	X
	Eragrostis lehmanniana	Lehmann lovegrass	X
	Eragrostis mexicana	Mexican lovegrass	X
	Eragrostis mexicana ssp. mexicana	Mexican lovegrass	X
	Eragrostis pectinacea	tufted lovegrass	X
	Eragrostis pectinacea var. miserrima	desert lovegrass	X
	Eragrostis pectinacea var. pectinacea	tufted lovegrass	U
	Eriochloa acuminata	tapertip cupgrass	X
	Eriochloa acuminata var. acuminata	tapertip cupgrass	X
	Eriochloa aristata	bearded cupgrass	X

Poaceae	Eriochloa lemmonii	canyon cupgrass	U
	Erioneuron avenaceum	shortleaf woollygrass	U
	Festuca sororia	ravine fescue	X
	Glyceria striata	fowl mannagrass	X
	Hesperostipa comata ssp. comata	needle and thread	U
	Hesperostipa neomexicana	New Mexico feathergrass	O
	Heteropogon contortus	tanglehead	X
	Heteropogon melanocarpus	sweet tanglehead	X
	Hilaria belangeri	curly-mesquite	X
	Hordeum murinum ssp. glaucum	smooth barley	X
	Hordeum murinum ssp. leporinum	leporinum barley	O
	Hordeum pusillum	little barley	X
	Hordeum vulgare	common barley	X
	Koeleria macrantha	prairie Junegrass	X
	Lamarckia aurea	goldentop grass	X
	Leptochloa dubia	green sprangletop	X
	Leptochloa fusca ssp. fascicularis	bearded sprangletop	X
	Leptochloa panicea ssp. brachiata	mucronate sprangeltop	X
	Leptochloa panicea ssp. mucronata	mucronate sprangeltop	X
	Lycurus phleoides	common wolfstail	O
	Lycurus setosus	bristly wolfstail	X
	Melinis repens	rose Natal grass	X
	Muhlenbergia arizonica	Arizona muhly	X
	Muhlenbergia dumosa	bamboo muhly	X
	Muhlenbergia elongata	sycamore muhly	U
	Muhlenbergia emersleyi	bullgrass	X
	Muhlenbergia fragilis	delicate muhly	X
	Muhlenbergia longiligula	longtongue muhly	X
	Muhlenbergia microsperma	littleseed muhly	X
	Muhlenbergia minutissima	annual muhly	X
	Muhlenbergia montana	mountain muhly	X
	Muhlenbergia pauciflora	New Mexico muhly	X
	Muhlenbergia pectinata	combtop muhly	X
	Muhlenbergia porteri	bush muhly	X
	Muhlenbergia ramulosa	green muhly	X
	Muhlenbergia rigens	deergrass	X
	Muhlenbergia sinuosa	marshland muhly	X
	Muhlenbergia tenuifolia	slimflower muhly	X
	Muhlenbergia texana	Texas muhly	X
	Muhlenbergia virescens	screwleaf muhly	X
	Nassella tenuissima	finestem tussockgrass	U
	Panicum capillare	witchgrass	U
	Panicum hallii	Hall's panicgrass	X
	Panicum hallii var. hallii	Hall's panicgrass	X
	Panicum hirticaule	Mexican panicgrass	X
	Panicum obtusum	vine mesquite	U
	Pappophorum vaginatum	whiplash pappusgrass	X
	Paspalum dilatatum	dallisgrass	U
	Pennisetum ciliare	buffelgrass	X
	Pennisetum setaceum	crimson fountaingrass	X
	Phalaris caroliniana	Carolina canarygrass	X
	Phalaris minor	littleseed canarygrass	U
	Phleum pratense	timothy	X
	Piptochaetium fimbriatum	pinyon ricegrass	X
	Piptochaetium pringlei	Pringle's speargrass	X
	Poa annua	annual bluegrass	X
	Poa bigelovii	Bigelow's bluegrass	X
	Poa fendleriana	muttongrass	X
	Poa fendleriana ssp. fendleriana	muttongrass	U
	Poa pratensis	Kentucky bluegrass	X
	Polypogon monspeliensis	annual rabbitsfoot grass	X
	Polypogon viridis	beardless rabbitsfoot grass	X
	Schismus arabicus	Arabian schismus	X
	Schismus barbatus	common Mediterranean grass	X
	Schizachyrium cirratum	Texas bluestem	X
	Schizachyrium sanguineum	crimson bluestem	X
	Schizachyrium sanguineum var. hirtiflorum	crimson bluestem	X
	Setaria grisebachii	Grisebach's bristlegrass	X
	Setaria leucopila	streambed bristlegrass	X
	Setaria viridis	green bristlegrass	X
	Sorghum halepense	Johnsongrass	X
	Sphenopholis obtusata	prairie wedgescale	X
	Sporobolus airoides	alkali sacaton	X
	Sporobolus contractus	spike dropseed	X
	Sporobolus cryptandrus	sand dropseed	X
	Sporobolus wrightii	big sacaton	O
	Trachypogon spicatus	spiked crinkleawn	X
	Tridens muticus	slim tridens	X
	Tridens muticus var. muticus	slim tridens	X
	Trisetum interruptum	prairie false oat	X
	Urochloa arizonica	Arizona signalgrass	X
	Vulpia microstachys	small fescue	X
	Vulpia microstachys var. ciliata	Eastwood fescue	X
	Vulpia myuros	rat-tail fescue	U
	Vulpia octoflora	sixweeks fescue	X
	Vulpia octoflora var. hirtella	sixweeks fescue	X
	Vulpia octoflora var. octoflora	sixweeks fescue	X

Poaceae	Zuloagaea bulbosum	bulb panicgrass	X
Polemoniaceae	Allophyllum gilioides	dense false gilyflower	X
	Eriastrum diffusum	miniature woollystar	X
	Gilia flavocincta	lesser yellowthroat gilia	X
	Gilia mexicana	El Paso gilia	U
	Gilia sinuata	rosy gilia	X
	Gilia stellata	star gilia	X
	Ipomopsis longiflora	flaxflowered ipomopsis	O
	Ipomopsis multiflora	manyflowered ipomopsis	X
	Leptosiphon aureus ssp. aureus	golden linanthus	X
	Linanthus bigelovii	Bigelow's linanthus	X
	Linanthus nuttallii	Nuttall's linanthus	X
	Microsteris gracilis	slender phlox	X
	Phlox tenuifolia	Santa Catalina Mountain phlox	X
Polygalaceae	Monnina wrightii	blue pygmyflower	X
	Polygala alba	white milkwort	X
	Polygala macradenia	glandleaf milkwort	X
	Polygala obscura	velvetseed milkwort	X
	Polygala scoparioides	broom milkwort	X
Polygonaceae	Eriogonum abertianum	Abert's buckwheat	X
	Eriogonum deflexum var. deflexum	flatcrown buckwheat	X
	Eriogonum pharnaceoides	wirestem buckwheat	X
	Eriogonum pharnaceoides var. pharnaceoides	wirestem buckwheat	O
	Eriogonum polycladon	sorrel buckwheat	X
	Eriogonum thurberi	Thurber's buckwheat	O
	Eriogonum wrightii	bastardsage	X
	Eriogonum wrightii var. wrightii	bastardsage	X
	Persicaria hydropiperoides	swamp smartweed	X
	Persicaria maculosa	spotted ladysthumb	X
	Polygonum aviculare	prostrate knotweed	X
	Polygonum douglasii ssp. johnstonii	Johnston's knotweed	X
	Pterostegia drymarioides	woodland pterostegia	X
	Rumex acetosella	common sheep sorrel	X
	Rumex crispus	curly dock	X
	Rumex hymenosepalus	canaigre dock	X
Polypodiaceae	Polypodium hesperium	western polypody	X
Portulacaceae	Calandrinia ciliata	fringed redmaids	X
	Cistanthe monandra	common pussypaws	X
	Claytonia perfoliata	miner's lettuce	X
	Phemeranthus aurantiacus	orange fameflower	X
	Phemeranthus parviflorus	sunbright	X
	Portulaca halimoides	silkcotton purslane	X
	Portulaca oleracea	little hogweed	X
	Portulaca suffrutescens	shrubby purslane	X
	Portulaca umbraticola	wingpod purslane	X
	Portulaca umbraticola ssp. umbraticola	wingpod purslane	X
	Talinum paniculatum	jewels of Opar	X
Primulaceae	Anagallis minima	chaffweed	X
	Androsace occidentalis	western rockjasmine	X
	Androsace septentrionalis	pygmyflower rockjasmine	X
	Androsace septentrionalis ssp. puberulenta	pygmyflower rockjasmine	X
	Primula rusbyi	Rusby's primrose	X
	Samolus vagans	Chiricahua Mountain brookweed	X
Psilotaceae	Psilotum nudum	whisk fern	X
Pteridaceae	Adiantum capillus-veneris	common maidenhair	X
	Argyrochosma limitanea ssp. limitanea	southwestern false cloak fern	X
	Astrolepis cochisensis	Cochise scaly cloakfern	X
	Astrolepis cochisensis ssp. cochisensis	Cochise scaly cloakfern	X
	Astrolepis integerrima	hybrid cloakfern	X
	Astrolepis sinuata	wavy scaly cloakfern	X
	Astrolepis sinuata ssp. sinuata	wavy scaly cloakfern	X
	Bommeria hispida	copper fern	X
	Cheilanthes bonariensis	golden lipfern	X
	Cheilanthes covillei	Coville's lipfern	X
	Cheilanthes eatonii	Eaton's lipfern	X
	Cheilanthes feei	slender lipfern	X
	Cheilanthes fendleri	Fendler's lipfern	X
	Cheilanthes lendigera	nitbearing lipfern	X
	Cheilanthes lindheimeri	fairyswords	X
	Cheilanthes villosa	villous lipfern	U
	Cheilanthes wootonii	beaded lipfern	X
	Cheilanthes wrightii	Wright's lipfern	X
	Cheilanthes yavapensis	graceful lipfern	X
	Notholaena grayi	Gray's cloak fern	X
	Notholaena lemmonii	Lemmon's cloak fern	X
	Notholaena standleyi	star cloak fern	X
	Pellaea truncata	spiny cliffbrake	X
	Pellaea wrightiana	Wright's cliffbrake	X
	Pentagramma triangularis	goldback fern	X
	Pentagramma triangularis ssp. maxonii	Maxon's goldback fern	X
	Pentagramma triangularis ssp. triangularis	goldback fern	X
Pyrolaceae	Chimaphila maculata	striped prince's pine	X
Ranunculaceae	Anemone tuberosa	tuber anemone	X
	Aquilegia chrysantha	golden columbine	X
	Clematis drummondii	Drummond's clematis	X
	Clematis ligusticifolia	western white clematis	X
	Delphinium parishii ssp. parishii	Parish's larkspur	X

Ranunculaceae	Delphinium scaposum	tall mountain larkspur	X
	Myosurus cupulatus	Arizona mousetail	X
	Ranunculus arizonicus	Arizona buttercup	X
	Thalictrum fendleri	Fendler's meadow-rue	X
	Thalictrum fendleri var. wrightii	Wright's meadow-rue	X
Rhamnaceae	Ceanothus fendleri	Fendler's ceanothus	X
	Ceanothus greggii	desert ceanothus	X
	Ceanothus integerrimus	deerbrush	X
	Condalia correllii	Correll's snakewood	X
	Condalia warnockii	Warnock's snakewood	X
	Condalia warnockii var. kearneyana	Kearney's snakewood	X
	Frangula betulifolia ssp. betulifolia	beechleaf frangula	X
	Frangula californica	California buckthorn	X
	Frangula californica ssp. californica	California buckthorn	X
	Frangula californica ssp. ursina	California buckthorn	X
	Rhamnus crocea	redberry buckthorn	X
	Rhamnus ilicifolia	hollyleaf redberry	O
	Ziziphus obtusifolia var. canescens	lotebush	X
Rosaceae	Agrimonia striata	roadside agrimony	X
	Cercocarpus montanus var. paucidentatus	alderleaf mountain mahogany	X
	Fragaria vesca ssp. bracteata	woodland strawberry	X
	Holodiscus discolor	oceanspray	O
	Holodiscus dumosus	rockspirea	X
	Potentilla glandulosa	sticky cinquefoil	U
	Potentilla subviscosa var. ramulosa	Navajo cinquefoil	X
	Potentilla thurberi	scarlet cinquefoil	U
	Prunus emarginata	bitter cherry	U
	Prunus serotina var. rufula	black cherry	X
	Prunus serotina var. virens	black cherry	X
	Prunus virginiana	chokecherry	U
	Rosa woodsii var. ultramontana	Woods' rose	O/U
	Rosa woodsii var. woodsii	Woods' rose	O/U
	Rubus arizonensis	Arizona dewberry	X
	Rubus neomexicanus	New Mexico raspberry	X
	Vauquelinia californica	Arizona rosewood	X
	Vauquelinia californica ssp. californica	Arizona rosewood	X
Rubiaceae	Bouvardia ternifolia	firecrackerbush	X
	Cephalanthus occidentalis	common buttonbush	X
	Diodia teres	poorjoe	X
	Galium aparine	stickywilly	X
	Galium boreale	northern bedstraw	U
	Galium fendleri	Fendler's bedstraw	X
	Galium mexicanum	Mexican bedstraw	X
	Galium mexicanum ssp. asperrimum	Mexican bedstraw	O
	Galium microphyllum	bracted bedstraw	X
	Galium proliferum	limestone bedstraw	X
	Galium wrightii	Wright's bedstraw	X
	Hedyotis greenei	Greene's starviolet	X
	Houstonia pusilla	tiny bluet	X
	Houstonia rubra	red bluet	U
	Houstonia wrightii	pygmy bluet	X
Rutaceae	Ptelea trifoliata ssp. angustifolia	common hoptree	X
	Ptelea trifoliata var. cognata	pallid hoptree	X
	Thamnosma texana	rue of the mountains	X
Salicaceae	Populus fremontii ssp. fremontii	Fremont cottonwood	X
	Populus tremuloides	quaking aspen	O
	Salix bonplandiana	Bonpland willow	X
	Salix exigua	narrowleaf willow	X
	Salix gooddingii	Goodding's willow	X
	Salix irrorata	dewystem willow	X
	Salix scouleriana	Scouler's willow	X
	Salix taxifolia	yewleaf willow	X
Santalaceae	Arceuthobium vaginatum	pineland dwarf mistletoe	X
	Comandra umbellata ssp. pallida	pale bastard toadflax	X
	Phoradendron bolleanum	Bollean mistletoe	X
	Phoradendron californicum	mesquite mistletoe	X
	Phoradendron capitellatum	downy mistletoe	X
	Phoradendron coryae	Cory's mistletoe	U
	Phoradendron juniperinum	juniper mistletoe	X
	Phoradendron leucarpum	oak mistletoe	X
	Phoradendron tomentosum	Christmas mistletoe	X
Sapindaceae	Acer glabrum	Rocky Mountain maple	X
	Acer negundo	boxelder	X
	Dodonaea viscosa	Florida hopbush	X
	Sapindus saponaria	wingleaf soapberry	X
	Sapindus saponaria var. drummondii	western soapberry	X
Sapotaceae	Sideroxylon lanuginosum	gum bully	X
Saxifragaceae	Heuchera rubescens var. versicolor	pink alumroot	X
	Heuchera sanguinea	coralbells	X
	Heuchera sanguinea var. sanguinea	coralbells	X
	Saxifraga eriophora	redfuzz saxifrage	X
Scrophulariaceae	Scrophularia parviflora	pineland figwort	X
	Verbascum thapsus	common mullein	U
Selaginellaceae	Selaginella arizonica	Arizona spikemoss	X
	Selaginella rupincola	rockloving spikemoss	X
	Selaginella underwoodii	Underwood's spikemoss	X
Simmondsiaceae	Simmondsia chinensis	jojoba	X
Solanaceae	Chamaesaracha coronopus	greenleaf five eyes	X
	Chamaesaracha sordida	hairy five eyes	X

Solanaceae	Datura discolor	desert thorn-apple	O
	Datura wrightii	sacred thorn-apple	X
	Lycium andersonii	water jacket	X
	Lycium berlandieri	Berlandier's wolfberry	X
	Lycium exsertum	Arizona desert-thorn	X
	Lycium fremontii	Fremont's desert-thorn	X
	Lycium pallidum	pale desert-thorn	X
	Margaranthus solanaceus	netted globecherry	X
	Nicotiana obtusifolia	desert tobacco	O
	Physalis crassifolia	yellow nightshade groundcherry	X
	Physalis hederifolia	ivyleaf groundcherry	X
	Physalis hederifolia var. fendleri	Fendler's groundcherry	X
	Physalis hederifolia var. hederifolia	ivyleaf groundcherry	X
	Physalis latiphysa	broadleaf groundcherry	U
	Physalis pubescens	husk tomato	X
	Solanum americanum	American black nightshade	U
	Solanum douglasii	greenspot nightshade	X
	Solanum fendleri	Fendler's horsenettle	X
	Solanum nigrescens	divine nightshade	X
Tamaricaceae	Tamarix aralensis	Russian tamarisk	X
	Tamarix ramosissima	saltcedar	X
Typhaceae	Typha domingensis	southern cattail	X
Urticaceae	Parietaria hespera	rillita pellitory	X
	Parietaria hespera var. hespera	rillita pellitory	X
Valerianaceae	Plectritis ciliosa	longspur seablush	X
Verbenaceae	Aloysia wrightii	Wright's beebrush	X
	Glandularia bipinnatifida	Dakota mock vervain	X
	Glandularia bipinnatifida var. bipinnatifida	Dakota mock vervain	X
	Glandularia bipinnatifida var. ciliata	Davis Mountain mock vervain	O
	Glandularia gooddingii	southwestern mock vervain	X
	Tetraclea coulteri	Coulter's wrinklefruit	X
	Verbena neomexicana	hillside vervain	X
Violaceae	Hybanthus verticillatus	babyslippers	X
	Viola adunca	hookedspur violet	O
	Viola affinis	sand violet	O
	Viola bicolor	field pansy	X
	Viola canadensis	Canadian white violet	X
	Viola nephrophylla	northern bog violet	X
Vitaceae	Cissus trifoliata	sorrelvine	X
	Parthenocissus vitacea	thicket creeper	O
	Vitis arizonica	canyon grape	X
Zygophyllaceae	Kallstroemia californica	California caltrop	X
	Kallstroemia grandiflora	Arizona poppy	X
	Kallstroemia parviflora	warty caltrop	X
	Larrea tridentata	creosote bush	X
	Tribulus terrestris	puncturevine	X
	Verbena neomexicana	hillside vervain	X

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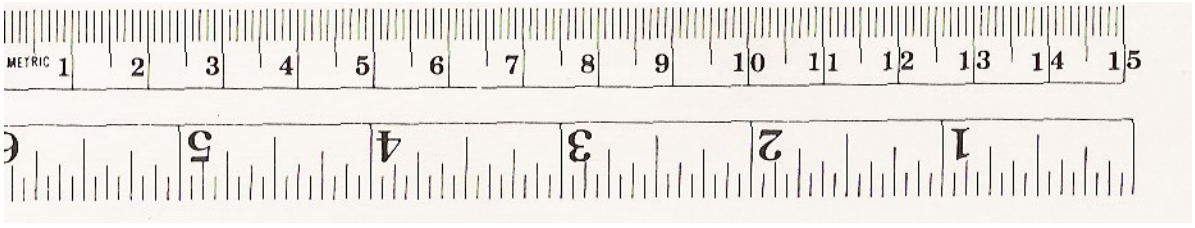
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Common Plants of Saguaro National Park

SONORAN DESERT NETWORK
Inventory and Monitoring Program

The Flora Project