

# The Plant Press

## THE ARIZONA NATIVE PLANT SOCIETY

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### VARIABILITY IN AN AREA FLORA

DAVE BERTELSEN

On May 27, 1981, I completed my first hike up Finger Rock Canyon to the top of Mt. Kimball, a 7,259 foot peak in the Santa Catalina Mountains north of Tucson. The five-mile route is rugged and relentless, climbing 4,158 feet. It is a beautiful and interesting trek, passing through six biotic communities: desertscrub, riparian, semidesert grassland, oak woodland, oak-pine woodland, and pine forest. On my excursions I began taking pictures of flowers, and to know my subjects, I began to peruse the limited number of "flower books" available. I quickly learned that there are no really good plant field guides for this area. Because I was captivated by the variety I saw, in May 1983 I developed a fauna/flora checklist, making up names for plant species I couldn't identify, and began to record my observations. A friend then suggested I have unknown plants identified by University of Arizona Herbarium staff. In July, 1983 I began to do so, and I also began to make my own "field guide," using flowers and leaves. Knowing what I was seeing made my hikes so much more interesting that I decided to learn all the flowers in the canyon. I must admit I ignored grasses and ferns the first six months, but by 1984 I was collecting everything I didn't know.

I have now hiked to Mt. Kimball more than 800 times. My original purpose was simply to observe and identify as much of the flora and fauna as possible. By the time I developed my checklist, however, I had decided to keep track of what was blooming, and I began the phenological study I continue today, a study, essentially, of variability in an area flora. On each hike I record blooming taxa and the mile-long trail sections on which they are seen. I also make brief notes concerning elevation range, relative abundance, and distribution of each species. Fauna is also recorded, and the frequent shifts in attention required to see "everything" undoubtedly aid in my observations of flora. I stick primarily to the trail, focusing on the area thirty feet on either side, but have made numerous hikes into the canyon bottom and secondary drainages.

I am often asked why I hike the same trail over and over, the underlying implication being that this must be boring. Nothing could be further from the truth: the variation from week to week, month to month, and year to year is absolutely amazing, and it seems as if I am always seeing something different. At the end of 1984, the first full year of systematic collecting, my flora for the area included 375 taxa. In 1985, I added 45 species, and every year since then I have found something new. Indeed, 35 percent of the taxa were added after 1984, and the flora now includes 572 taxa. Some 55 percent of those species added are annuals; while 45 percent are perennials. Of course I don't see all species in bloom every year: I have seen 73 percent to 87 percent of the known flora in bloom in a given year, the average being 78 percent. Why I keep adding species and why I see only a proportion of known species in flower lies, I think, in the causes of variability both in the abundance and distribution of plants and in the nature of human observations.

*Flora cont. on page 12*

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## OUTSTANDING ARIZONA BOTANISTS VI: CHARLES CHRISTOPHER PARRY

BARBARA TELLMAN

Although Charles Parry made only two collection trips to Arizona, he made significant contributions to the botany of the state. He collected so frequently in Colorado that he was dubbed the "King of Colorado Botany." Some familiar plants named after Parry are *Penstemon parryi* and *Primula parryi*. He was also very interested in horticulture and introduced many landscape plants into cultivation.

Parry was born in England in 1823, but spent most of his life in the United States where the family immigrated when he was nine. Like many naturalists of the time, he was educated as a physician, although he seldom practiced medicine. As a friend described it, "... very soon discovering that all his natural tastes and instincts led directly away from the unreason, the too-often self-inflicted ills, and the petty conflicts with which the active physician has perforce to deal - and led him to the unvexed, blossoming solitudes where Nature, silent and orderly, works out her fair results."

He moved west to Iowa in 1846 where he collected wildflowers around Davenport for four years. He complained in later years that many of the native flowers of the prairie had been quite driven out by the bluegrass and white clover.

He spent one summer accompanying a surveying party to central Iowa, the start of many excursions in which he served as surgeon to the official group, but primarily spent his time as a naturalist. He spent much of the next thirty years travelling throughout the Western United States.

His most extensive trip to Arizona was in 1850 when he accompanied the Mexican Boundary Survey Commission under Emory's leadership. That trip took him from El Paso to the Pima settlements on the Gila River and along the boundary line to California. The year spent writing up his results in Washington for the official report eventually led to his appointment as Botanist to

the U.S. Department of Agriculture. The Department had accumulated many collections from the various surveys as the West became part of the United States. The collections were disorganized and so much of his time was spent working on them that he was reprimanded for neglecting work related to agricultural matters. When he was summarily fired in 1871, Asa Gray rushed to his defense, but the Commissioner of Agriculture pointed out that not only had he neglected important duties but that he was in-subordinate and, among other things, "passionately tore up [an improperly signed] letter and threw it in the wastebasket."

Parry spent many years in Colorado from the time of the Civil War until his death in 1890. His most important collection there was in 1862 with trip leaders, Elihu Hall and J.P. Harbour. Unfortunately, Hall and Harbour were not up to the task of dealing with the collections which ended up poorly documented and without Parry's name associated. Some specimens still existed but had never even been unpacked a century later.. He named three Colorado mountains in honor of botanists, Torrey, Gray, and Engelmann. More than eighty new species from Colorado were named from Parry's many collecting trips in addition to many others found in Arizona, Sonora, Baja and other locations.

One of his many interests was the study of cryptogamic plants and his collections have been extremely important to lichenologists. A collection of 46 lichen specimens is in the Farlow Herbarium at Harvard University.

In addition to contributing to the collections of his many botanical friends, he assembled a personal collection of more than 18,000 specimens representing 6,800 species. These are now in a separate collection at the Ada Hayden Herbarium of Iowa State University at Ames. The collection is maintained as a historical archive.

Parry published no books and relatively few professional articles but is still recognized as one of the leading pioneers of the botany of western America and northern Mexico. He viewed himself more as a collector than as a scholar. Titles of articles in professional journals include *The Rocky Mountain alpine region*, *North American Desert flora between 32° and 42° north latitude*, *California manzanitas*, and *New species of Eriogonum from Lower California*. A complete list of his articles is in Weber's book cited below. He believed in the value of writing for the general public and wrote articles for the Chicago Evening Journal and the Davenport Gazette with titles such as *Far West Sketches: Ascent of Pike's Peak*; *From Arizona, an Interesting Account of the Territory*; and *The Potato, Was it Given to the World by The Aztecs?*. His interests ranged from geology to ethnobotany and agriculture. One intriguing article in an education journal was titled *Evil effects resulting from an improper association of educational interests with party politics*.

#### For More Information

Weber, William A. 1997. *King of Colorado Botany. Charles Christopher Parry 1823-1890*. University Press of Colorado. Niwot CO.

Gabel, Mark. 1981. *The Parry Herbarium*. Proceedings of the Iowa Academy of Sciences 88:179

Parry, C.C. 1870. *Botany of the Region along the Route of the Kansas Pacific Railway through Kansas, Colorado, New Mexico, Arizona, and California*. Appendix A. 521-533 in W.A. Bell's *New Tracks in North America*. Chapman and Hall. London.

### THANKS TO MIMA FALK

ANPS owes a much gratitude to Mima Falk, who is stepping down as the State President. In addition to her regular job as Plant Ecologist with the Fish and Wildlife Service, Mima has devoted countless hours to overseeing the running of our organization. During her term we added to the Society's outreach with projects such as a desert wildflower poster and the first ANPS T-shirts. Behind the scenes, Mima contributed greatly to maintaining our financial stability, as well as initiating and implementing numerous organizational improvements. Thank you, Mima, for your many years of service to ANPS.

# NATIONAL PARK SERVICE COUNTS ITS BLESSINGS

DALE TURNER

Amidst the global concern for loss of biodiversity, the National Park Service (NPS) has begun an ambitious program to inventory most of the species protected by NPS units. The program is based on a recognition that without solid knowledge of what is currently present we cannot detect the loss of native species or the encroachment of exotic species.

That kind of basic biological information has been lacking for most protected areas across the country. A 1994 survey found that more than 80% of the 252 U.S. National Parks surveyed did not have complete inventories of major taxonomic groups. This was especially true of smaller parks and those created to protect cultural resources.

In our region, the NPS program will fund inventories of vascular plants and vertebrates in ten southern and central Arizona parks (Casa Grande Ruins, Chiricahua, Coronado, Fort Bowie, Montezuma Castle, Organ Pipe Cactus, Saguaro, Tonto, Tumacacori, and Tuzigoot), and one park in New Mexico (Gila Cliff Dwellings). Some parks already have good information for certain taxonomic groups, so this project will involve field surveys for everything in every park. However, the compilation of existing data for all these parks into a

single database will be a great boon to understanding and protecting the biota of this region. This database, called NPSpecies, should be available on the Internet sometime next year.

Field work at Tumacacori has already begun, and will get underway at Gila Cliff Dwellings and Saguaro. Thanks to some of Tucson's stalwart botanists, much is already known about the plants in Saguaro National Park, but this effort will attempt to expand the current lists, estimate how many more species remain to be found, and identify the distribution of species of concern.

This project, and an associated biological monitoring program in the parks, is being coordinated by the USGS Sonoran Desert Field Station at the University of Arizona.

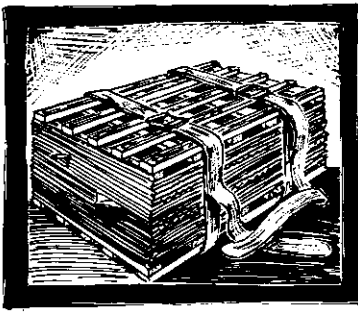
*Dale Turner recently received his Master's Degree with a thesis on fringed-toed on the Mohawk Dunes and spent last year doing an inventory at Saguaro National Park. He is one of the "moving force" behind the project he describes.*

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## ARIZONA RARE PLANT FIELD GUIDE

A field guide to Arizona's rare plants will soon be published by the U.S. Government Printing Office. This book will be beautifully illustrated with color photos of more than 140 rare species from all over the state. Examples of plants you might not recognize are *Pediocactus paradinei*, *Hexalectris warnockii*, *Euphorbia platysperma*, and *Muhlenbergia dubioides*. The book is a product of hard work by federal agencies including the U.S. Forest Service, Bureau of Land Management, and Fish and Wildlife Service, and groups such as the Nature Conservancy. Native Plant Society members Mima Falk, Linda Brewer, Dave Bertelsen, Joyce Maschincki, Sue Rutman and Peter Warren played major roles. ANPS donated funds to assist with publication, as did the National Fish and Wildlife Foundation, The Arboretum at Flagstaff, Navajo Nation, and many others.

When the book is available to the public the ANPS web site will have full information about how to obtain a copy.



# FLORAS OF ARIZONA NATIONAL PARKS AND MONUMENTS

## VI. PIPE SPRING NATIONAL MONUMENT

STEVE MCLAUGHLIN

This is the sixth, and final, checklist in our series of floristic species lists for various small national parks, monuments, and historic sites in Arizona. These lists were obtained from the World Wide Web at <http://ice.ucdavis.edu/nps>, an on-line database created and maintained by the Information Center for the Environment (ICE) at the University of California at Davis. This is a useful website, 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 has been edited by ANPS member Steve McLaughlin for synonymy (the same plant species occurring under two or more Latin names), exotic species have been identified by an asterisk (\*), and updated nomenclature has been provided along with Latin binomials that may be more familiar to ANPS members.

Pipe Spring National Monument is a small, historic park located in extreme northeastern Mohave County, near the Arizona-Utah state line in the Arizona Strip. The Monument occupies just 40 acres, and has a correspondingly small flora, with 36 families, 75 genera and 100 species, 22 of which are exotics. Grasses (Poaceae, 30 species) and composites (Asteraceae, 16 species) account for nearly half of the flora. Legumes (Fabaceae) appear to be particularly uncommon. Surprisingly, not a single species of *Astragalus* is included in the checklist.

*Steve McLaughlin is a professor at the University of Arizona's Office of Arid Lands Studies with special interest in economic botany and taxonomy.*

**Ed Note:** Thank you very much Steve for producing this interesting series.

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## PIPE SPRING NATIONAL MONUMENT

Pipe Spring National Monument, a little known forty acre gem of the National Park System, is rich with American Indian, early explorer and Mormon pioneer history. The water of Pipe Spring has made it possible for plants, animals, and people to live in this dry, desert region. Ancestral Puebloans and Kaibab Paiute Indians gathered grass seeds, hunted animals, and raised crops near the springs for at least 1,000 years. In the 1860s Mormon pioneers brought cattle to the area and by 1872 a fort was built over the main spring. The fort, called "Winsor Castle" after the first ranch manager, was built by the Mormon Church to be the headquarters of a large cattle ranching operation. This isolated outpost served as a way-station for people traveling across the Arizona Strip.

The Visitor Center has exhibits on pioneer and Indian lifestyles, the development and use of Pipe Spring by American Indian groups and Mormon settlers, and a short introductory video. Tours of Winsor Castle are available.

The Monument is open 7:30 a.m. to 5:30 p.m. in the summer and from 8:00 a.m. to 4:30 p.m. the rest of the year except for major holidays. Pipe Spring is fifteen miles east of Fredonia on Arizona State Route 389. For more information: Phone - 520-643-7105 or [www.nps.gov/pips](http://www.nps.gov/pips)

# PLANTS OF PIPE SPRING NATIONAL MONUMENT

\* indicates exotic species

## I. Gymnosperms

### Cupressaceae

*Juniperus osteosperma* Utah juniper

### Ephedraceae

*Ephedra viridis* Mormon tea

### Pinaceae

*Pinus edulis* Two needle pinyon

## II. Dicotyledons

### Amaranthaceae

\**Amaranthus albus* Prostrate pigweed

### Anacardiaceae

*Rhus trilobata* Skunkbush sumac

### Asteraceae

*Ambrosia artemisiifolia* Annual ragweed

*Artemisia bigelovii* Bigelow's sagebrush

*Artemisia dracuncululus* Wormwood

*Artemisia filifolia* Sand sagebrush

*Artemisia ludoviciana* Louisiana sagewort

*Chaetopappa ericoides* Rose heath

*Chrysothamnus nauseosus* Rubber rabbitbrush

*Chrysothamnus viscidiflorus* Green rabbitbrush

*Erigeron pumilus* Shaggy fleabane

*Gutierrezia microcephala* Threadleaf snakeweed

*Helianthus annuus* Common sunflower

\**Lactuca serriola* Prickly lettuce

*Senecio flaccidus* var. *flaccidus*

[*S. douglasii* var. *longilobus*] Threadleaf groundsel

\**Tragopogon dubius* Yellow salsify

*Verbesina encelioides* Asteraceae

*Xanthium strumarium* Rough cocklebur

### Boraginaceae

*Cryptantha flava* Brenda's yellow catseye

### Brassicaceae

*Descurainia pinnata* Western tansymustard

*Stanleya pinnata* Desert prince's plume

### Cactaceae

*Opuntia basilaris* Beavertail pricklypear

*Opuntia fragilis* Brittle pricklypear

*Opuntia phaeacantha* Tulip pricklypear

*Opuntia whipplei* Whipple cholla

*Sclerocactus whipplei* Whipple's fishhook cactus

### Capparaceae

*Cleome lutea* Yellow spiderflower

### Chenopodiaceae

*Atriplex canescens* Fourwing saltbush

*Krascheninnikovia lanata*

[*Ceratoides lanata*] Winterfat

\**Salsola kali* var. *tragus* Tumbleweed

*Sarcobatus vermiculatus* Greasewood

### Cucurbitaceae

*Cucurbita foetidissima* Missouri gourd

### Elaeagnaceae

*Shepherdia rotundifolia* Roundleaf buffaloberry

### Fabaceae

\**Melilotus alba* White sweetclover

*Robinia neomexicana* New Mexico locust

### Fagaceae

*Quercus turbinella* Shrub liveoak

### Geraniaceae

\**Erodium cicutarium* Filaree

### Hydrophyllaceae

*Phacelia crenulata*

var. *corrugata* Cleftleaf wild heliotrope

### Lamiaceae

\**Marrubium vulgare* Horehound

### Loasaceae

*Mentzelia pumila* Dwarf mentzelia

### Malvaceae

*Sphaeralcea ambigua* Desert globemallow

*Sphaeralcea laxa* Caliche globemallow

### Nyctaginaceae

*Mirabilis multiflora* Colorado four o'clock

### Onagraceae

*Oenothera primiveris* Desert evening primrose

### Orobanchaceae

*Orobanche ludoviciana* Louisiana broomrape

### Plantaginaceae

\**Plantago major* Common plantain

### Polemoniaceae

*Ipomopsis longiflora* Flaxflowered gilia

**Polygonaceae**

- Eriogonum corymbosum*  
var. *aureum* Crispleaf buckwheat  
*Eriogonum inflatum* Native American pipeweed  
*Rumex hymenosepalus* Canaigre, dock

**Rosaceae**

- Fallugia paradoxa* Apache plume  
*Purshia stansburiana* Mexican cliffrose  
*Rosa woodsii* Wood's rose

**Salicaceae**

- \**Populus alba* White poplar  
*Populus fremontii* Fremont's cottonwood  
\**Populus nigra* Lombardy poplar

**Scrophulariaceae**

- Penstemon palmeri* Palmer's penstemon

**Simaroubaceae**

- \**Ailanthus altissima* Tree of heaven

**Solanaceae**

- Datura wrightii* Sacred thornapple  
*Lycium pallidum* Pale wolfberry  
\**Solanum sarrachoides* Nightshade

**Tamaricaceae**

- \**Tamarix ramosissima* Saltcedar

**Ulmaceae**

- \**Ulmus americanus* American elm

**III. Monocotyledons****Agavaceae**

- Yucca angustissima* Narrowleaf yucca  
*Yucca baccata* Banana yucca

**Liliaceae**

- Calochortus flexuosus* Winding mariposa lily  
*Calochortus nuttallii* Sego lily

**Poaceae**

- \**Agropyron cristatum* Crested wheatgrass  
*Aristida purpurea* var. *longiseta* Fendler threeawn  
*Aristida purpurea* var. *purpurea* Purple threeawn  
*Bouteloua barbata* Sixweeks grama  
*Bouteloua curtipendula* Sideoats grama  
*Bouteloua eriopoda* Black grama  
*Bouteloua gracilis* Blue grama  
\**Bromus diandrus* Ripgut brome  
\**Bromus inermis* Smooth brome  
\**Bromus tectorum* Cheatgrass  
*Cenchrus carolinianus*  
[*C. longispinus* misidentified?] Innocent weed  
*Distichlis spicata* Saltgrass  
*Elymus elymoides* Bottlebrush squirreltail  
\**Elytrigia intermedia* Intermediate wheatgrass  
\**Eragrostis cilianensis* Stinkgrass  
*Eragrostis pectinacea* Tufted lovegrass  
\**Festuca arundinacea* Tall fescue  
*Hilaria jamesii* Galleta  
*Hordeum jubatum* Foxtail barley  
*Muhlenbergia porteri* Bush muhly  
*Oryzopsis hymenoides* Indian ricegrass  
*Pascopyrum smithii*  
[*Agropyron smithii*] Western wheatgrass  
*Poa fendleriana* Muttongrass  
\**Poa pratensis* Kentucky bluegrass  
*Sporobolus airoides* Alkali sacaton  
*Sporobolus contractus* Spike dropseed  
*Sporobolus cryptandrus* Sand dropseed  
*Sporobolus flexuosus* Mesa dropseed  
*Stipa comata* Needle-and-thread grass  
*Stipa speciosa* Desert needlegrass



Tumamoc globeberry (*Tumamoca macdougalii*), one of the many beautiful drawings by the Pima County Graphics Design Division for Sonoran Desert Conservation Plan reports (original in color). The winter issue will feature an article on the Plan and its scientific aspects.

## EXOTIC SPECIES UPDATE:

### NOXIOUS WEEDS IN NORTHERN ARIZONA

RANDY SCOTT AND TINA AYERS

The yellow snapdragon relative called Butter and Eggs (*Linaria gennistifolia*) has become so common in the forests above the Mogollon Rim that most residents and visitors probably think they are native wildflowers. The tenacious perennials are a relatively recent arrival to Northern Arizona. The first herbarium specimen of this species in the Deaver Herbarium at Northern Arizona University was collected in 1940 by Danny Deaver near the Biology Building on campus. Sixty years later the species is found throughout Flagstaff and is a common constituent of the surrounding forests. The Native Plants class in the Biology Department has been removing seedlings from the Inner Basin of the San Francisco Peaks for the past five years, but traffic to Locket Meadow, where the trailhead to the Inner Basin begins, has helped *Linaria gennistifolia* spread to the top of the Locket Meadow road. With increased visitation to the Inner Basin, and the occasional city vehicle that accesses this region to maintain the city water wells, it is only a matter of time before there are seedlings that escape the notice of weed warriors bent on its destruction.

The history of *Linaria gennistifolia* parallels that of most of the nonnative "weeds" in northern Arizona with one obvious difference. It is an ornamental and until recently it could be purchased at local plant nurseries. Most of the other noxious weeds that are of concern, have come to this area in a variety of ways including in hay or grain shipments, or soil imports, or by rapid migration along roadsides and disturbed areas facilitated by cars and construction equipment, and by animal dispersal.

In the past ten years, the distribution of several weedy species, particularly the thistle relatives, has increased by leaps and bounds. Diffuse knapweed (*Centaurea diffusa*), while known from this area for nearly 50 years, had a patchy and limited distribution until relatively recently. Currently, this species dominates hundreds of acres throughout the city and surrounding communities. Once found only in a few roadside ditches, Scotch thistle (*Onopordum acanthium*) has spread into the central

Rio de Flag drainage, and currently occupies many vacant lots in the Flagstaff area. Three years ago, a rapidly expanding population of Yellow Starthistle (*Centaurea solstitialis*) was discovered at a City water treatment plant. Small populations of Russian knapweed (*Centaurea repens*), abundant on the Navajo Reservation near Tsaile, along with Spotted knapweed (*Centaurea maculosa*), Musk thistle (*Carduus nutans*), Globe thistle (*Echinops sphaerocephalus*), and Canada thistle (*Cirsium arvense*), have recently been identified in Flagstaff.

The rapid expansion of these thistle species prompted the formation of the Northern Arizona Weed Council (NAWC) through the initiative of the Flagstaff office of The Nature Conservancy. This group was originally comprised of volunteers from The Nature Conservancy, the U.S. Forest Service, the City of Flagstaff, the National Park Service, Arizona Department of Transportation, and Northern Arizona University. It was the intent of this group to raise the general public's awareness concerning weeds, to attempt control the spread of the most problematic of these weeds with volunteers, and to coordinate control efforts by city, county, state, and federal agencies. It became apparent that these efforts needed a central coordinator and in the fall of 1998 NAWC members wrote a grant proposal to the National Fish and Wildlife Foundation, Pulling Together Initiative. When this grant was funded, Laura Moser was hired to facilitate weed control efforts between these various agencies, promote educational programs, and to seek additional funding for these efforts within a newly created San Francisco Peaks Weed Management Area. A subsequent grant for the year 2000 provides money for a three-person, weed control crew. NAWC membership has grown to include representatives of Arizona State Trust lands, Native American tribes, BLM, Coconino County, and private landholders.

While the spread of weeds remains an ongoing concern in northern Arizona, efforts by NAWC members have produced some very positive results and have unquestionably raised the awareness of the weed problem within the community. Control methods are being



shared by different agencies and weed experts from around the West have been brought in to advise on methods for control and elimination. Weed distributions are currently being mapped using GIS systems in collaboration with the Colorado Plateau Field Station's Southwest Exotic Plant Mapping Program (SWEMP). In addition, various control methods are being tested, and a variety of education programs have been established. When weedy species new to the area, such as Yellow Starthistle, are discovered, integrated control methods are coordinated and implemented with hopes of controlling, if not eliminating, these new infestations. For more

information or to become a weed warrior, contact Laura Moser, coordinator, San Francisco Peaks Weed Management Area, 2323 E. Green-law Lane, Flagstaff, AZ 86004; Tel: 520-527-3423 Fax: 520-527-3620; email [lmoser@fs.fed.us](mailto:lmoser@fs.fed.us). For more information on SWEMP see their website at <http://server01.usgs.nau.edu/swemp/>

*Tina Ayers and Randy Scott teach in the Botany Department of Northern Arizona University where Tina is Professor of Botany and curator of the herbarium.. Both are founding members of the Northern Arizona Weed Council.*



Volunteers cleaning out Scotch thistle along the railroad right of way in Flagstaff.  
Photo: Tina Ayers



One thing I particularly enjoy about exploring the

foothill regions of the "Sky Island" ranges of Southern Arizona and Northern Sonora, is that I can be in a cactus-studded biome one moment, then soon be in a canyon filled with lush riparian plants. These canyons can be beautifully canopied with cottonwoods, willows, black walnuts, and other water loving trees. Some trees and plants that are normally found in drier settings, such as mesquite and desert hackberry, benefit from the extra seasonal water and reach great size. Canyon trees can become a trellis for the Arizona Canyon Grape (*Vitis arizonica*).

These vigorous, deciduous vines thrive in riparian settings where, aided by strong tendrils, they sprawl over shrubs and up trees. With their dark green leaves and rambling ways, this wild grape often gives a lush, oasis-like appearance to Arizona canyons between elevations of 2,500 to 7,500 feet. Small whitish flowers are followed by clusters of green grapes that turn dark purple when ripe. Smaller in size and yield than their cultivated relatives, they are sweet and juicy. However, harvesting is no small task. It takes a time to collect a small bowl of ripe fruits unless you have found unusually productive vines. A large vine I recently found in the Chiricahua Mountains had many fruits, but they were out of reach, and under the vine was a healthy patch of poison ivy.

Native Arizonans and early settlers alike used the canyon grape in many ways. The fruits were eaten fresh, or dried as raisins and used for cooking at a later date. The leaves were also eaten but are somewhat bitter unless cooked. They were also used as medicine, and chewed to alleviate thirst. Some cultures wove the vines into baskets and fish traps. I once observed a group of backpackers enjoying a small handful of wild grapes as a garnish to their evening meal of freeze-dried stroganoff.

*Vitis arizonica* shares the American southwest

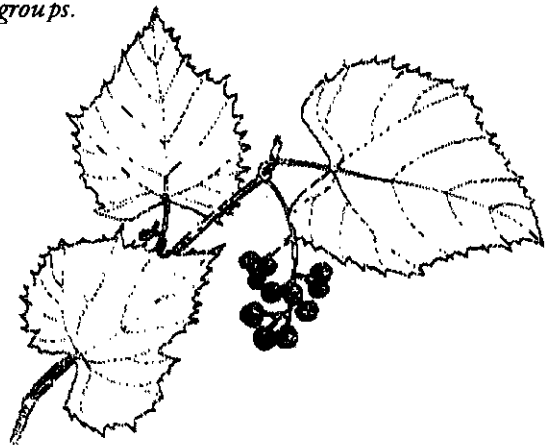
## ARIZONA CANYON GRAPE, *VITIS ARIZONICA*

JEFF KREAMER

with other related species such as *Vitis californica*, all members of the plant family Vitaceae, which includes the many cultivated varieties found around the world. In many places where grape production is high, the identity and economy of entire cultures are tied to grape products such as wine. Many popular wines are named after their region of origin such as Madiera or Rhine wines. Popular wine grape varieties have made their way to Southern Arizona where several small vineyards have been producing wine for years. Sonoita, Arizona is now gaining recognition for its cultivated wine grapes.

For anyone with the urge to make wine from wild grapes, I can sadly report that it is not worth the harvesting effort. For this I would suggest a more productive type of plant such as the Mexican elderberry which often shares the same type of habitat as the canyon grape. However, to collect a few grapes for a favorite wilderness recipe is easy. Or, if you come across some ripe wild grapes, then enjoy a few fresh, while you sit and enjoy all the birds who will hop among the vines, and join you in the feast.

*Jeff Kremer is a professional surveyor, now working for Pima County Wastewater Department. He is ANPS Conservation Chair and on the boards of ANPS, Audubon Society and other conservation groups.*



Canyon grape drawing from S.H. Lamb, *Woody Plants of the Southwest* published by Sunstone Press. This book is a wonderful source of general information.

# CONSERVATION UPDATE

JEFF KREAMER, CONSERVATION CHAIR

## STAYING NATIVE, GOING NATIVE

One of the most effective ways to limit the impacts of urban sprawl is to preserve as much native vegetation as possible. If your new home site is carved out of wild habitat, then protect and enjoy the beauty of it. This does not mean replace what is there naturally with gravel and exotic mesquites. It means preserve what is there by disturbing as little as possible. Soon you will find that you have become the newest resident of an already thriving community of plants, birds, reptiles, and many other forms of wildlife. As Arizona's communities grow, the conservation impacts of urban sprawl can be minimized by responsible preservation and native plant landscaping.

If you are an urban dweller who purchased a home with all nonnative plants and huge water bills, then consider going native. It will take time to make the transition, but your efforts will be rewarded with low water use, and a touch of the wild right in your yard. Though not a small challenge, persistent weeds and bermuda grass can eventually be overcome. There are many beautiful native plant species available at nurseries throughout Arizona that can fulfill your need for shade, color, or low maintenance. Over the years, water-wise citizens have encouraged the use of arid loving plants, although many are not native to Arizona. If your horticultural interest must include unique species from other lands, then be advised that some plants such as African sumac (*Rhus lancea*), certain grasses, and the ever popular lantana, can produce seeds that will spread quickly from your yard into the neighbor's yard - or the natural desert.

ANPS will be cooperating with Tucson Botanical Garden and Pima County through the Sonoran Desert Conservation Plan to produce a series of educational materials on invasive species and to help develop some guidelines for landscaping and invasive plant management on county property such as parks, sewer rights-of-way, and roadsides. If you are interested in helping contact me at 520 318-0914.

## BOTANY BEYOND BORDERS

Anyone interested in botany beyond our geopolitical boundaries, may find a wealth of information available for their areas of interest. Most book and nature shops have a good selection of books about the botany and wildlife of the southwest. Another good place to begin your quest for information, is by contacting our neighboring native plant societies. Most adjoining states have very active native plant societies, including California (with 31 chapters). If you have access to the Internet, all of these societies have web sites with helpful information about the native plants within their states. Some even offer a view of their newsletters, native plant laws, and bibliographies listing regional publications.

Any ANPS members who are involved with other plant societies, are encouraged to act as a liaison between groups, for trading native plant information, and having yearly field trips together.

Arizona is also a state that shares a border, and ecosystems, with another country. Over the past few months, active members of the Tucson Chapter have been cultivating a working relationship with botanists, wildlife biologists, and enthusiastic nature lovers in Sonora, Mexico. This outreach effort has succeeded in finding many people in Sonora who are interested in creating a Sonoran Native Plant Society, with the help of the ANPS.

Hopefully, our two groups will cooperate closely for the flow of botanical information, the creation of binational workshop events, and help serve as a forum for botanical border issues. Other ANPS chapters, or members, are welcome to participate.

For information about the Sonora project, call me at 520 318-0914. Information about plant societies in adjoining states can be found on the ANPS web site which has links to societies in nearby states.



## Flora from page 1

Variability over time, both real and perceived, results largely from the interplay of natural phenomena and skill in observation. The primary purpose of a systematic approach is to lessen, to the greatest extent possible, the differences between what is really out there and what is actually perceived. Given the great complexity of the natural environment and limitations of the human observer, however, there will always be somewhat of a disparity.

Both natural phenomena and the activities of man can play significant roles in the distribution, abundance, and phenology of plant species, but determining the relative importance of these factors is difficult at best because they are difficult to quantify and intricately interrelated. Especially in desert regions, many species (particularly annuals) display natural fluctuations in abundance, distribution, and blooming times. Whether a given taxon is blooming depends upon a number of factors, and taxa blooming on one day or in one location may not be blooming on the next day, or on the same day in another location. And, of course, sometimes a phenomenon defies explanation, such as why a particular saguaro bloomed continually from December 1999 through May 2000.

The effects of El Niño and La Niña patterns on local weather vary considerably and effect a broad area. Precipitation and temperature are probably the most direct and significant causes of variability, but their effect is not easy to assess, particularly since data specific to the study area are not available. The amount and extremes of both vary with elevation and from month to month and year to year. Precipitation is frequently highly local, particularly under 5000 feet elevation, but temperature has a more consistent effect over a larger area. Exposure and microhabitats can mitigate impacts and topography and soil conditions influence the amount of runoff, and consequently the amount of moisture available to plants. Rainfall certainly seems to have the greatest effect on flowering, but the effect is not linear. Average annual rainfall has not always produced an "average year" in terms of the number of flowering taxa observed. The *timing* of rainfall appears at least as important as the *amount* of precipitation, and the same may be true of temperature extremes.

It is well known that a considerable seed bank may be built up in some years, only to remain dormant for many years before conditions are again right for germination. Seed dispersal is highly variable, and a number of vectors such as birds, mammals, wind (including

"dust devils"), and water may be responsible. The relative strength or presence of these vectors, both within and between years, may have a significant impact on the abundance and distribution of species. Rare or uncommon annuals frequently appear in one location, disappear, then reappear several years later in a different location. Perennials, too, come and go, but are, of course, more long-lived once they become established.

Surface disturbances caused by fire, flooding, or rock-falls are infrequent and often localized. The cumulative effect of such actions, however, can have a profound and long-lasting effect on a much broader area. Some 80 to 100 years ago, fire was particularly widespread above 5400 feet, and there appears to have been an increase in *Arctostaphylos pungens* (manzanita) and a decrease in *Pinus ponderosa* (ponderosa pine) above 6400 feet elevation. Significant flooding occurred in Spring 1994, when a considerable amount of water swept through the canyon. The only obvious result was the spouting of 72 *Populus fremontii* (cottonwood) seedlings, the first I had seen in the canyon. By August 1994, however, only two remained, and today all are gone. Rockfalls have in the past have cut wide swaths through the trees in oak woodland and oak pine woodland. In January 1984, a rockfall originating from a cliff-face above a steep slope eliminated most vegetation, including all *Quercus oblongifolia* (blue oak), in an area 50 feet wide at the base of the upper cliffs and up to 250 feet wide at the top of the lower cliffs. In places the trail was buried under 10-15 feet of rock and soil. The area quickly revegetated but because of the absence of oaks and an increase in *Eragrostis lehmanniana* (Lehmann's lovegrass) it now resembles grassland.

The ecological effect of human actions, both direct and indirect, in the study area is difficult to assess given the relatively short duration of the study. Grazing ceased more than 30 years ago, and there is little indication of any lasting impact. *Opuntia phaeacantha* var. *laevis* (spineless prickly pear), a taxon known to be relished by cattle, was restricted to cliff sides in 1984 but has now spread to gentler slopes and the canyon bottom. Non-native, introduced grasses are widespread, and in the past ten years *Pennisetum ciliare* (buffelgrass) and *P. setaceum* (fountain grass) have increased rapidly. The former, of course, has considerable potential to cause significant changes in desertscrub, and the latter, in riparian areas. Neither seems to have eliminated any native species to date, but the increase of both and the spread of fountain grass to dry slopes is disturbing. On several occasions rare plants have been killed by

human action, primarily by trampling, but *Baileya multiradiata* (desert marigold) and *Mertensia franciscana* (bluebells), were extirpated by humans (trail and spring box maintenance).

Undoubtedly some of the phenological variability I have recorded does not reflect actual conditions, but has resulted from limited or inadequate observation and knowledge. One cannot see everything every time or always be in the field at the "right" times. Seeing and recognizing different plants requires knowledge, concentration, and the ability to constantly change one's focus. Many species have been collected serendipitously, just because an individual seemed new, somehow different, or was in an atypical habitat. Similar taxa *Triodanus holtzingeri*/*T. perfoliata* (Venus looking glass), and *Mimulus guttatus*/*M. nasutus* (monkeyflower), for example, were confused for a time, and more than once species were passed repeatedly, sometimes for several years, before being seen or recognized as something different. I failed to identify *Arbutus arizonicus* (Arizona madrone) at first because the single plant near the trail had a shrubby habit and was growing on top of a rock outcrop some 20 feet or so above me. In some instances, *Pectocarya platycarpa* and *P. recurvata* (comb bur) for example, species can be identified only by fruits. Correct identification is therefore not possible until fruits are present, and the initial blooming especially of the rarer of the two species, *P. recurvata*, cannot be determined. Some species (e.g., *Abutilon* spp., *Sida* spp., *Malvastrum*, and *Triodanus* spp.) are cleistogamous at least some of the time, producing fruit without open flowers. Since these taxa were usually checked only after new fruits were seen, initial flowering was not recorded.

Some of the observed phenological variability is due to the method used in collecting data. Most of my observations have been made from, or in close proximity

to, the trails. Small plants can be very difficult to see amid other vegetation, and species with very small flowers, many under 1/8 inch in diameter, can easily be missed. Over the past seventeen years, the accuracy of the floristic picture has undoubtedly increased as my knowledge and powers of observation improved. Involvement in the Tucson Mountain flora project helped tremendously in improving my knowledge of Tucson area flora and in honing my observational abilities.

A final source of variation is the study area itself, a very small proportion, about two square miles, of the Santa Catalina Mountains. The flora of the Catalinas is likely to be twice that observed here. A comparison of this area with other canyons in the Santa Catalinas suggests there are important differences that may derive in part from the amount of precipitation received, the size of the watershed, and each canyon's orientation. Moreover, the "transect" along which my observations are made, a little over 1.5 million square feet, may not be representative of the study area, the riparian area being the most under-represented.

The factors affecting distribution, abundance, and phenology are many and highly complex. If I have learned anything, it is that no given year can be described as "typical" and that the timing of observations is very important. A similar study during a different ten- or twenty- year period, for example, would undoubtedly yield a quite different picture. Indeed, hikes made on consecutive days invariably resulted in somewhat different observations. This study certainly demonstrates the incredibly dynamic nature of the local flora.

*Dave Bertelsen is a member of the ANPS State Board and a dedicated self-taught botanist. He has a strong interest in conservation and works on numerous conservation projects.*



## BOOK REVIEWS

PATSY WATERFALL

**Agaves Yuccas and Related Plants: A Gardener's Guide**  
Mary and Gary Irish, illustrated by Karen Bell, photographs by Gary Irish except where noted, 312 pages.  
(Portland, Oregon: Timber Press, 2000. \$34.95)

Mary Irish is well known to many as past director of public horticulture at the Desert Botanical Gardens. She and her husband Gary, "an enthusiastic grower of yuccas and agave," have put together a remarkable book "Agaves Yuccas and Related Plants"

The new Irish book is not only a gold mine of information for gardeners, nursery professionals, and horticulturists, but also for landscape architects and designers. For those already familiar with agaves, yuccas, and other members of the Agavaceae and Nolinaceae, this book will expand their knowledge and expertise, for those unfamiliar with these plants it is a walk into a wonderful new plant world. It is the intention of the authors to expand the use and creative placement of these plants in the landscape, and to "ease" the confusion in identifying different species. The concise, easy to read style and beautiful photographs make this book appealing to people from many spheres, definitely promoting the authors' goals.

In addition to ninety species profiles of agaves and yuccas, the book contains chapters on the History of the Families for taxonomists; and Descriptions of the Genera - Agave, Yucca, Hesperaloe, Furcraea, Manfreda, Beschorneria, Polianthes, Nolina, Dasylirion, Beaucarnea, and Calibanus. There is also an excellent chapter on Horticulture and Cultivation which clears up some of the mysteries of planting and propagation. A table listing the cold tolerance of selected species is invaluable to all, especially landscape architects who work within a region with great variability in low temperatures. This information has not been available in one place. There are also keys to agave and yucca in the back of the book to ease identification.

The species profiles with accompanying photographs boggle the mind in the variety and innovation of these simple rosette-shaped plants. The authors have decided to rely heavily on the vegetative characteristics of each species for identification, rather than bloom, because this is generally why they are selected for use. Each plant is profiled as to size, leaves, bloom, distribution, propagation, cultural requirements, similar or related species, and uses. Agaves, yuccas and their relatives come in many shapes, colors, and sizes with varying degrees of hardiness. They are appropriate for large gardens, small gardens, and containers. They also lend themselves to different styles of landscape design and were in fact used in early 18th century European gardens. (Linnaeus established the genus Agave in 1753.) For southwestern gardens, these plants create a true "sense of place." As we reduce our landscape water out of necessity, these drought tolerant plants become even more important for low water use landscapes. Their drought tolerance and ease of care appeal very much to our present lifestyles. Strong structural quality and texture add drama and a strong regional sense to modern landscapes. Increased availability also contributes to expanded use which in turn increases availability. "Only the gardener's imagination limits their use."

### LANDSCAPE PLANTS FOR DRY REGIONS

Warren Jones and Charles Sacamano, 400 pages, 1200 color photos. (Tucson, Arizona: Fisher Books, 2000. \$39.95)

Warren Jones and Charlie Sacamano are well known to many in the plant world. As a former student and admirer of Warren Jones, I was very anxious to see this new plant book which has been in the works for a long time. It was worth waiting for. This is a gardener's book, and also a book for landscape architects and designers, nursery professionals, and landscape contractors. Over 600 water efficient plants are covered in "plant charts" with one or more photographs of each plant. Plants are first considered for cold hardiness which is the decisive factor for landscape plant selection. Zones - low, medium, and high, are used to quantify cold tolerance. Each chart contains a very

thorough plant description. The authors also review Landscape Value and Cultural Requirements. The book points out that although these plants are all from arid regions, they do not all have identical cultural needs (exposure, water, and soil). An often missing variable, exposure, is also part of the analysis. Landscape Value helps gardeners, nursery professionals, and designers select and use the right plants for specific situations, increasing the chances for a successful planting.

The beginning sections of the book offer information for the serious gardener, for example a chapter on Climate and its effect on plant growth and sections on Planting Procedures; Care of Established Plants; and Selection, Use, Culture of Cacti and Other Succulents, and Where To Find Plants. A much needed emphasis on landscape design is also included. Many people have no problem selecting plants but do feel inadequate "composing" a landscape. The authors include a helpful discussion of xeriscape design concepts and how they advance water-efficient landscaping. The "Landscape Design Tips" section leads off with "Save and Nurture Existing Native Plants" the battle cry of many of us in our rapidly developing region. A final

section "Pictorial Guide to Landscape Design Elements" ties in with the plant charts, using photos to illustrate different types of landscape uses, for example Screen, Revegetation, Erosion Control, Understory.

The value of this book is that it expands the low water use plant palette for our region tremendously. It takes us out of the sometimes limited plant options of our world into the big world of countless plant choices. In addition to Sonoran Desert plants, there are plants from other warm deserts and bordering semiarid areas around the world. Most of the plants are available through nurseries. There are others that are not yet in our landscape repertoire but have great potential for low-water-use landscapes. One of the goals of the authors is to describe native plants suitable for revegetation of disturbed areas. Getting this information into the landscape trade increases the knowledge and expertise of those who more and more are required to revegetate disturbed areas.

*Patsy Waterfall is a landscape architect and Director of the Cooperative Extension Low 4 Water Conservation Program, working on low water use landscaping, water harvesting, and efficient irrigation techniques.*

## WELCOME TBG DIRECTOR, SUE BROGDON

Tucson Botanical Garden is very fortunate to have Sue Brogdon as its new Executive Director. Sue replaces Marty Eberhardt, a longtime Native Plant Society member, who guided TBG along a successful path for 12 years. Sue comes from the Chicago Botanic Garden where she served as Vice President of their Programs Division since 1995. She managed their Community Programs Department and the School of the Botanic Garden and Volunteer Services. Sue brings enthusiasm and talent to the Gardens. She is a horticulturalist by education and is busy trying to learn all of the new plants that she has encountered. Her main work has been dedicated to creating events to attract new audiences to the garden and building educational partnerships for a diverse community of learners. Fund raising and strategic planning round out her talents. TBG looks forward to a long association with Sue Brogdon.



## LANDSCAPE TIPS II: NATIVE BARBERRIES

MARY F. IRISH

Where I grew up *algerita* (*Berberis trifoliata*) was very common and the making of jelly from its fruit was something of a folk art. You rarely, if ever, bought the jelly, but looked around for someone interested enough to make this tasty treat. It is tart when well made, like good marmalade. I am reminded of the delectable local treat whenever I see any barberry because the plant is a lot like that jelly, tart with leaves than end in tiny spines, but sweet with charming foliage, bright yellow blooms, and, of course, that colorful, tasty fruit.

*Berberis* is a genus with more than 140 species, distributed in North America, Eurasia, and North Africa. European barberries have figured prominently in herbal lore, medicine, and certainly decoration probably for as long as man and plant have known each other. In this country, members of the genus have been used historically for dyes, food, and occasionally for wood. None of the desert species is common in horticulture, but you can find some from time to time. All of the desert species are extremely tough, drought and heat tolerant, and ever so lovely.

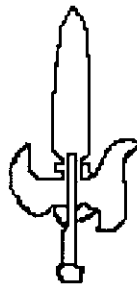
*Algerita* occurs widely in the desert southwest from central Texas to Arizona and into northern Mexico. In Arizona it is most easily found in the mountains around Tucson and towards the Mexican border. It differs from all other large, shrubby barberry by its three-part leaf, shaped like a halberd. And, like nearly all barberry, the flowers are bright, clear yellow in the spring followed by the small berries.

The most common desert species is desert barberry (*Berberis haematocarpa*). This shrub may grow to be about six feet tall, occasionally larger. It has a pinnate leaf, typically with five leaflets, and is a smooth, dusky grey-green color. As in all members of the genus, the leaf is pulled out into small points that end in a small thorn. The fruit is red, a color which

separates it from most members of the genus in this region. Desert barberry is found naturally from northern Arizona to Pima, Santa Cruz and Yuma counties and into western Texas and northern Mexico below 4,500 feet in elevation.

*Berberis fremontii* is a very closely related plant but its distribution is generally higher and more northerly than that of the desert barberry. This species ranges from Yavapai county north into Utah and some parts of California at elevations from 4,000 - 7,000 feet. It is a handsome shrub and because of its natural distribution has a wide cold tolerance. It has pinnately compound leaves and a yellow to dark purple fruit, though the darker colored fruit is uncommon. This is a fairly large shrub with a mature height of 6-8 feet. Most of the plants that are grown for horticultural use in this region are of this species. This plant is the only *Berberis* species in Baja, although at one time *Berberis higginsae* was considered a separate Baja species.

*Berberis harrisoniana* is a shorter plant, usually less than 3 feet tall. It is restricted to the Kofa and Ajo mountain ranges of Arizona. This barberry has a trifoliolate leaf similar to *B. trifoliata* but can be easily distinguished from that species by its much smaller size, bright green foliage, and purple-black fruit.



Halberd

Whichever member of this group suits your garden, it will suit your wildlife even better. When I worked at the Desert Botanical Garden I had to be vigilant and stealthy to get to the seed of barberry before the birds worked them over. I have seen bushes stripped clean in one day by a host of different bird species.

*Mary Irish is a free-lance writer and longtime ANPS member. See the review of her new book on page 14.*



# SOME THOUGHTS ABOUT GENOTYPES

HEIDI ROMPPANEN

Think about plant genetics before ordering plants or seeds. Even though plant population genetics can be very technical, we can still use common sense when selecting native plants. When buying a plant that is the same species as a local native plant, don't assume the origin does not make a difference. A native plant may range hundreds of miles, and be adapted to specific conditions such as timing and amount of rain, day length, temperature and altitude. A plant of the same species grown in California or New Mexico may not thrive in your Arizona area. Plants propagated originally from local natives are more likely to succeed and successfully reseed. This does not mean that you should plant only local native plants, but if you can't get native plants of local origin, it is important that what you buy is originally from an elevation, soil type, and exposure similar to where it will be planted.

Any plant population which is studied closely will yield multiple genotypes. Whether or not those genotypes are an adaptation to a local environment (ecotypic) is a very different question. Think about these factors when choosing native plants:

- . Can the plant material be collected very locally? Within 100 miles?
- . Is the local population a rare genotype?

- . Do the plant species have obvious morphologic differences from populations outside of the area.
- . Is the plant species still suited to the site? Have there been drastic changes to the physical characteristics of the planting site ( i.e.: soil, water table, altitude, topography).
- . Is the plant material from within 500 feet of altitude for the planting site?
- . Is the plant material from an area with similar rainfall? (within 2 inches per year)
- . Is the soil the same general soil type?

The importance of local collection of plant materials can only be determined by a careful examination of the genetics of the species, but is generally most important at the edges of a plant range and in unique ecosystems.

Little information is available about which nurseries and seed growers are keeping track of this kind of information or specifically growing materials with genotyping in mind. If you are working on these aspects of landscaping, please contact Heidi so ANPS can develop an information base. As information is gathered, it will be added to the ANPS web site so people who wish to take genetics into consideration can have information about sources and so that professionals can communicate with each other.



*Heidi Romppanen is the president of the Central Highlands (Prescott) Chapter of ANPS and a horti-culturist she is starting a nursery, Planting Eden Native Nursery, that will focus on Arizona native flora they also contract grow natives for specific regions you can reach her at 520 4279457 or [plantingeden@w3az.net](mailto:plantingeden@w3az.net)..*

## DESERT PLANTS

If you have not become acquainted with Desert Plants do so in time to get the next information-packed issue featuring The Flora of Ragged Top by John Weins. First published in 1979, Desert Plants is now a biannual publication published in June and December of each year. The University of Arizona publishes this unique botanical journal for The Boyce Thompson Southwestern Arboretum. Intended for amateur and professional desert plant enthusiasts, this semi-technical journal is devoted to broadening knowledge and encouraging the appreciation of indigenous and adapted arid-land plants. Informative, extensively researched articles are accompanied by color photographs.

Desert Plants is a nonprofit, tax-exempt journal that relies solely on subscriptions, grants and donations. The yearly subscription rate is \$20 for individuals within the United States and \$25.00 for foreign subscriptions. Institution subscriptions are \$50.00. All back issues are available for \$5.00 each.

For further information contact Margaret Norem, Desert Plants, 2120 E. Allen Road, Tucson, AZ 85719, (520) 318-7046, mnorem@ag.arizona.edu.

*Marge Norem is not only the Editor of Desert Plants, but also maintains the ANPS mailing list, oversees distribution of ANPS publications, and is a Research Specialist in Arboretum Affairs for Boyce Thompson Arboretum.*

## SKY ISLAND MONTH

The Sky Island Alliance announces that October 2000 will feature a series of public meetings, field trips, work trips, workshops, open house and fair, and a feast all relating to the Sky Islands of Southeastern Arizona. The Sky Islands are the mountain ranges that rise out of valleys from northern Sonora and Chihuahua to southeastern Arizona and southwestern New Mexico. SIA is a citizen group dedicated to preservation of these unusual areas which are home to a great variety of species of plants and animals.

The month starts off with a slide show featuring the sights and sounds of the Sky Islands. Field and work trips deal with wilderness issues, ecological restoration, wolves, and beaver. Most of the events are free, but a few are fund-raisers for the Sky Island Alliance. You even have a chance to win a \$500 shopping spree at Summit Hut if you buy raffle tickets.

For information and reservations, check the web site [www.skyislandalliance.org](http://www.skyislandalliance.org) or call Roseann or Matt at 520 624-7080.

### WILDFLOWER POSTER ALMOST READY FOR SALE

The long-awaited ANPS wildflower poster is nearly complete and will be ready for sale by late autumn. Margaret Popé's beautiful colored drawings of more than thirty common and unusual wildflowers of the Sonoran Desert are arranged artistically on the poster with their common and scientific names. The flowers include milkweed vines, night blooming cereus, ocotillo, annuals such as nama and penstemon.

Watch the ANPS web site starting in October for information on how to purchase the poster. If you own or work in a plant-related bookstore, gift shop or nursery, inquire about wholesale prices.

# THE ARIZONA NATIVE PLANT SOCIETY WEB SITE: INFORMATION REQUESTED

The ANPS web site contains a wealth of information for members and the general public. In addition to news of the Society and information about ordering publications and T-shirts, the site has full information about Arizona's Native Plant Law, announcements of conferences of interest to plant people, and links to a wide variety of plant-related web sites throughout the nation.

One very useful feature is the list of plant and seed sources in Arizona and nearby states. Lois Ladwig, web master, says that the most frequent information requests she receives is about these sources and about landscapers who specialize in native plant landscaping. Lois asks that anyone who either runs a native plant nursery or landscape business, or who has a favorite business that is not already listed please send her current information so she can add to the list.

*Lois Ladwig is the ANPS web master, a task which she also does for the Tucson Botanical Garden. She has been a volunteer/docent at the Botanical Garden for two and a half years, working in the Backyard Bird Garden. She helped organize a salvage team for the Tucson Cactus and Succulent Society to save plants that would otherwise be bulldozed.*

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## ANNUAL MEETING - OCTOBER 21-22 SIERRA VISTA, ARIZONA

Members should have received an announcement of this interesting meeting in the mail by now. The meeting focuses on the San Pedro River and features Saturday talks on history, the San Pedro River, and various plant topics. Three interesting field trips are scheduled. If you did not receive an announcement, check the ANPS web site or write to ANPS at the address on the last page for a copy of the announcement.

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## COMMENTS FROM READERS

Antoinette Segad's article on *Rhus lancea* in the summer issue of the Plant Press was a favorite with readers. One neighborhood group reprinted the article in its newsletter. Two readers had what they said were fool-proof methods of eradicating the plant. One said that a heavy dose of Round-Up is highly effective in eliminating at least the smaller trees. Another person said that Round-up slows it down temporarily, but the tree quickly recovers. Yet another said that cutting the tree down to the ground and then treating it with a root-killing compound works effectively even on large trees if the stump is wrapped tightly in black plastic which will keep any leaves that may appear from making photosynthesizing.

We would appreciate hearing of any successful or unsuccessful efforts to eliminate the tree.

## NEW MEMBERS WELCOME

People interested in native plants are encouraged to become members. People may join chapters in Central Highlands (Prescott), 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 [www.azstarnet.com/~anps/](http://www.azstarnet.com/~anps/) or contact one of the people below.

Acting State President:	Lynn Kaufmann	520 3269686 X17
Central Highlands (Prescott)	Heidi Romppanen	520 4279457
Flagstaff President:	Ana Novak-Goodman	4716 E. Hightimber Lane, Flagstaff
Phoenix President:	Kathy Rice	602 8089304
Tucson Co-Presidents:	Glenda and Bob Zahner	520 578-1639
Yuma President:	Pat Callahan	520 627-2773

### Membership Form:

Name

Address

City

State

Zip

Phone Number

Chapter preferred:

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Central Highlands

Flagstaff

Phoenix

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