

The Plant Press

THE ARIZONA NATIVE PLANT SOCIETY

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THE MASON INSTITUTE FOR ENVIRONMENTAL LEARNING

JEFF KREAMER

When I moved to Tucson in the early seventies my home was in the east part of town, and the Santa Catalina Mountains were a few miles from the city. Now, my home is considered centrally located, and my view of the mountains includes a housing-cluttered bajada extending to their very base. Such rapid growth leads me to imagine what it was like in 1953 when Orpha and William Mason purchased their land far from the city lights.

Together they purchased twenty acres of beautiful desert on Tucson's northwest side, dominated by ironwoods (*Olneya tesota*), and bursage (*Franseria deltoidea*). They cared deeply about their ironwoods, and all of the other plants and creatures that reside there. Together they vowed to protect and preserve their land, and share the natural wonders of their property with all who yearn to learn about the desert.

Learning what they could about the plants that share their land, the Masons realized that the

ironwoods were an indication of a mild, and low-frost microclimate. This enabled them to establish a citrus and palm grove within a corner of the property. The grove thrives today, and has become an oasis-like home to many creatures. The citrus grove and their home occupy a small corner of the property. The remainder is unspoiled desert, including a stand of 250 ironwoods.

The ironwoods are joined by foothills paloverde (*Cercidium microphyllum*), white thorn acacia (*Acacia constricta*), velvet mesquite (*Prosopis velutina*), desert hackberry (*Celtis pallida*), and several stately saguaro (*Carnegiea gigantea*). Triangle bursage and several species of cacti dominate the understory. The barrel cactus (*Ferocactus wislizenii*), prickly pear (*Opuntia engelmannii*), and several types of cholla (*Opuntia* spp.), Pincushion (*Mammillaria* spp.) and hedgehog (*Echinocereus* spp.) cacti are abundant on the property.

Relying on the rich plant life for food and protection are several animals including woodrat (*Neotoma albigula*), pocket mouse (*Perognathus* sp.), javelina (*Dicotyles tajacu*), coyote (*Canis latrans*), and the occasional bobcat (*Felis rufus*). The preserve supports a wide variety of reptiles and birds including Gambel's quail, cactus wren, curve-billed thrasher, Gila woodpecker, and Harris Hawk.

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William Mason died in 1976. Since that time Orpha, now 105, has honored their vow, and allowed many interested youth to visit her small preserve. She recently completed her goal by donating her home and acreage to the Tucson Audubon Society which will ensure its preservation and create an environmental learning center. As a noted librarian and local educator, Orpha was instrumental in the establishment of several libraries. Her dedication to education and her desire to protect the ironwoods were motivating factors for her gift. The land is now a part of rapidly growing northwest Tucson. As the property becomes surrounded by high density housing with non-native landscaping, the depth of her vision becomes apparent. It was Orpha's belief that children can learn to appreciate the desert by being in it. Now, with the direction of the Tucson Audubon Society, and many dedicated volunteers, Orpha and William's dream will come true.

The ANPS Tucson Chapter has made a commitment to help the Tucson Audubon Society develop the preserve and learning center. They have welcomed our input, and invited us to participate in the strategic planning process. The creation of such urban preserves can only help to foster peoples' appreciation of the desert. They can walk the nature trails and experience the rich flora and fauna. Urban preserves also serve as a safe haven and familiar habitat for species attempting to adapt to mans presence. Much can

be learned from this living laboratory about ironwood-bursage habitat, existing and potential human impacts, and the management of urban wildlife sanctuaries. The learning center provides an ideal setting for exhibits in ornithology, native plants and botany, ethnobotany, herpetology, and many other natural sciences. By supporting this project, the ANPS is fulfilling its goals in education development, conservation, and the appreciation of native plants. The ANPS has already assisted by preparing a flora and an inventory of the ironwoods. In progress is the development of over one half mile of nature trails and interpretive information. The Tucson Chapter of ANPS recently donated five picnic tables for use during outdoor lectures and social events.

Our most sincere thanks go to Kevin Dahl and Erin Deely of the Tucson Audubon Society for allowing ANPS to participate in this exciting project.

While thinking about the Mason property, I look back 25 years to a time when I could have easily afforded 20 suburban acres and insured its preservation. If only I had had their vision. It is not as affordable for me now, but the Masons have taught me that an individual can still make a difference. With their gift to the Audubon Society they have preserved their beloved ironwoods and set an example worthy of our utmost attention and admiration.



Ed. Note: The area is not yet open to the public, but is currently used primarily for environmental education classes. Jeff is actively seeking volunteers to help develop the trail system, to help with maintenance, and to help with the plant inventory. If you would like to volunteer or learn more about this project, call Jeff at 520 318-0914.

An environmental education class explores the Mason Property.

Photo: Peggy Bommersbach



JATROPHAS FOR THE LANDSCAPE

JARED SHORTMAN

Here in Arizona a new style of landscaping has been evolving over the past few decades, which is just beginning to become

popular. It isn't enough to poke some native plants into your yard to call yourself a native plant gardener. There is a whole new style that is accompanying the use of native plants. In these designs are some key plants that let you know whether a person is serious about becoming one of these exceptional gardeners. These are the plants that in the formal landscapes of temperate climates would never find a home because they don't match up with life forms found there. Jatrophas are quite this kind of plant. They demand attention and careful placement and are probably not going to catch the eye of someone who lacks appreciation for our native flora.

Four species of *Jatropha* occur in Arizona. These are plants that rarely enter cultivation, but have gained some popularity in the past few years. It is conceivable that if growers were to start propagating *Jatropha*, they would sell the plants. Hobbyist growers of caudiciforms from all over the world have shown interest in *Jatropha* species for years.

Jatropha cardio phylla (limberbush, sangre de cristo) is one of our toughest species, being hardy to the teens. Even if frozen to the ground plants will likely send up new branches quickly in the spring. They can also take very hot and dry weather. If drought occurs limberbush will simply drop leaves and rest. They are native to rocky slopes and sandy washes often growing within other shrubs or sometimes out in the open. They occur from southeastern Arizona where plants are dwarfed by frost and aridity, to southern Sonora where plants can grow more than six feet tall because water is available and there is no frost. To the west they are replaced by other species of *Jatropha* due to lack of summer rain. They have

not yet been found on the east side of the Sierra Madre.

These plants send out large rhizomes and new plantlets often. They will colonize an area almost of indefinite size if remaining healthy. Plants do very well if watered plentifully in summer to encourage faster growth, though they can survive on the most minimal of watering regimes. When dormant almost no water is needed. In the nursery they take well to container growing, and propagation is usually by division or cuttings, as seed is often hard to find. Flowers are small, white and green and sometimes followed by capsular fruits though this is quite rare. Limberbush has a long dormancy period appearing as clusters of turgid, rubbery and brown stems that seem almost lifeless but interesting. Well-watered plants can be quite lush in the growing season. Though dependently deciduous, availability of water can prolong the growing season slightly. Rarely in the trade this species of *Jatropha* is most applicable for low desert landscapes and deserves to be pushed.

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Jatropha cinerea (ashy limberbush, lomboy blanco) is a highly variable species. Barely reaching into Arizona (at Senita Basin) plants are often found as small shrubs growing up to three feet tall. They are distributed south down the coast of Sonora to Sinaloa and

Cont. on Page 15

OUTSTANDING ARIZONA BOTANISTS III:

JOSIAH GREGG

BARBARA TELLMAN



Many nineteenth century botanists were self-taught and sometimes more adventurers than scientists. Josiah Gregg was the epitome of such botanists. His major publication was *Commerce of the Prairies*, a chronicle of his adventures traveling through California, Texas, New Mexico, and old Mexico.

Gregg was more than an explorer, however. His botanical discoveries merited his name being attached to some species familiar to Arizona botanists: *Dalea greggii*, *Peniocereus greggii*, *Fraxinus greggii*, *Acacia greggii* and the genus *Greggia*. His journals sometimes go on for pages about the plants of the regions he was visiting. For example, "... the most important of the wild fruits, perhaps, is the chilteerin (or chiltepiquin), a superior article of Cayenne pepper, oval in shape, red when ripe, and but little larger (in the pods) than peas. It is more piquant than the ordinary red-pepper of the gardens. It is much used by the natives as a condiment. ... There is a peculiar species of buckeye, called monillo by the natives, which grows by threes in a triangular pod. It is about the size of hazel-nuts. The kernel being of pleasant flavor, some of our troops were induced to eat them, when alarming consequences resulted, but which did not turn out serious in the sequel. The subjects were seized with dizziness and vertigo, and fancied themselves being buoyed up..." He goes on to describe garambruyo, chapote, acacia, scrub oak, mezquite (sic), Spanish dagger, and many other plants found in the Chihuahuan Desert. He was very interested in what we now call ethnobotany.

Gregg grew up in a farming family on the frontier in Howard County, Missouri. Though frail and sickly as a child he was the leading scholar of the small country school. Never into sports, he was an odd pioneer child -- an intellectual. When he was twelve he built a quadrant which he used to measure the height of trees, an activity he preferred to climbing the tree itself. He surpassed his teachers fairly early and taught

himself surveying and many other things. In his twenties, he tried to apprentice himself to a local doctor, but was turned down. Then he tried law, but that didn't work out either. In 1830, at the age of 24 he had become so ill that his family was sure he wouldn't live much longer. The local doctor prescribed an unusual remedy. He sent Josiah out west with a wagon train. Since he was too ill to ride a horse, the first part of the trip was inside a covered wagon. Gradually, he got better and was able to ride horseback and then became quite vigorous. In later years, his health was always best when traveling and he became sickly whenever he tried to settle down. The next ten years of his life were largely spent traveling with wagon trains, military detachments and traders. He was in Mexico during the war between the U.S. and Mexico. He does not appear to have reached Arizona (which was part of Mexico at that time), but did visit Texas, New Mexico and Sonora many times, including exploration in the Sierra Madre. On his last trip he visited California.

On one of his trips home, he got to know George Englemann, a physician in St. Louis and chief organizer of the St. Louis Academy of Science and later of the botanical garden and herbarium. A series of letters from Gregg to Englemann survives, clearly showing Gregg's interest in collecting all kinds of specimens. Gregg's botanical specimens were sent to Englemann who cataloged them and put them in the St. Louis Botanical Garden herbarium where they can still be found. Gregg collected specimens of all plants he considered unusual. He divided his specimens into two groups, sending them separately to different people in case one set got lost. He also collected duplicate specimens of the same species from different locations to document their range.

He was often hampered by a lack of suitable materials. He wrote to Englemann, "I have been

unable to procure any suitable paper until I chanced to find at Saltillo, an abundance of pretty fair quality. Since that, I have collected from Saltillo here, (rather to my own surprise, at this very unfavorable season) nearly two hundred varieties of plants - half or three-fourths of which were in flower. I flatter myself with the hope that at least a few dozen of these may prove new ..." He often improvised. "As I could get no stiff pasteboard for portfolios, and as that I had prepared was too light, I have thought it best to "stay" the package with reed splits - of that species, by the way, of which I send you samples of blades and tassel. And even the cords with which the package is bound may prove of some botanical interest to you; the coarsest is of the fibers of that same species of lechuguilla of which I send you specimens; the finer twine is of the fibers of a species of Maguey (*Agave americana*) and called pita by the natives. It is used also for Saddlers's and Shoe thread; yet when intended for these purposes, it is not previously spun into thread, but a sufficient number of fibers are twisted together for the occasion ..." He also devised his own shorthand notation for his labels, describing size and relative abundance of plants.

Apparently Gregg was not always well-liked by his fellow travelers who seldom shared his enthusiasm for science or his outspoken disapproval of smoking and other improper activities. On his last trip in California his companions had become increasingly contemptuous of the time Gregg spent making

observations and notes. After being delayed once again, they prepared to cross the river where Gregg prepared to take observations. The others refused to wait and embarked in their canoes whereupon Gregg hastily gathered up his instruments and had to wade through the water to catch the canoe. When they reached the other shore, Gregg unleashed his fury on his companions who picked him up, instruments and all, and threw him in the river which they named "Mad River" because of the incident - a name that remains today. They relented, however, and took the "old gentleman" with them (Gregg was only 44!). Gregg and his companions were starving when Gregg fell from his horse and died without speaking. None of his notes or collections from that part of the trip survived the journey.

References:

- Gregg, Josiah. 1844. *Commerce of the Prairies: The Journal of a Santa Fe Trader*. Reprinted by Southwest Press, Dallas in 1933. 438 pp.
- Fulton, Maurice G. 1941. *Diary and Letters of Josiah Gregg, Southwestern Enterprises 1840-1847*. University of Oklahoma Press. Norman. 413 pp.
- Horgan, Paul. 1941. *Josiah Gregg and his vision of the early West*. Farrar Straus Giroux. New York. 116 pp.
- Lee, Thomas. 1932 (Oct.). *Josiah Gregg and Dr. George Engelmann, Proceedings of the American Antiquarian Society*. Worcester MA. 52 pages.

BUTTERFLY ENTHUSIASTS ORGANIZING

Tucson butterfly enthusiasts are trying to organize a group so that people interested in butterfly watching, identifying, gardening, conservation, photography, and Fourth of July Butterfly Counts can share their interests and information. Membership for the local chapter is \$10 and membership in both the local chapter and the North American Butterfly Association is \$25 for individuals and \$35 for families. For information contact Shirley Sekarajasingham at 520 615-0853 or Gene Loring at 520 625-8109 or Ssekarajas@aol.com




















Jared Shortman urges WEB addicts to sign on to a new listserv dealing with plants of Sonora.
http://www.onelist.com/subscribe.cgi/plants_of_sonora

PAGES FROM GINNY'S NOTEBOOK 3: THE PAPAVERACEAE
VIRGINIA SAYLOR

Sepals - 264 Key = Color of Sep

PAPAVERACEAE: POPPY FAM. JANAS 30(?)

Pg No	Genus Common Name	Form	Flower			Caps. mm lg	Leaf cm lg	G WF	K CF	TX RK
			Color	Pets Strig. lobes Strig.	Outline pets mar					
61	Arctomecon	PHrb	wh	4-6	CY	17-23	5-14	—	324	—
	Desert Poppy		yel	3-6	B		B	152	195	—
62	Argemone	AHrb	wh	6	CY	25-55	5-15	681	323	663
	Prickly Poppy	PHrb	lemon	3-6	20.		A	156	198	205
63	Baccharis	shrb	grn?	0 2 sep	T.	6	10-45	680	—	—
				2		Blk		MX 276	—	—
64	Cánbya	AHrb	wh	6	Sol-T	2-2.5	5-1	—	—	—
		fuff		3			B	156	201	—
65	*Chelidonium	BHrb	yel	4	U	25-50	10-20	680	—	—
				2	8		A	E128	—	—
65	Dendromecon	shrb	yel	4	SOL	50.	3-8	—	—	—
	Tree Poppy	Evrqn.		2	20-30	100	A	—	195	—
66	Eschschaltzia	AHrb	yel	4	CY	30.		681	323	662
	Calif. Poppy	PHrb	orn	1-8 12±	6-30	70	B±	152	196	—
68	*Glaucium	AHrb	yel	4		150.	7.5-20	680	—	—
	Sea Poppy	BHrb	orn	2	Num	300	B±	E128	198	—
68	Hunnemannia	PHrb	yel	4	CY	100		—	—	—
	Mx Tulip Poppy			orn.	2.5-3			—	196	—
69	*Macleaya	PHrb	crm	0 (2 sep)	P		10-30	680	—	—
	Plume Poppy			2			lobed	—	—	—
69	Meconilla	AHrb	wh	6 (4)	SOL-T	10.	1-7	—	—	—
			yel	3 4-6 B-16	2-15	35	B±	152	193	—
70	*Papaver	AHrb	wh red	4	SOL-T	10-50	3-20	681	—	663
	Poppy	PHrb	pur	4-20	10-60		B-A	154	200	205
71	Platystemon	AHrb	wh	6	SOL-T	12	2-8	—	322	—
	Cream Cups		yel ±	12	8-16		B.O	150	193	—

71	* Roemeria	AHrb	red	4	50L		45-70	1-15	—	—	—
	Field Poppy		Fade Viol	Nom	30-40		70	A		—	UT 453
72	Romneya	Shrb	wh	6	30L-T		25-40	5-20	A		—
	Matilija Poppy	SbSh.		Nom	7-12 100		40	A		154	194
72	Sanguinaria	PHrb	wh	8-12	50L		25	15-30		679	662
	Bloodroot			2 24±	12-20		20	B		E126	—
73	Stylomecon	AHrb	om-red	4	50L A-T		10-20	2-12		—	—
	Wind Poppy			4-11 Nom.	10-20		20	B+A		15d	200
73	Stylagnorum	PHrb	yel	4	50L		25	10-25		680	—
	Celandine Poppy			2-4 ∞	18-25		25	0		E128	—

Notes To Ginny's Notebook :

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

BC: I.L. Wiggins. 1980. Flora of Baja California. Stanford University Press. 1025 pp.

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

CG: Philip Munz. 1959. California Flora. Rancho Santa Ana Botanic Garden. 1681 p.

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

JM: E Hickman. 1987. Jepson Manual of the Higher Plants of California. University of California Press. 1400 pp.

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

MX: C.T. Mason and P.B. Mason. 1987. Handbook of Mexican Roadside Flora. University of Arizona Press. 380 pp.

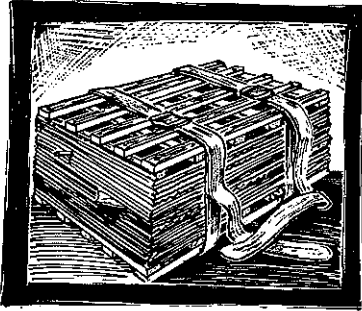
RK: John Coulter and Aven Nelson. 1902. New Manual of Botany of the Central Rocky Mountains. American Book Company. 1902. 646 pp.

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

UT: S.L. Welsh. 1987. Utah Flora. Brigham Young University. 894 pp.

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

Abbreviations: AHrb - Annual herb; BHrb - Biennial herb; PHrb - Perennial herb; SbSh - Subshrub; Shrb - Woody shrub; * - Exotic; CY - Cyme; Sol.T - Solitary terminal



FLORAS OF ARIZONA

NATIONAL PARKS AND MONUMENTS

II : MONTEZUMA CASTLE NATIONAL MONUMENT

(CONTINUED FROM THE AUTUMN 1998 ISSUE)

The list is edited by
Steve McLaughlin
from Web site:
<http://ice.ucdavis.edu>

u/nps, University of California at Davis. If you would like the complete list and did not get the previous issue, request a copy from ANPS at the address on the back cover.

Introduced species are indicated by an asterisk (*); species in parentheses are included in the list of McDougall and Haskell (1960) but do not appear on the ICE list.

II. Gymnosperms

Lythraceae

Lythrum californicum California loosestrife

Malvaceae

Abutilon parvulum dwarf Indian mallow

**Malva neglecta* common mallow

Sphaeralcea ambigua desert globemallow
(*Sphaeralcea grossularifolia*)

Sphaeralcea parvifolia smallflower globemallow

Sphaeralcea rusbyi Rusby's globemallow

Nyctaginaceae

Allionia incarnata trailing windmills

(*Boerhavia coccinea*)

(*Boerhavia coulteri*)

(*Boerhavia spicata*) [*B. torreyana*]

Mirabilis linearis [*Oxybaphus l.*] narrowleaf
four o'clock

Mirabilis multiflora

var. *multiflora* Colorado four o'clock

Oleaceae

Forestiera pubescens stretchberry

(*Fraxinus velutina*)

Menodora scabra var. *scabra* rough menodora

Onagraceae

Gaura coccinea scarlet bee blossom

Gaura hexandra ssp. *gracilis* harlequinbush

Oenothera albicaulis whitest evening primrose

Oenothera cespitosa tufted evening primrose

Oenothera flava yellow evening primrose

Papaveraceae

Argemone pleiacantha

ssp. *ambigua* southwestern pricklypoppy

Pedaliaceae

Proboscidea parviflora

ssp. *parviflora* doubleclaw

Plantaginaceae

**Plantago major* common plantain

Plantago patagonica

[*P. purshii*] woolly plantain

Plantago rhodosperma redseed plantain

Plantago virginica Virginia plantain

Platanaceae

Plantanus wrightii Arizona sycamore

Polemoniaceae

Eriastrum eremicum

ssp. *eremicum* desert woolstar

Eriastrum eremicum

ssp. *yageri* Yager's woolstar

Gilia flavocincta lesser yellowthroat gilia

Gilia sinuata rosy gilia

Gilia tenuiflora greater yellowthroat gilia

Ipomopsis longiflora

[*Gilia longiflora*] flaxflowered gilia

Phlox amabilis Arizona phlox

Phlox speciosa

ssp. *woodhousei* Woodhouse's phlox

Polygalaceae

Polygala rusbyi Rusby's milkwort

Polygala scoparioides broom milkwort

Polygonaceae

Eriogonum abertianum Abert's buckwheat

Eriogonum deflexum

var. *deflexum* flatcrown buckwheat

Eriogonum microthecum

var. *simpsonii* Simpson's buckwheat

Eriogonum trichopes little deserttrumpet

Eriogonum wrightii

var. *wrightii* Wright's bastardsage

**Polygonum aviculare* prostrate knotweed

<i>Polygonum punctatum</i>	dotted smartweed	<i>Castilleja integra</i>	wholeleaf Indian paintbrush
* <i>Rumex crispus</i>	curly dock	<i>Cordylanthus laxiflorus</i>	nodding bird's beak
<i>Rumex hymenosepalus</i>	canaigre dock	<i>Maurandya antirrhiniflora</i>	snapdragon vine
Portulacaceae		<i>Mimulus guttatus</i>	seep monkeyflower
<i>Calandrinia ciliata</i>	fringed redmaids	<i>Mimulus rubellus</i>	red monkeyflower
Primulaceae		<i>Penstemon eatonii</i>	
<i>Androsace occidentalis</i>	western rockjasmine	ssp. <i>undosus</i>	Eaton's penstemon
<i>Samolus valerandi</i>		<i>Penstemon pseudospectabilis</i>	
[<i>S. parviflorus</i>]	seaside brookweed	ssp. <i>connatifolius</i>	desert beardtongue
Ranunculaceae		<i>Stemodia durantifolia</i>	whitewoolly twintip
<i>Anemone tuberosa</i>	tuber anemone	* <i>Veronica anagallis-aquatica</i>	water speedwell
<i>Aquilegia chrysantha</i>	golden columbine	Simaroubaceae	
<i>Clematis ligusticifolia</i>	western white clematis	* <i>Ailanthus altissima</i>	tree of heaven
<i>Delphinium scaposum</i>	tall mountain larkspur	Solanaceae	
Rhamnaceae		<i>Calibrachoa parviflora</i>	
<i>Rhamnus californicus</i>		[<i>Petunia p.</i>]	seaside petunia
ssp. <i>ursinus</i>	California buckthorn	<i>Chamaesaracha coronopus</i>	greenleaf five eyes
<i>Zizyphus obtusifolius</i> var. <i>canescens</i>	lotebush	<i>Datura wrightii</i>	
Rosaceae		[<i>D. meteloides</i>]	sacred thornapple
<i>Purshia stansburiana</i>	Stansbury cliffrose	<i>Lycium pallidum</i>	pale wolfberry
[<i>Cowania mexicana</i>]	Arizona dewberry	<i>Nicotiana attenuata</i>	coyote tobacco
<i>Rubus arizonensis</i>		<i>Physalis acutifolia</i>	sharpleaf groundcherry
Rubiaceae		(<i>Physalis bederifolia</i> var. <i>fendleri</i>)	
<i>Galium aparine</i>	stickywilly	<i>Solanum douglasii</i>	greenspot nightshade
<i>Galium microphyllum</i>	bracted bedstraw	(<i>Solanum elaeagnifolium</i>)	
<i>Galium proliferum</i>	limestone bedstraw	Tamaricaceae	
Rutaceae		<i>Tamarix chinensis</i>	five-stamen tamarisk
<i>Ptelea trifoliata</i> ssp. <i>pallida</i>	common hoptree	Ulmaceae	
<i>Thamnosma texana</i>	desert rue	<i>Celtis laevigata</i>	
Salicaceae		var. <i>reticulata</i>	netleaf hackberry
<i>Populus fremontii</i>	Fremont's cottonwood	Verbenaceae	
ssp. <i>fremontii</i>		<i>Aloysia wrightii</i>	Wright's beebrush
<i>Salix amygdaloides</i>	peachleaf willow	<i>Glandularia gooddingii</i> [<i>Verbena</i>	
<i>Salix bonplandiana</i>	red willow	gooddingii]	southwestern mock vervain
<i>Salix gooddingii</i>	Goodding's willow	<i>Glandularia wrightii</i>	
(<i>Salix laevigata</i>)		[<i>Verbena wrightii</i>]	Davis Mountain mock
Sapindaceae			vervain
<i>Sapindus saponaria</i>	western soapberry	<i>Tetradlea coulteri</i>	Coulter's wrinklefruit
var. <i>drummondii</i>		Violaceae	
Scrophulariaceae		<i>Hybanthus verticillatus</i>	babyslippers
<i>Castilleja angustifolia</i> var. <i>dubia</i>		Viscaceae	
[<i>C. chromosa</i>]	northwestern Indian	<i>Phoradendron tomentosum</i>	Christmas mistletoe
	paintbrush		

Vitaceae			<i>Cenchrus carilintianus</i>	
<i>Vitis arizonica</i>	canyon grape		[<i>C. incertus</i>]	coastal sandbur
Zygophyllaceae			* <i>Cynodon dactylon</i>	Bermuda grass
<i>Kallstroemia parviflora</i>	warty caltrop		(* <i>Echinochloa crusgalli</i>)	
(<i>Larrea tridentata</i>)			<i>Elymus elymoides</i>	
(* <i>Tribulus terrestris</i>)			[<i>Sitanion hystrix</i>]	bottlebrush squirreltail
			<i>Elymus glaucus</i>	blue wildrye
			<i>Elymus trachycaulus</i> ssp. <i>subsecundum</i>	
III. Monocots			[<i>Agropyron t. var.</i>	
Agavaceae			<i>unilaterale</i>	slender wheatgrass
<i>Agave parryi</i> var. <i>parryi</i>	Parry's agave		* <i>Eragrostis cilianensis</i>	stinkgrass
<i>Yucca baccata</i> var. <i>baccata</i>	banana yucca		<i>Erioneuron pilosum</i>	hairy woollygrass
<i>Yucca elata</i> var. <i>verdiensis</i>	Verde yucca		<i>Erioneuron pulchellum</i>	
			[<i>Tridens pulchellus</i>]	low woollygrass
Cyperaceae			<i>Hilaria belangeri</i>	curly mesquite
<i>Eleocharis parishii</i>	Parish's spikerush		<i>Hilaria mutica</i>	tobosa grass
<i>Scirpus acutus</i>	hardstem bulrush		<i>Hordeum jubatum</i>	foxtail barley
<i>Scirpus tabernaemontani</i>			* <i>Hordeum marinum</i> ssp. <i>gussonianum</i>	
[<i>S. validus</i>]	softstem bulrush		[<i>H. geniculatum</i>]	Mediterranean barley
			* <i>Hordeum murinum</i>	
Juncaceae			ssp. <i>glaucum</i>	smooth barley
<i>Juncus saximontanus</i>	Rocky Mountain rush		* <i>Hordeum murinum</i>	
(<i>Juncus torreyi</i>)			ssp. <i>leporinum</i>	leporinum barley
<i>Juncus xiphioides</i>	irisleaf rush		<i>Leptochloa mucronata</i>	
			[<i>L. filiformis</i>]	mucronate sprangletop
Liliaceae			<i>Muhlenbergia asperifolia</i>	alkali muhly
<i>Calochortus flexuosus</i>	winding mariposa lily		(<i>Muhlenbergia porteri</i>)	
<i>Calochortus nuttallii</i>	sego lily		<i>Oryzopsis hymenoides</i>	Indian ricegrass
<i>Dichelostemma pulchellum</i>	bluedicks		<i>Paspalum distichum</i>	knotgrass
			<i>Poa bigelovii</i>	Bigelow's bluegrass
Nolinaceae			<i>Poa fendleriana</i>	muttongrass
<i>Dasyllirion wheeleri</i>	Common sotol		* <i>Polypogon monspeliensis</i>	annual rabbitsfoot grass
			* <i>Polypogon viridis</i>	beardless rabbitsfoot grass
Orchidaceae			[<i>Agrostis semiverticillata</i>]	
<i>Epipactis gigantea</i>	giant helleborine		* <i>Schismus barbatus</i>	common
				Mediterranean grass
Poaceae			<i>Setaria grisebachii</i>	Grisebach's bristlegrass
<i>Aristida purpurea</i>	purple threeawn		<i>Setaria leucopila</i>	streambed bristlegrass
* <i>Avena fatua</i>	wild oat		<i>Setaria macrostachya</i>	Plain bristlegrass
* <i>Avena sativa</i>	common oat		* <i>Setaria viridis</i>	green bristlegrass
<i>Bothriochloa barbinodis</i>	cane bluestem		* <i>Sorghum halepense</i>	Johnsongrass
<i>Bothriochloa saccharoides</i>	silver bluestem		<i>Sporobolus cryptandrus</i>	sand dropseed
<i>Bouteloua aristidoides</i>	needle grama		<i>Stipa neomexicana</i>	New Mexico needlegrass
<i>Bouteloua barbata</i>	sixweeks grama		<i>Tridens muticus</i>	slim tridens
<i>Bouteloua curtipendula</i>	sideoats grama			
<i>Bouteloua eriopoda</i>	black gram		Potamogetonaceae	
<i>Brachiaria arizonica</i>			<i>Potamogeton gramineus</i>	variableleaf pondweed
[<i>Panicum a.</i>]	Arizona signalgrass		<i>Potamogeton nodosus</i>	longleaf pondweed
<i>Bromus carinatus</i>	California brome		<i>Potamogeton pectinatus</i>	sago pondweed
* <i>Bromus diandrus</i> [<i>B. rigidus</i>]	ripgut brome			
* <i>Bromus hordeaceus</i> [<i>B. mollis</i>]	soft brome		Zannichelliaceae	
* <i>Bromus rubens</i>	foxtail brome		<i>Zannichellia palustris</i>	horned pondweed
* <i>Bromus tectorum</i>	cheatgrass			

THE PATTEN HERBAL COLLECTION

People who love plants and old books could spend rewarding hours in the Arizona State University Library. A fascinating and highly unusual collection of 150 extremely rare herbal and early gardening books is located in the Special Collections Division. The artistic value of the books is as high as the scientific value.

Duncan Patten, (former director of the ASU Center for Environmental Studies), and his brother and sister donated the collection to ASU in 1994 along with their mother's wishes.

This collection rivals collections such as one at the Huntington Library in California, but the Patten Collection is tightly focused on benchmarks and contains volumes that even the Huntington lacks. Only a few copies of *Le grant herbier en francoys*, the first major herbal published in French, are known to exist. ASU's edition, published in Paris in 1521, may be the only complete copy in North America.

Marc Patten was the general manager of a family confectionery business in Detroit. Doris served as the superintendent of a Sunday school among her many volunteer activities. They cultivated herbs and other plants in extensive, European-style gardens.

There is something for every plant enthusiast. The botanist will enjoy Rembert Dodoens' 16th century *A New Herbal, or Historie of Plantes, Wherein is Conteyned the Whole Discourse and Perfect Description of All Sortes of Herbes and Plantes, Their Divers Sundry Kindes .. and That Not Only of Those Whiche are Here Growyng in This Our Countrie of Englande, but of All Others Also of Forrayne Realmes Commonly Used as Physics*.

The gardener will appreciate Francois Gentil's *Le Jardinier Solitaiare = The Solitary or Carthusian Gard'ner: Being Dialogues Between a Gentleman and a Gard'ner*.

The ethnobotanist will find a wealth of information in *The Art of Simpling: An Introduction to the Knowledge and Gathering of Plants: Wherein the Definittons, Divisions,*

Places, Descriptions, Differences, Names, Vertues, Times of Flourishing and Decreasig as also Their Several Signatures, Anatomical Appropriattons and Particular Physical Vertues. A variety of titles illustrate the intimate role that plants played in the lives of people in 16th to 19th century Europe.



The educator should look at John Comstock's 19th century *The Young Botanist: Being a Treattise on the Science Prepared for the Use of Persons Just Commencing the Study of Plants*.

The taxonomist will appreciate William Turner's 16th century book *A New Herball: Wherein are Conteyned the Names of Herbes in Greke, Latin, Englysh, Duch, Frenche, and in the Potecaries and Herbaries Latin, with the Proertes Degrees and Natural Places of the Same*.

There are also books in French, German, Italian, and Latin, but you don't have to read Latin to appreciate the illustrations in Alpini's 16th century *De plantis Aegypti*.

The oldest text (other than those from Classical Greek and Latin) is The Herbal of Pseudo-Apuleius: From the Ninth-Century Manuscript in the Abbey of Monte Cassino.

My favorite title in the collection is the 16th century *Joyfull News out of the New-Found Worlde: Wherein are Declared the Rare and Singular Vertues of Diuers Herbs, Trees, Plantes, Oyles & Stones, with the Applications, as well as to the vse of Phisick, as of Chirurgery. Also the Portrature of the Said Herves, Verie Aptly Described* by Nicolas Monardes.

For information, call the ASU Library, 602 965-6510 or see some of the illustrations and the full catalog on the Web site: www.asu.edu/lib/speccol/patten

ETHNOBOTANY NOTES I: ELDERBERRY

JEFF KRAEMER

Anyone who has ever tasted the tart and robust flavor of an elderberry understands why they were enjoyed by both the native people, and early settlers of Arizona. Like the fruits of the saguaro and the prickly pear, elderberries offered a lively addition to an otherwise bland diet. They were particularly enjoyed by settlers from "back east", who found the fruits reminiscent of the flavorful berries native to their homelands. They used the berries, fresh or dried, as an addition to baked breads and muffins. The diluted juice was enjoyed as a punch, or in preserves or wine.

I have long enjoyed gathering and using elderberries. I harvest the berries when they are nearly black. I wrap them in cheesecloth and simmer them in hot water, while gently pressing the bundle to extract the juice. Since the berries are very tart, it is necessary to dilute the juice to really enjoy the full flavor of the fruit. If, in the process of making jelly, you find that the pectin you used does not properly set, then enjoy the resulting syrup on pancakes or ice cream. If you enjoy the crisp flavor of wild raspberries or blackberries, then you're sure to find the taste of elderberry a pleasing experience.

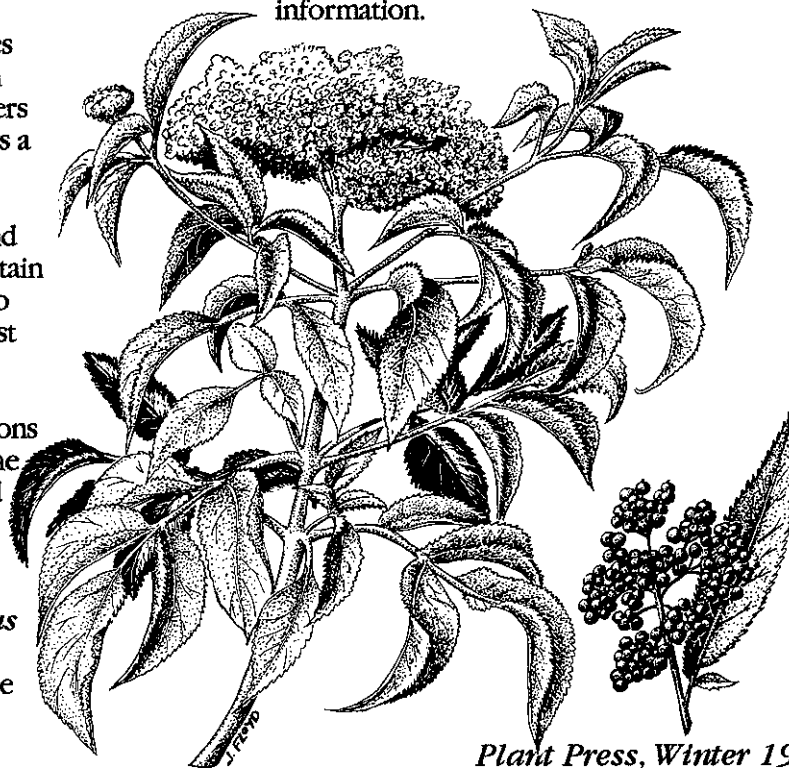
The medicinal use of elderberries has long been established. Both native Americans and early settlers used an infusion of the flowers as a mild diuretic, and to reduce flu symptoms such as fevers and respiratory stress. The leaves and bark were also brewed, but contain alkaloids that may be irritating to tender stomachs. As a result, just the blossoms and ripe berries should be used, though eaten in moderation. Mild allergic reactions are seldom encountered when the berries are cooked or the diluted juice is used as a food additive.

Of the five species of elder in Arizona, the Mexican (*Sambucus mexicana*) and blue elderberry (*S. coerulea*), are favored for use

by people. The remaining species are slightly toxic, but greatly enjoyed by birds. The Mexican, or desert elderberry is the most useful and abundant at lower elevations. Generally, they're found in stream channels, where in late winter their bright green foliage stands in bold contrast to their dormant neighbors. The blue elderberry is found at higher elevations such as in the White Mountains of central Arizona.

The Mexican elderberry can be propagated easily from cuttings, although nice trees can be purchased at most area nurseries. They grow well if planted properly and given ample water, especially when they are getting established. However, since they are not a tree for drought tolerant landscaping, they are best enjoyed in the wild where you can harvest and enjoy the fruits without having to pay the water bill.

Ed Note: Watch for Jeff's forthcoming book on ethnobotany with references and lots of information.



Drawing by Joel Floyd



CRITICAL
HABITAT
CONSIDERED
FOR THE
HUACHUCA
WATER UMBEL

The U.S. Fish and Wildlife Service (USFWS) has issued a notice in the Federal Register proposing that critical habitat be designated for the Huachuca water umbel (*Lilaeopsis schaffneriana* var. *recurva*) on 52.1 miles of streams and rivers in Cochise and Santa Cruz counties. The proposal includes a 33.7 mile reach of the upper San Pedro River and portions of streams in the Huachuca mountains, San Rafael Valley and parts of Sonoita Creek. The umbel is a small semi-aquatic plant that was listed as an endangered species in 1997.

USFWS is requesting comments regarding: Why any habitat should or should not be determined to be critical habitat; specific information on the amount and distribution of water umbel habitat, and what habitat is essential to the conservation of the species and why; land use designations and current or planned activities in proposed critical habitat and their possible impacts on the proposed areas; any foreseeable economic or other impacts resulting from the proposed designation of critical habitat; and the methodology that might be used in determining if the benefits of excluding an area from critical habitat outweigh the benefits of designating the areas as critical habitat.

Comments should be sent to Field Supervisor, USFWS, 2321 W. Royal Palm Rd #103, Phoenix AZ 85021-4951 by March 1, 1999. For more information, contact Tom Gatz 602 640-2720 X240 or Jim Rorabaugh at 602 640-2720 X238.

CONSERVATION UPDATE

JULIA FONSECA, CONSERVATION CHAIR

RECENT LEGISLATION AFFECTS STATE LAND CONSERVATION

Proposition 303, which voters passed in November 1998 (The Growing Smarter Initiative), has made some changes which affect open space preservation. The Initiative requires that four new elements be added to the Comprehensive and General Plans for every city and town with a population of more than 2,500 and every county with a population of more than 200,000. These elements include open space planning, growth area planning, environmental planning and cost of development.

According to the previously established Arizona Preserve Initiative (API), State Trust Land is eligible for conservation if it is located inside any city or town, within one mile of small towns, or within three miles of large towns. In Maricopa and Pima Counties, these limits can be extended an additional ten miles. Under the API, the State Land Commissioner can reclassify lands within these boundaries for conservation purposes if the land has conservation value and if it is in the best interest of the State Land Trust.

Proposition 303 allocates \$20 million per year, for eleven years, in matching money to purchase or lease State Trust Lands that were API eligible and to purchase development rights for any other State Trust Land in Arizona.

Note: State Trust Land is land that is managed by the Arizona State Land Department under provisions of the Arizona constitution and the State Enabling Act of 1914. This land is supposed to earn revenue for education and other purposes and may be leased or sold.

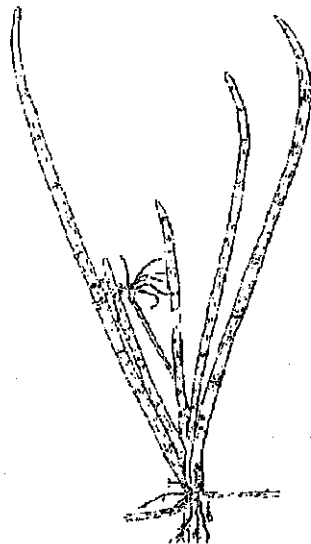
PIMA COUNTY ADOPTS NATIVE PLANT PRESERVATION ORDINANCE

The main purpose of the new ordinance is to promote the preservation of individual plants and plant communities of protected and primarily upland plant species native to Pima County. The ordinance is applicable, with some exceptions, to any site measuring more than 14,000 sq. ft. for which a development plan or subdivision plat is required. One plant preservation method, the Set Aside method, requires that the developer set aside 30% of the site as natural open space and preserve all saguaros and ironwood in place. The Selected Plant method requires developers to preserve in place, transplant or mitigate loss of individual viable plants. The Plant Appraisal method allows the mitigation based on the commercial value within the same species.

No grading is allowed until a preservation plan is prepared by a professional and approved by the County Planning Department. Developers are required to hire an on-site monitor to assure compliance with the preservation and landscape plan. A harvesting process, allowing residents and registered groups to rescue plants just before grading was established.



Huachuca Water Umbel
U.S. Fish and Wildlife Service



SONORAN DESERT CONSERVATION PLAN

Pima County citizens are embarking on a Sonoran Desert Conservation Plan in an effort to preserve rare plants and animals. The impetus for the plan originated with a coalition of environmental and neighborhood protection groups, who banded together to seek an alternative to what seemed an inevitable and intractable conflict between the endangered cactus ferruginous pygmy owl and urban development in northwest Tucson.

Since then, Pima County government officials have embraced the effort as a means to use Section 10 of the Endangered Species Act (ESA) to control urban sprawl, preserve selected archaeological and historical sites, direct state land acquisitions under the Arizona Preserve Initiative, implement the County's open space plan, and avoid the need for future listings under the ESA. Pima County anticipates that other local and federal jurisdictions will join the process in the near future.

Plants and animal communities likely to be conserved in the plan include the ironwood forests, a favored home of the owl, the Pima pineapple cactus, found near Green Valley, and a host of riparian areas throughout eastern Pima County.

The Plant Press is one of the benefits of membership in the Arizona Native Plant Society. It is published three times a year, in September, February and June. Barbara Tellman, Editor, encourages members to contact her with suggestions for feature stories, book reviews, and short articles about plant-related activities and issues throughout the state. Contact her at 520 792-4515 or bjt@ag.arizona.edu. Many thanks to Joel Floyd for donating his fine drawings and to Jean Searle for proofreading.

Cont. from Page 3 throughout much of Baja California. They have been found as tall as 10 feet where no frost occurs and plenty of water is available. In our landscape, plants are suited to warm micro-climates, such as found against buildings and in courtyards (especially south-facing walls). Plants can get quite large and lush, though they are silvery-gray in color. Flowers are slightly prettier than similar species of Arizonan *Jatrophas*, though small. They are often pink to red, not noticeable from the distance, and bivalvate fruits follow in summer. This plant produces a lot of viable seed that germinates easily. Cuttings also root well. Ashy limberbush is often evergreen or almost so in cultivation. They take advantage of moisture no matter what season and seem only limited by frost. Plants in some downtown areas of Tucson and Phoenix in the open seem untouched by frost. They are also the larval food plant of *Rothschildia cincta*, a colorful and large native moth.

Jatropha cuneata (leatherplant, sangregrado) can grow up to 6 feet tall in frost-free areas. It is another *Jatropha* for warm microclimates. It is distributed much like *Jatropha cinerea* and often found growing with it. It reaches a little farther north, though it is probably not hardier to frost. It is a very different looking *Jatropha*, somewhat reembling an elephant tree (*Bursera* spp.). It is easily propagated from seeds or

cuttings. It is definitely one to be planted by those who like the weird.

Jatropha macrorhiza (purga macha) is our hardiest and most unusual *Jatropha* and can take temperatures into the low teens. Herbaceous foliage arises from a tuberous, almost woody root, that isn't deciduous at the onset of winter. Plants that are field collected often transplant poorly, probably because often roots are badly damaged when dug up. Container-grown plants usually transplant with no problem though they need good drainage and almost no irrigation in the dormant season. Be sure to label these plants because pots with *Jatropha macrorhiza* are often thrown out in the winter when they look like they are just pots of soil. Plants flower in the summer with large pink blossoms. They are native to oak woodland and grassland from Arizona to Texas and in Sonora and Chihuahua.

All *Jatrophas* love summer irrigation and tend to be no-problem plants. Belonging to the spurge family (Euphorbiaceae), they are often poisonous though many have been (and still are) used medicinally. Also look out for *Jatropha dioica* ("leatherstem" from Texas and Chihuahua) which is also very hardy, and many *Jatrophas* from Sonora, which make excellent specimens for the patio and courtyard. *Jatrophas* are unusual and perfect for the gardener who wants to make a botanical statement.

WESTERN WETLAND FLORA: FIELD OFFICE GUIDE TO PLANT SPECIES

This book contains descriptions of 300 western wetland plant species, the whole gamut including ferns, sedges, trees, etc. Each species is described according to habitat, habit, stems, leaves, flowers, fruits, etc. Non-native plants are noted as such. Each has a full color photo as well as beautifully done drawings and map of occurrence. A glossary defines a host of technical terms in clear language, with drawings to illustrate terms such as "panicle." It is available from the Environmental Protection Agency's San Francisco office. The chief author as well as illustrator is Mark Mohlenbrock, Biotic Consultants. Western Wetland Flora is a "must" book for anyone interested in wetland plants and, incredibly, it is free. There is no date on the book and the pages are not numbered, but I believe it is a relatively recent publication and is about 600 pages long.

PUBLICATION GRANTS

The ANPS Publications Grants Committee has awarded grants from the publication fund to:

The Drylands Institute to assist in the publication of "Checklist of the Flora of Organ Pipe Cactus National Monument" by Richard Felger and Sue Rutman. \$1,000.

Desert Plants for support of the journal. \$1,000.

Kristin D. Huisinga for support of articles on Mearns Sage (*Salvia dorrii* ssp. *mearnsii*) to be published in *Kiva* and *Madrono*. \$970.

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 Website <http://www.azstarnet.com/~anps/> or contact one of the people below.

State co-presidents: Sue Rutman 520 320-1032 Mima Falk 520 387-6281
Flagstaff President: Beverly Loomis 4716 E. Hightimber Lane, Flagstaff 86001
Phoenix President: Wendy Hodgson 602 276-0760
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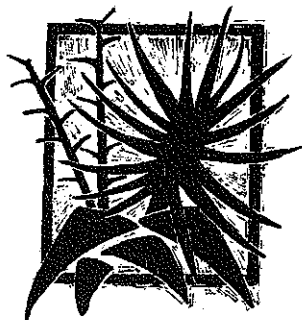
Enclosed: \$15 Individual or Family \$25 Organization
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