

The Plant Press

THE ARIZONA NATIVE PLANT SOCIETY

VOLUME 23 NUMBER 3

AUTUMN 1999

THE IRONWOOD ALLIANCE

JEFF KREAMER

When Father Kino began to establish a Christian foothold in southern Arizona, many of the ironwood trees in northwest Tucson were already mature and thriving. Some may have been hundreds of years old at that time, and are still alive today. Through the ages, these trees have endured whatever trials nature could deliver, and survived. Also during this time, they played a critical role in building fertile soils, providing protective cover for dozens of plants including the Saguaro, and have supplied habitat and nourishment for many desert creatures. Ironwood trees represent the "Ancient Forests" of the Sonoran Desert. Beneath their canopy exists a microclimate suitable for the survival and regeneration of at least 175 species of vascular plants*. Some of these plants are considered threatened or endangered species, while many others are protected by other laws. At issue is the continued destruction of Ironwood habitat on both sides of the international border.

MORE INSIDE:

Rare Plant	2
Outstanding botanists	3
Exotic Species	4 & 5
Ginny's Notebook	6
Plant List	8
Books	12
Ethnobotany	13

The Ironwood Alliance was established in 1991 to examine ironwood depletion issues in Mexico, and to further our understanding of ironwood as a "keystone" species of the Sonoran Desert. This effort resulted in Mexican legislation to protect the trees and create harvesting regulations. The principal threat to ironwoods in Mexico is the production of "mesquite" charcoal. It has been determined that as much as 30 - 40 percent of some charcoal exports are ironwood being sold as mesquite. Most of this charcoal fuels barbecues in Tucson and Phoenix. Being the second most dense wood in the world, ironwood is a superior fuel wood and makes excellent charcoal. Another major threat is competition with buffle grass which continues to permanently alter the landscape of the Sonoran Desert. Ironwoods are destroyed to increase acreage of bufflegrass to improve cattle grazing potential.

Also studied in Mexico were sustainability issues, such as the ironwood carvings that have supported cultures such as the Seri Indians. The Seri, who use only dead wood in the carvings, must now compete with a new generation of craftsman who use machines to carve the wood at much faster rates. Such competition has done little to insure the livelihood of the Seri's, and the preservation and sustainability of ironwood

Continued on page 10



RARE PLANT CLOSEUP: *ADENOPHYLLUM WRIGHTII* JARED SHORTMAN

Sherlock Holmes might find the search for this diminutive herb

(*Adenophyllum wrightii*)* a worthy challenge. It has not been seen in the wild since 1947. This plant is related to the common dogweeds in cultivation (*Dyssodia pentacheata*, and *Dyssodia acerosa*). It has been known to occur in Mexico (Chihuahua near Ciudad Guerrero), and in Grant county, New Mexico. It has not been seen in either of these vicinities since the late 1800s! A specimen from a location near Springerville, Arizona almost 50 years ago represents the last known occurrence of this taxon.

This is an annual species, with smooth, upright stems, grows up to 30 centimeters tall. The leaves are deeply lobed with 5 - 8 linear, spine-tipped segments. Flower heads occur on short stalks. The ray flowers are very small and inconspicuous ray flowers and do not surpass the disk. Achenes have a pappus of 20 scale-like segments, the 10 inner ones each divided into 3-cleft and 3-awned segments. It is an inconspicuous summer annual, which blooms in September.

Adenophyllum has the global rating of "G2", a Natural Heritage Program Rank of Endangerment. This means that it is imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction. There are 6 to 20 occurrences and few remaining individuals (1,000 to 3,000). This global rating in the author's opinion is not representative of the true status of the species.

**Adenophyllum wrightii* A. Gray var. *wrightii* Wright's Dogweed (syns. *Dyssodia neomexicana* (A. Gray) Robinson, *Hymenatherum neomexicanum* (A. Gray) and *Thymophylla neomexicana* (A. Gray) Wootton & Standley)

Instead the authors suggest a "GU" rating which means that the species is currently unrankable due to lack of available information about its status or trends. In addition, New Mexico has rated this species "SH" which implies that the species is of historical occurrence in the state, has not been verified in the past 20 years, is suspected to be still extant, or is known to be destroyed or extensively and unsuccessfully sought. The Federal Status for this species (Determined by US Fish and Wildlife Service) is "SCF": a taxon for which there is some evidence of vulnerability, but for which there is not enough information to support listing proposals at this time.

Very little is known about this species which occurs at elevations between 4,500 and 8,000 feet. Only guesses can be made as to what exact habitat niche it may prefer. Often "ephemeral pools" caused by summer rains have been mentioned. It seems to be a species that likes wet conditions. Ephemeral pools are rare in the wild, occurring in only the wettest of years.

The Chihuahuan specimen was collected by C. G. Pringle. In "Life and Work of Cyrus Guernsey Pringle" by H. B. Davis (1936), Pringle's notes on 27 September 1887 read, "I spend the fine day on the open plains beyond the pines and explored several shallow ponds there. Collected 1184 *Delphinium tenuisectum* Green 1294 *Hymenatherum neo-mexicanum* Gray (this taxon is a synonym for *Adenophyllum wrightii*) and other such plants as *Pectis aquatica*, *Tagetes pringlei*, *Eriocaulon pringlei* etc. Many aquatic-moist ground things." He stayed in the area until Oct. 29. These notes though not specific lead one to think of wet places. A search for the other species in these notes may indicate habitats Wright's dogweed prefers.

Continued on Page 11

OUTSTANDING ARIZONA BOTANISTS IV: CYRUS GUERNSEY PRINGLE

BARBARA TELLMAN

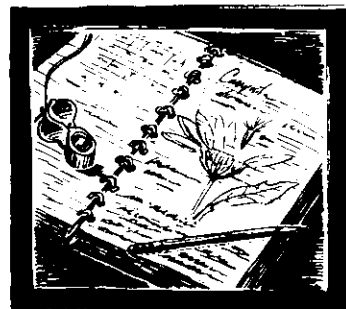
Cyrus Pringle was a prodigious plant collector. He collected more species new to science than any other collector. He sent some half a million specimens of 20,000 species including 1,200 new species, 100 new varieties and 29 new genera to various locations. He claimed he could name more than 10,000 plants although he could not remember the name of the President of the United States.

Pringle was born in 1838 in East Charlotte, Vermont to a relatively well-to-do family who provided excellent schooling for him in preparation for his studies at the University of Vermont where majored in the classics. Because of his brother's death, however, he had to leave college to help run the family farm. He had an interest in plants from a very early age and, once back on the farm, he began experimenting with grafting fruit trees. When he was 20 he started his first nursery with various fruit trees and vegetables. He made detailed plans for each project, which typified his approach to his scientific method. He developed new varieties of potatoes and his early writings with titles such as "Potato culture - a word of caution" and "On crossing corn," were published in *The Country Gentleman* from 1869 to 1894.

While in school he became involved in the Society of Friends and in 1863 he married a prominent speaker in the local Friends group, but soon was drafted for the Union Army in the Civil War. Because of his beliefs, he and two friends refused to have anything to do with military operations and also refused to pay \$300 for an exemption. He was imprisoned and suffered great hardship and even torture, and his health deteriorated. He finally attracted the attention of President Lincoln who personally intervened to release him from the

Army. Pringle arrived home seriously ill, but farm work eventually helped him to recover. He plunged into transforming his "beautiful Valley of Lake Champlain" to a fruit growing region. While doing this he taught himself French and Spanish until he became proficient in both. In 1872 Mrs. Pringle left to do evangelistic work throughout the land and Pringle began to devote himself more and more to botanizing, starting with fern collecting in the Vermont mountains. Through the Horticultural Society he became acquainted with leading botanists such as Asa Gray and his life took a new turn. For the next few years he perfected his skill by collecting throughout New England and southern Canada.

In 1880 he made his first trip to the West, with three goals: to secure wood specimens for the Museum of Natural History; to make general collections under the direction of Asa Gray; and, as an agent for the U.S. Census Department, to explore the forests of the Pacific Slope. This he did for the next four years, including trips to Sonora and Baja. He spent the next year doing a botanical survey of the north and northwestern parts of Arizona for the Smithsonian Institution. While in the area, he made trips into central Mexico, which became the basis of 26 years of botanical work. Subsisting on small grants from Harvard, the Gray Herbarium and other sources, he set up a base in the interior from which he ventured in all directions. He collected in the barrancas, the lowlands, the topics and the desert. His assistants were mostly local people who became his close friends.



Continued on page 12

EXOTIC SPECIES WATCH: *SALVINIA MOLESTA* BARBARA TELLMAN

Another exotic species has invaded Arizona, causing alarm. The plant is a small rather attractive aquatic fern, *Salvinia molesta*, which has been sold in aquatic plant nurseries in Arizona and California. Unfortunately, this plant has characteristics that led the Guinness Book of World Records to label it as "world's most intransigent weed" for more than fifteen years. Water hyacinth now has that distinction, although many experts believe that salvinia is actually worse. *Salvinia* causes problems in Africa, India, Southeast Asia and in North America from Florida, to Texas, but has not yet been found in Sonora. It can withstand light frost. Mats have been seen floating in the lower Colorado River below the Palo Verde Irrigation District south of Parker. It seems likely that they came down the drain which carries water off the agricultural land. The 26-mile long drain is unlined and full of cattails, saltcedar, and other plants.



Salvinia molesta. Photo: Brad Jacobson,
Arizona Game and Fish Department

The genus *Salvinia* comprises about 10 species of heterosporous, aquatic, floating ferns native mostly to South America. Most are grown as ornamentals and through human introduction are naturalized on all continents except Antarctica. All species have a dense covering of water-repellent composite hairs on the leaf surface. Leaf shapes and leaf venation are highly variable, and chromosome numbers range greatly, making identification difficult. All members of the genus are considered potentially invasive.

S. molesta is a very aggressive hybrid, but the spores are almost always infertile and reproduction is by cloning. If it is fragmented, it quickly spreads by wind, waves, boats, birds, canals, and other methods. It can withstand drying periods. In slow-moving warm-water rivers, artificial ponds or large lakes, colonies can form solid mats up to two feet or more thick, doubling in size in one to three weeks. The mats shut out oxygen to the point that other organisms cannot survive.

Creatures that need to have open surface water may be excluded. Colorado River wildlife experts are concerned about the impacts on backwaters in the wildlife refuges where thousands of waterfowl congregate and breed. They fear that the plant may spread to riparian areas such as the Bill Williams River. Water managers are concerned about the impact on canals, irrigation intakes, power plants, and pumping systems. If it reaches the C.A.P. canal, it can quickly be transported to Central Arizona. Since the plant has been sold in Phoenix nurseries, it is already in that area, although no naturalized plants have yet been located in canals or lakes there. The plant is listed as a federal noxious

Continued on page 14

UPDATE ON *MARRUBIUM VULGARE* AT FORT BOWIE NATIONAL HISTORIC SITE

BARBARA REESE

Fort Bowie National Historic Site was authorized by an act of Congress on August 30, 1964 to be forever enjoyed by generations to come. With lower elevations from 4,550 feet in Siphon Canyon, to 5,000 feet at the visitor center, along with the higher ridges of Bowie Mountain and Helen's Dome, this historic site has a great variety of plant life. Here you can find one of the westernmost populations of *Bumelia lanuginosa* var. *rigida*, gum bumelia. This is one of the few sites in Arizona where the plant occurs as a co-dominant in riparian woodlands. Species found within the pinyon-juniper belt co-mingle with ocotillo and creosote bush. The lush riparian areas of Siphon Canyon and Apache Spring support healthy stands of *Juglans major*, *Celtis reticulata*, *Fraxinus velutina*, *Vitis arizonica*, *Sapindus drummondii*, and *Ptelea trifoliata*.

The location of Fort Bowie - in Apache Pass between the Dos Cabezas and the Chiricahua Mountain ranges, and separating the Sulphur Springs and San Simon valleys - allows a botanist to experience and study a multitude of plants from different elevations and two different desert ecosystems.

In 1997 several members of the Arizona Native Plant Society graciously helped eradicate non-native horehound (*Marrubium vulgare*) from an area near the visitor center. Hand pulling the weeds is no easy task, but did allow the park service to refrain from using herbicides. The volunteers' diligence, for two long, hot, sweaty mornings in late June, paid off tremendously. The weed has drastically declined in the area where it was pulled and has not reemerged within the past two years, despite an increase in monsoonal activity this summer.

With the increased rains we also noticed a rarity we haven't seen in years: the profuseness of crowded rayweed (*Parthenium incanum*). The five tiny, cup-

like ray flowers are a sight to see when there are so many of them! They are found on dry hills, gravelly mesas, and desert grasslands, at altitudes between 3,000 to 6,000 feet in western Texas, Arizona, New Mexico, and Mexico. This close relative of guayule (*P. argentatum*, found in western Texas and northeastern Mexico), is called crowded rayweed and mariola. Like its relative crowded rayweed also contains rubber and has been used commercially to a small extent. Once the rains began in July, mariola started showing up in the areas where we had pulled the horehound. Perhaps we helped out a native species by spending two days on our hands and knees, under the sweltering June skies of 1997! It appears so!

Thanks again to: Jeff Kreamer, Amy Kreamer, Barb Skye, A. Segade, Clay Evitts, Marcia Tiede, and Deb Hollander for helping out in June 1997. Your participation and devotion is very much appreciated!



Horehound drawing by Lucretia Hamilton from *Weeds of Arizona* by Kittie Parker, UA Press.

PAGES FROM GINNY'S NOTEBOOK 4: THE RHAMNACEAE
VIRGINIA SAYLOR

23

RHAMNACEAE - BUCKTHORN FAM.

Pg No	Genus Common Name	Form	Flower		FR mm	Leaf cm lg	G WF	K CF	TK RK
			color	outline mm					
	<i>Adolphia Junco</i>	Thorn Shrb E	wh	A-CR 4	caps 5	0 3-9 nm	—	— 985	1011 —
	<i>Berchemia Rattan Vine</i>	Shrb CL	MI gn	Sm P 3	drupe B 0	A 3	992	—	1012 —
	<i>Ceanothus Calif. Lilac</i>	Thorn Shrb E P	wh to dpbl	P 5	caps 4-6	A-O 	993	592 973	1010 315
	<i>Colubrina Snakewood</i>	Thorn Shrb Sm Tr	yelt	A-L 6	caps B-10	A 1-3	—	534 985	1009 —
	<i>Condalia</i>	Thorn Shrb Sm Tr	gn yelt	A-CR 	drupe 5-8	A-F 5-1.5	—	529 970	1013 —
	<i>Condaliopsis</i>			Ziziphus			—	— bc 784	—
	<i>Gouania</i>	Shrb Sc		TR-AR 	caps 5	A 	—	— bc 786	—
	<i>Karwinskia Coyotillo</i>	Shrb Sm Tr	gn yel	A-CV or 30 3	drupe 0	3-7 	—	— bc 786	1015 —
	<i>Krugodendron Black Ironwood</i>	Shrb Sm Tr	gn yel	CY no pels	drupe 		NAT 721	—	—
	<i>Reynosa Red Ironwood</i>	Tree	yel gn MI	2	drupe 		NAT 720	—	—
	<i>Rhamnus Buck Thorn</i>	Thorn Shrb Sm Tr	gn MI	A-U-30 pels 5-0	drupe G-15 	A 1.5-8-15	992	531 971	1011 314
	<i>Sageretia</i>	Thorn Shrb	MI wh	TIP 	drupe blk 	0 	—	531	1012 —
	<i>Ziziphus</i>	Thorn Shrb Sm Tr	yelt	A-CV	drupe 	A 1-2.5	—	530	1012 45

Seps, Pels, Stms 4-5. Styles 3 Fls. inconspicuous etc *Ceanothus*

Genus *Microthamnia* included in *Candalia*

Family of 45 genera - 600 spp

ANPS CONSERVATION POLICY

JULIA FONSECA

On August 21, 1999 the ANPS Board adopted the following Conservation Committee Policies in order to clarify how conservation activities fit into the overall structure of the Society.

Membership

The Conservation Committee shall include at least one Board member, one member at large recruited by the Chair, and the Conservation Chair of each chapter. The Board member and Conservation Chairs shall each serve on the committee for a minimum of his or her respective term. The member at large may serve for an indefinite term at the discretion of the Board. Additional members are invited to join for indefinite terms at the discretion of the Chair.

Chair

The chair of the committee shall be approved by the Board. Any member may serve as the chair. The chair shall be appointed for a two-year term, renewable upon approval by the Board. The duties of the chair include presiding over committee meetings and advising the Board of any lobbying activities that the committee may undertake. (Lobbying is generally discussed in the attached document. Lobbying is not the same as

advocating regulation; it is an attempt to influence specific legislation proposed for action by a legislative body. Assuring that financial expenditures for lobbying are documented will be the responsibility of the chair.)

Continuing Duties of the Conservation Committee:

1. Comment on proposed state or federal legislation affecting native plants, and advising the Board on lobbying activities that might be undertaken to support the conservation mission of the Society.
2. Comment on proposed activities affecting native plants on a state level or on regional level if outside the purview of the appropriate chapter.
3. Support chapter conservation committees.
4. Discuss conservation issues and activities of the conservation committee in the Plant Press.
5. Make known the principles and positions of the Conservation Committee to the public through various media.
6. Undertake other activities as directed by the Board or its Executive Committee, such as responding to selected correspondence.

Jeff Kraemer has agreed to head the committee and welcomes volunteers interested joining the committee. Contact him at 520 318-0914.

Notes To Ginny's Notebook

The last three columns refer to pages in which the species is described in standard books.

CF: P.A. Munz. 1959. California Flora. University of California Press. 1681 pp.

G: M.L. Fernal, ed. 1988. Gray's Manual of Botany 8th ed. Dioscorides Press. 1632 pp.

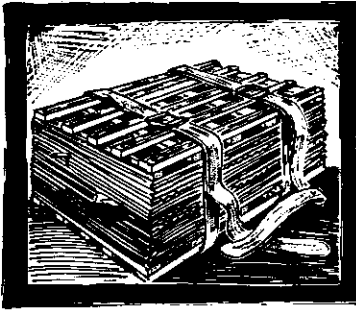
K: Thomas Kearny and Robert Peebles. 1951. Arizona Flora. University of California Press. 1032 pp.

RK: John Coulter and Aven Nelson. 1902. New Manual of Botany of the Central Rocky Mountains. American Book Company. 1902. 646 pp.

TX: Donovan Correll and Marshall Johnson. 1970. Manual of Vascular Plants of Texas. Texas Research Foundation. 1881 pp.

WF: Harold Rickett et al. 1970. Wild flowers of the United States, Vol. 4 the Southwest New York Botanic Garden.

Abbreviations: E: Erect; CL: Climbing; P: Prostrate; SC: Scandent; Thorn: Spinescent twigs.



FLORAS OF ARIZONA NATIONAL PARKS AND MONUMENTS III: CASA GRANDE NATIONAL MONUMENT STEVE MCLAUGHLIN

This is the third plant checklist in our series of floristic species lists for various national parks, monuments, and historic sites in Arizona. These lists were obtained from the World Wide Web at <http://ice.ucdavis.edu/nps>, an online database created and maintained by the Information Center for the Environment (ICE) at the University of California at Davis. This is a very useful web site, providing lists of plants and animals from parks from throughout the United States. Names appearing on these lists, however, have not been verified by ICE and may have some nomenclatural problems. Each list will be edited by ANPS member Steve McLaughlin, a professor at the Office of Arid Lands Studies, University of Arizona.

The lists will be edited for synonymy (the same plant species occurring under two or more Latin names), exotic species will be identified by an asterisk (*), and updated nomenclature will be provided along with Latin binomials that may be more familiar to most ANPS members.

Casa Grande National Monument covers just 472 acres (191 ha). Even taking the smallness of the area into account, this listed flora of 58 species seems remarkably depauperate. Of these, 19 (33%) are exotics and many of the natives are species commonly found in disturbed habitats.

CASA GRANDE NATIONAL MONUMENT

Casa Grande National Monument, established in 1894, was the first national archaeological preserve in the United States. The Monument encompasses a series of Hohokam ruins. While the Great House is the main attraction, the area includes ruins of houses, a ball court, irrigation canals and other structures. The Great House itself was a four-story building constructed of layers of caliche mud. The walls are four and a half feet thick at the base and sixty feet long. Juniper, pine and fir trees were floated down the Gila River from the high county to be used as ceiling and floor supports for the house. Some archaeologists believe the site had astronomical uses since a circular hole in the west wall aligns with the setting sun during the summer solstice. It is the largest of the known Hohokam sites.

The Hohokam inhabited the Gila, Salt River, and Santa Cruz River valleys for more than 1,000 years. Casa Grande was probably completed in the mid 1300s and had been long abandoned by the time Father Kino arrived in 1694. Nineteenth century pioneers described a much larger structure than what still exists today. A large mesquite bosque in the region finally died in the twentieth century when dewatering of the aquifer and river deprived the large old mesquites of the water they needed.

The Monument is open every day except Christmas from 8:00 a.m. to 5:00 p.m. Follow the signs from I-19 about halfway between Tucson and Phoenix along State Route 87/287 to the Monument which is on the outskirts of Coolidge.

For information: 520 723-3172; 1100 Ruins Drive, Coolidge AZ 85228 or www.nps.gov.

PLANTS OF CASA GRANDE NATIONAL MONUMENT

I. Dicots

Apiaceae

Bowlesia incana hoary bowlesia

Apocynaceae

**Nerium oleander* oleander

Asteraceae

Ambrosia psilostachya Cuman ragweed

Baileya multiradiata desert marigold

Centaurea melitensis Maltese starthistle

Conyza coulteri conyza

Erigeron divergens spreading fleabane

Eriophyllum lanosum white easterbonnets

Helianthus annuus common sunflower

Isocoma wrightii southern jimmyweed

Lasthenia chrysostoma California goldfields

Pectis papposa cinchweed fetid marigold

**Sonchus oleraceus* common sowthistle

Stephanomeria pauciflora brownplumewirelettuce

Verbesina encelioides golden crownbeard

Boraginaceae

Amsinckia intermedia intermediate fiddleneck

Amsinckia tessellata bristly fiddleneck

Cryptantha angustifolia Panamint catseye

Pectocarya heterocarpa chuckwalla combseed

Pectocarya platycarpa broadfruit combseed

Plagiobothrys arizonicus Arizona popcorn flower

Brassicaceae

**Brassica tournefortii* Asian mustard

Descurainia pinnata western tansymustard

Lepidium lasiocarpum shaggyfruit pepperweed

**Sisymbrium irio* London rocket

Chenopodiaceae

Atriplex canescens fourwing saltbush

Atriplex elegans wheelscale saltbush

Atriplex polycarpa cattle saltbush

**Chenopodium murale* nettleleaf goosefoot

**Salsola tragus*

[*Salsola iberica*] prickly Russian thistle

Suaeda torreyana Mojave seablite

Fabaceae

**Prosopis chilensis* Chilean mesqujite, algarrobo

Prosopis glandulosa honey mesquite

Prosopis velutina velvet mesquite

Geraniaceae

**Erodium cicutarium* redstem stork's bill

Erodium texanum Texas stork's bill

Hydrophyllaceae

Eucrypta micrantha dainty desert hideside

Phacelia distans distant phacelia

Malvaceae

Sphaeralcea laxa caliche globemallow

Onagraceae

Oenothera primiveris desert evening primrose

Papaveraceae

Eschscholzia californica California poppy

Plantaginaceae

Plantago insularis desert Indianwheat

Polygonaceae

**Polygonum argyrocoleon* silversheath knotweed

Solanaceae

Lycium exsertum Arizona desertthorn

Nicotiana glauca tree tobacco

Nicotiana trigonophylla desert tobacco

Tamaricaceae

**Tamarix chinensis* saltcedar, five stamen tamarisk

Viscaceae

Phoradendron californicum mesquite mistletoe

Zygophyllaceae

Larrea tridentata creosote bush

II. Monocots

Poaceae

Aristida purpurea purple three awn

**Bromus rubens* foxtail brome

**Bromus tectorum* cheatgrass

**Cynodon dactylon* Bermuda grass

**Eragrostis lehmanniana* Lehmann's lovegrass

**Hordeum murinum* ssp.

leporinum leporinum barley

Poa bigelovii Bigelow's bluegrass

**Schismus arabicus* Arabian schismus

**Schismus barbatus* common Mediterranean grass

Introduced species indicated by an asterisk (*).

Ironwood continued from page 1

resources. As coastal forests become depleted, wood carvers move further inland in search of materials. Inland ironwoods are much slower growing and slower to regenerate. According to ironwood ecology pioneer M.S. Gilberto Solis Garza, many ironwood forests have shown no regeneration in 40 years. We can see this at the Mason Audubon Center for Ironwood Preservation where no young trees are observed even though there are over three hundred ironwoods on site. Slow growth and regeneration has placed many ironwood forests in peril if the current rate of exploitation remains unchecked. Unlike other trees commonly harvested, the loss of mature ironwoods cannot be replaced in a human lifetime.

There are many ironwoods, but harvesting must be balanced with the trees' requirements for survival. Harvesting regulations must be based upon the understanding that slow growth, and regeneration characteristics, make this tree a non-renewable resource when compared to other Sonoran Desert plants. As nurse plants, they play a vital role in the biodiversity of desert ecosystems. With each tree lost, we lose a small ecosystem rich in plant and animal life.

On June 16th, several scientists, environmental activists, and concerned citizens met at the Arizona Sonoran Desert Museum to discuss current research and expand the Alliance to include an evaluation of ironwood depletion in the United States. The largest threat to ironwoods north of the border is habitat destruction due to urban sprawl. As an example, the dense and healthy forests of northwest Tucson lie within the urban growth corridor. Nearly 50 percent of this forest has been destroyed or altered by development already. The rest lies vulnerable and subject to major human impacts within the next few years. Many existing developments have been landscaped with little or no native plants. Obviously, these areas represent "dead zones" as far as desert habitat is concerned. These areas which are devoid of any native landscaping, fail to provide any buffering, or opportunity for adaptable species to coexist. Sensitive species like the ferruginous pygmy owl will find no



Ironwood. Drawing from Rocky Mountain Trees by Richard Preston,

home in graveled yards and crowded golf courses. Blading the desert will place greater pressure on remaining natural areas as desperate animals seek refuge from the destruction.

Members of the Alliance, including the Arizona Native Plant Society, are conducting a major ironwood mapping project in this region to help provide an improved evaluation of habitat destruction. Data acquired thus far indicates that existing ironwood distribution maps are inaccurate. This new and more reliable data will assist in the planning of future reserves and wildlife corridors. A reserve network in this area may be the only way to insure the survival of at least some of the areas wildlife. Since urban sprawl is inevitable, the only hope for this particular forest lies in proper stewardship, and an ongoing educational campaign to teach the public and developers about the uniqueness and importance of ironwood habitat.

Other Alliance members under the guidance of cofounder, Dr. Gary Nabhan, are conducting site evaluations in the Tucson vicinity as well as the border lands. This expanded study will add to our

understanding of canopy effects and the nurse plant characteristics of ironwoods. The results may lead to a greater appreciation of the contribution ironwoods make to desert ecosystems.

Desert Watch and the ANPS have provided funds for a major study of the age of ironwoods. Several Carbon-14 examinations will provide a reliable determination of how old these trees really are. In so doing, we can then appeal to the public to respect and preserve these ancient trees. A multi-organizational task force has been established to perform this study. In time, similar investigations will be performed on other desert trees.

Like the redwoods, the bristlecone pine, and other old growth trees, we must learn to "respect our elders" and insure that generations to come can enjoy these trees and the rich habitat they create.

For detailed information on Ironwood studies, refer to Occasional Papers in Conservation Biology No. 1, and several Ironwood Alliance newsletter papers by G. Nabhan, H. Suzan, et al.. This information can be obtained by contacting Jeff at 520-318-0914.

Rare plant continued from page 2

Springerville, the vicinity where the only known Arizona specimen was found, is associated with the Plains and Great Basin Grasslands (Brown 1982). Other specimens collected in Arizona and New Mexico are from spots close to Great Basin Conifer Woodland. The specimen taken from Chihuahua by C. G. Pringle in 1887 was accompanied by the mention of pine woodland in his notes (Davis 1936). The elevational profile for this biotic community most closely resembles the elevational distribution which has been described for Wright's dogweed in Martin & Hutchins, A Flora of New Mexico (1981). The mean yearly rainfall recorded for Springerville is 288 mm. About 156 mm falls during May through August. Plains and Great Basin Grasslands average between 300 mm and 460 mm precipitation annually (Brown 1982). Since this species is a summer annual the warm season precipitation is probably very important to it. The geographic

information recorded for this species on the few specimens available suggests that a wide range of ecological profiles suit Wright's dogweed, though it occurs rarely. Semidesert grassland also fits into the description of the vague geographic descriptions we have and may be a community suited to this species. Grant County, where the New Mexican specimens were found, is mostly of this biotic community. Which biotic community suits it best remains unknown.

There are no known threats to this species only because there are no known populations of the species. It is possible that grazing of domesticated animals may cause problems for Wright's dogweed, whether from direct grazing or from the effect grazing has on wetlands. Nothing will be known until we can locate populations, if this species is not extinct already.

What is being done? Robert Sivinski, New Mexico State Botanist (New Mexico Forestry Division, Energy, Minerals, and Natural Resources Dept.) will be going to the vicinity of Silver City in New Mexico to hunt for Wright's dogweed. In September Arizona Native Plant Society members who care about even the most inconspicuous of plants began a search for this elusive plant using the few clues we have on herbarium specimens and collected notes from earlier plant hunters. Who knows what we may find? It may be that being an inconspicuous plant may have been to the plants advantage!

Call Jared Shortman, (520) 792-9299 if you would like to assist with rare plant monitoring throughout the state.

NEW ANPS WILDFLOWER T-SHIRT
ANPS has produced a beautiful new T-shirt featuring one of Margaret Pope's beautiful wildflower pictures, *Ipomoea cristulata* twined around *Hibiscus coulteri*. You can buy the shirt at chapter meetings or write to ANPS for ordering information.



Grasses of Southeastern Arizona

This summer's rains have turned southeastern Arizona green with grass. This fall will be a good time to learn to recognize grasses, as many of them have persistent heads which contribute so much to the beauty and stability of the landscape. So grab this field guide and get out there before the cows eat it all.

This pocket-sized handbook is a must for all of you plant people who don't do grasses because they are hard to key. The book features 37 grasses you've seen in the field, if you wander around this part of Arizona between elevations of 1,000 and 6,000 feet.

The photographs and text are printed on heavy paper (almost like card stock) and spiral bound for durability. The excellent photographs include the entire plant and there are close-up photos for important details. The text gives

BOOK REVIEW JULIA FONSECA

scientific name, growth form, size, preferred soils, value for erosion control, livestock forage and wildlife value, growing season, and details such as how color changes with maturity.

Of particular interest are the recommendations concerning special grazing management needs and how abundance is affected by natural climatic variability. For this reason, the book is useful in understanding range condition.

Terms for grass parts are illustrated, and an index provides Spanish and O'odham names for the grasses as well as references.

This fine publication was sponsored by various Natural Resource Conservation Districts in southeastern Arizona. Contributors included experienced range and soil scientists with the agency formerly known as Soil Conservation Service.

Books can be ordered from Coronado R C & D, 245 S. Curtis Ave., Willcox AZ 85643. 520 384-2229. Cost: \$5.00 plus postage and handling charges.

Pringle continued from page 3 collections were important to other botanists. He liked to make complete collections of all the species of a region, not just the unusual ones, so that herbaria in the U.S. and Europe would have an array of the plants of these regions. He collected and mounted the specimens with great care. In 1890 the Chihuahuan government sent a set of 1,000 of his specimens to the Exposition in Paris where it attracted much attention.

He cared little for wealth and when he died in 1911, he left only his quarters at the University of Vermont and his plants. The herbarium there then had the largest collections of plants from Mexico which occupied an entire floor. His specimens can also be found at Harvard, the National Herbarium and the Gray Collection.

See: Helen Burns Davis. 1936. Life and work of Cyrus Guemsey Pringle. University of Vermont. This book has a short biography, diaries of the Mexican journeys and lists of more than 15,000 species he collected.

ETHNOBOTANY NOTES II: ARIZONA BLACK WALNUT *JUGLANS MAJOR*

As the holiday season approaches, grocery stores will display many kinds of tasty nuts for cooking and snacks. Among the most popular are walnuts, which are likely to end up in your favorite holiday pastries. Commercial growers prefer the English varieties because they are meaty and thin shelled. North America's native black walnut trees are not grown for their small nuts, but for their fine wood. Old orchards of both varieties are harvested and milled into lumber for use in the furniture industry.

Our state has one native species of walnut, *juglans major*. It can be found at several locations throughout the state. It generally grows in riparian areas at elevations between 3,000 and 7,000 feet. The trees can be small shrubby trees, or large stately ones up to 50 feet tall. Leaves are light green and are pinnately compound with 9 - 13 leaflets. The fruits are much smaller than those of the English ones, and contain much less "meat" due to their very thick shells. They are not grown commercially, but the nuts are flavorful and high in fats and oil.

Early Arizonans valued these wild and hardy trees for the tasty nuts, and for their high quality lumber which was scarce in the southwest at that time. The wood which is darker and as beautiful as the English Walnut, is prized by craftsmen and often used in inlay work along with its lighter colored relative. The nutmeat was also ground into an oily pulp which was rubbed on furniture to remove scratches.

Some people experience a mild allergic reaction when eating raw walnuts. The fruits contain large amounts of tannin which contributes both to the allergic reactions, and to their long use as a medicinal plant. The hulls were soaked in water until the tannins were released and the water became dark brown. The resulting tea was then used internally as a

remedy for parasites and arthritis. Externally the tea was used as an

astringent wash for skin disorders and body lice. An infusion of the shells was also used as a brown dye for fabrics and hair.

The Spanish word for walnut is "nogal". The town of Nogales owes its name to these trees which grow abundantly in the areas arroyos and canyons. They are found with oaks, junipers, and riparian trees such as alders, willows, and cottonwoods. Black Walnuts do not transplant well. If you are interested in growing some, then collect and plant the nuts.

Next time you are out for a fall hike and you spot a black walnut, take the time to crack open a nut and dig out the tasty meat. You will realize why this tree was valued long before the grocery stores made English walnuts readily available.



Arizona walnut leaves. Drawing by Patricia Oogjen

Salvinia continued from page 4

weed and is also on the California list, but not yet on the Arizona list. Federal listing means that importation or interstate transport is prohibited. State listing prohibits sale.

There are no ideal eradication methods. A Rapid Response Team is currently deliberating which of four methods or combination of methods is preferable.

1. Dry up the river. Not considered possible, although this approach could be used in canals or ponds. The plant can recover from drought, however.

2. Manually remove plants by raking from boats. Many plants grow among cattails, making it impossible to get 100 percent removal.

3. Spray with an herbicide such as diquat. This chemical biodegrades within 48 hours, but can kill any vegetation it touches. The chemical must reach the leaves directly, so it is difficult to spray among other vegetation.

4. Introduce a weevil, *Cyrtobagous salviniae* to consume it. Some people are concerned that this weevil could itself become a problem, although biocontrol experts are convinced that it eats only salvinia.

The Task Force is considering short-term and long-term solutions. They will probably use herbicide in the drain, but programs in the river itself will generally have to go through a rather lengthy approval process, since National Wildlife Refuges and drinking water sources are involved. Meanwhile, Arizona Game and Fish distributes a pamphlet urging boaters to remove all pieces of the plant from their boats so it is not transported to other areas and nurseries have been alerted to eliminate the plant from their stock.

For more information look at the web site <http://nas.er.usgs.gov/ferns/>



Salvinia among cattails on the Colorado River.
Photo: Brad Jacobson, Arizona Game and Fish Department

THANK YOU RETIRING BOARD MEMBERS

Many, many thanks to five board members who have contributed much to the Society.

Sue Rutman has served admirably on the board for many years in different capacities, most recently as co-president.

Horace Miller was a founding member and served in numerous capacities. See Plant Press, Summer 1999.

Julia Fonseca, too, had done many things for ANPS, most recently heading the Conservation and the Wildflower Poster Committees.

Barb Skye and *Liz Slausen* have served fewer years than the others, but have contributed much to the success of the Society.

Replacement elected at the October Annual Meeting will be announced in the Winter issue.

Thanks also to *Theodore Walker* who has done an admirable job of maintaining the membership list and providing mailing labels for about 15 years. Marge Norem will assume that responsibility.

ANPS 1999 PUBLICATION GRANTS PROGRAM: CALL FOR GRANT PROPOSALS

The Arizona Native Plant Society has available through its Publication Fund \$3,000 to assist with funding of publications or communications-related projects during the 1999 grant cycle. The grant program is open to individuals, groups, or organizations. Individual membership in the Society is not required, nor does it preclude application. Proposals from ANPS chapters or committees are not eligible for this program and should be submitted to the Publication Committee for consideration separately. Awards will be made on a competitive basis by the Publications Committee of the ANPS and will be announced by Dec. 15, 1999. The \$3,000 available may be awarded as one or more grants.

Proposals should consist of a brief presentation (one or two pages) outlining:

- The project's subject, audience and relevance to the purpose of ANPS: "To increase awareness and appreciation of Arizona's native plants; to work towards protection and restoration of native plants and their habitats, and to promote the use of low water use landscaping, with emphasis on the use of native plants."
- The applicant's background and a statement of qualifications or resume as well as ways to contact the applicant.

There is no official form to complete.

Examples of projects funded in previous years were grants to help with the publication of the journal *Desert Plants*, a plant list for Organ Pipe National Monument, publication of a tree book for northern Arizona, and publication of an article on Mearns sage (*Salvia dorrii* ssp. *mearnsii*).

**Proposals should be submitted by November 22, 1999 to: Arizona Native Plant Society,
1999 Publication Grants Program,
Box 41206, Sun Station, Tucson Arizona 85717**

OUTSTANDING ACHIEVEMENT AWARDS: CALL FOR NOMINATIONS

Once again the Arizona Native Plant Society is asking for nominations of people, groups, or businesses to receive the annual "Outstanding Achievement Award." The purpose is to recognize Arizonans who have contributed to increasing appreciation of or knowledge about native plants, to preserving native plants, or to increasing the use of native plants in landscaping. Nominees need not be members of ANPS.

Please provide complete information about the nominee - name, address, phone number, etc. Then describe in no more than two pages the contribution(s) which you believe render the nominee deserving of the award. You may include newspaper articles, copies or reviews of publications and other relevant material.

Previous awardees include Paul Martin (University of Arizona) for increasing knowledge, Kent Newland (Phoenix Water Conservation Office and ANPS) for promotion of water-conserving and native plants, and Peter Gierlach (Desert Survivors) for increasing availability of native plants for landscaping.

**Send your nomination by November 22, 1999 to Arizona Native Plant Society,
1999 Achievement Award,
Box 41206, Sun Station, Tucson Arizona 85717**

NEW MEMBERS WELCOME

People interested in native plants are encouraged to become members. People may join chapters in Flagstaff, Phoenix, Tucson, and Yuma or may be members only of the statewide organization. For more information, write to ANPS at the address below, visit the Web site <http://www.azstarnet.com/~anps/> or contact one of the people below.

State President:	Mima Falk	520 387-6281
Central Highlands (Prescott)	Jeff Hogue	520 443-1425
Flagstaff President:	Beverly Loomis	4716 E. Hightimber Lane, Flagstaff 86001
Phoenix President:	Wendy Hodgson	602 276-0760
Tucson President:	Jared Shortman	520 882-7060
Yuma President:	Pat Callahan	520 627-2773

MEMBERSHIP FORM:

Name _____
Address _____
City _____ State _____ Zip _____
Phone Number _____
Chapter preferred: State Flagstaff Phoenix Prescott Tucson Yuma

Enclosed: \$15 Individual or Family \$25 Organization
 \$50 Commercial/Sponsor \$100 Patron

Mail to: Arizona Native Plant Society
P.O. Box 41206, Sun Station
Tucson AZ 85717

<http://www.azstarnet.com/~anps/>

Printed on recycled paper

ARIZONA NATIVE PLANT SOCIETY
P.O. BOX 41206
TUCSON AZ 85717

Address Service Requested

Non-Profit Org.
U.S. Postage
PAID
Tucson, Ariz.
Permit #1505

SAYLOR, JAMES C. & VIRGINIA W.
685 S. LA POSADA CIRCLE #1104
GREEN VALLEY, AZ 85614