

Two Arizona plants listed as endangered

Two species of plants found only in the State of Arizona, the Arizona agave (*Agave arizonica*) and the Arizona cliffrose (*Cowania subintegra*), have been listed by the Service as Endangered, and now will receive protection under the Endangered Species Act.

Arizona Cliffrose

The Arizona cliffrose is an evergreen shrub reaching 75 cm in height, with small white or yellow flowers. Its leaves, twigs, and flowers are covered with dense, short, white hairs. This distinctive species is known from only two small populations totalling about 700 plants. It was proposed on July 15, 1983, for listing as Endangered (see BULLETIN Vol. VII No. 8), and the rule became final on May 29, 1984.

The first population occurs in the Burro Creek area of Mohave County, and the second is scattered over approximately 100 acres in Graham County. The Burro Creek population is heavily browsed by cattle, mule deer, and feral burros. Mining is another threat to the species' survival; currently, there are 114 BLM mining claims within a mile radius of the Burro Creek plants. Areas within the population have been bladed, apparently to expose subsurface formations for mineral explorations. Gas pipelines, electricity transmission lines, and a road also pass through the area, and maintenance procedures involve occasional blading. A portion of the Graham County population occurs on a highway right-of-way and could be affected by any road widening or herbicide spraying; however, there are currently no plans to widen the highway, and the Arizona Department of

Transportation has agreed to notify the Service if any of its future activities could adversely impact the population.

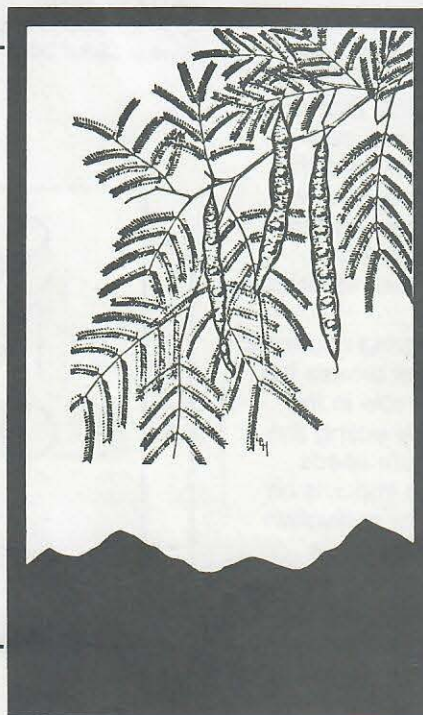
As Endangered species, both the Arizona agave and the Arizona cliffrose will receive protection under the Endangered Species Act. The listings give recognition to the precarious status of these plants, require the development of plans for their recovery, and make possible Federal aid to cooperative State conservation activities. Further, under Section 9 of the Act, it is illegal to remove and reduce to possession Endangered plants from areas under Federal jurisdiction. This measure now applies to the Arizona agave which occurs only on USFS lands, and to the Arizona cliffrose which is found on BLM and BIA lands. Section 9 also prohibits interstate or international trafficking in Endangered plants. Permits for otherwise prohibited activities involving Endangered species are available, under certain circumstances, for approved scientific or conservation purposes.

Designations of Critical Habitat were not included in the final rules because publishing the required maps and habitat descriptions would make both plants vulnerable to vandalism and illegal taking. The agave, in particular, is subject to overcollection as an ornamental plant. Nevertheless, these plants will receive the full protection offered under Section 7 of the Act. Federal agencies are required to ensure that any action they fund, authorize, or carry out are not likely to jeopardize the continued existence of the species by directly affecting them or adversely modifying their habitat. USFS regulations on the protection of listed species like the Arizona agave are compatible with the purposes of the Act, and the BLM is planning for the Arizona cliffrose in its management documents.

continued inside

The Arizona Native Plant Society

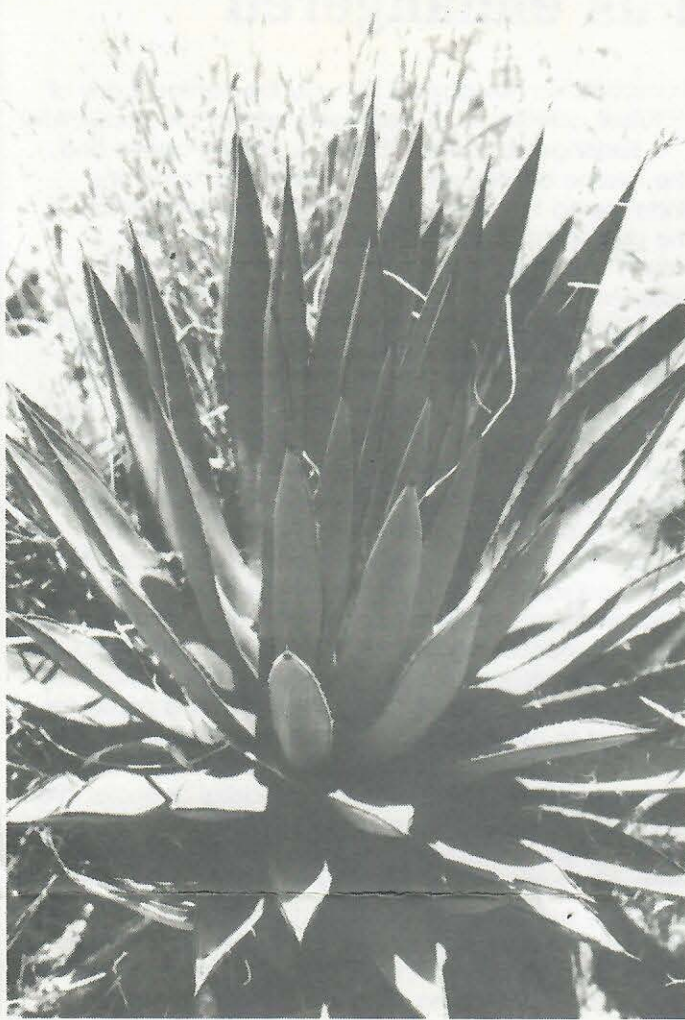
Flagstaff
Phoenix
South Central
Tucson
Yuma



The Plant Press

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continued from front



Arizona Agave

Fewer than 100 plants of this species are known to exist in only 13 populations. The Arizona agave is an attractive succulent, with leaves growing up from the base in a somewhat flattened globular form, and its pale yellow, jar shaped flowers are borne on a stalk that can reach up to 3.6 meters in height. Due to its reduced numbers and range, its slow reproduction rate, and the continuing threats to its survival, the Arizona agave was proposed for listing as an Endangered species on May 20, 1983 (see BULLETIN Vol. VIII No. 6). This plant is endemic to a very small area of the New River Mountains in the Tonto National Forest, central Arizona.

Land use in this area consists of cattle grazing under U.S. Forest Service (USFS) permit. Cattle and deer browse the flowering stalks of agaves, and may play a role in the poor reproductive success of this species by eating the flower stalks before they mature and distribute seeds. Cattle grazing also may be having adverse impacts on the habitat in general. Taking of this plant for cultivation in private rock gardens and for commercial trade is another threat to its survival. Although taking was already restricted by State law and USFS regulations, these measures have been difficult to enforce, and the Endangered listing (FR. 5/18/84) gives additional protection.

Rare Plant Update

In April the Fish and Wildlife Service (FWS) published in the Federal Register proposals to list both *Carex specuicola* and *Mammillaria thomberi* (Thornber's fishhook cactus) as threatened species. FWS is asking for comments on the listing of these species. Member with information on distribution, threats to the species, or current or planned activities which could affect the species are encouraged to write Peggy Olwell, U.S. Fish and Wildlife Service, Office of Endangered Species, P.O. Box 1306, Albuquerque, New Mexico 87103.

A Call for Volunteers!

The Bureau of Reclamation is funding a second botanical survey of the proposed route of the Tucson Aqueduct of the Central Arizona Project. An earlier inventory documented 7 adult plants of *Tumamoca macdougallii* along the aqueduct route. *Tumamoca*, a rare member of the Cucurbitaceae or Gourd Family, is a category 1 candidate for listing under the Endangered Species Act of 1973, as amended.

The upcoming survey will provide additional information on the occurrence and density of *Tumamoca* along the aqueduct route. Field work will take place this summer during August-October. Late summer is the best time of year to observe this rather inconspicuous vine for the delicate stems and leaves are fully developed and flowers and/or fruit are often present.

Frank Reichenbacher, together with 3 other botanists, will carry out this inventory. However, limited time and funds will not allow for a complete survey of all the suitable habitat for *Tumamoca* within the route. The ANSP is calling for volunteers to assist in the field work. Your help is greatly needed to provide more comprehensive data on the occurrence of *Tumamoca* in this area. Interested members who are available at some point between August and October may call Mary Butterwick at 863-4464 (work) or 897-8053 (home) or write at 508 E. Westchester, Tempe, AZ 85283 for further information.

Mary Butterwick is a botanist at the Bureau of Land Management, Phoenix District Office.

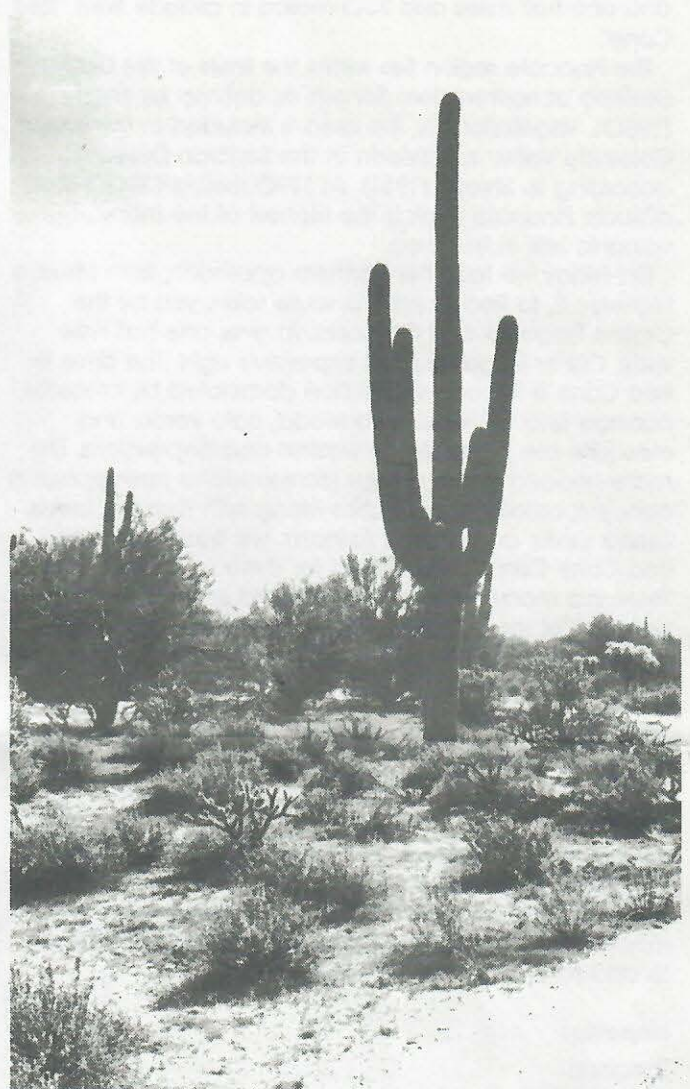
Southwest Nursery & Landscape Show

August 23, 24 and 25, 1984
Thurs. 12-9, Fri. 12-9, Sat. 9-3
PHOENIX CIVIC PLAZA EXHIBIT HALL

20 Columnar Cacti for Landscape Use in Central and Southern Arizona

Compiled by Kent C. Newland
Horticultural Specialist
Boyce Thompson Southwestern Arboretum

1. *Borzicactus (Oreocereus) celsianus* – OLD MAN OF THE ANDES – Bolivia – Beautiful columnar cactus, forming clumps to 3 feet with long white hairs and thin brown spines; dark red flowers.
2. *Carnegiea gigantea* – SAGUARO – Arizona – Graceful columnar cactus to 40 feet branching with age; strong light brown spines; nocturnal white flowers.
3. *Cephalocereus senilis* – OLD MAN CACTUS – Mexico – Slender columnar cactus to 40 feet, covered with long grayish-white hairs; light rose flowers.
4. *Cereus hildmannianus* – HILDMANN'S CEREUS – Brazil – Tree-like cactus to 15 feet with grayish-green stems; showy nocturnal white flowers.
5. *Cleistocactus strausii* – SILVER TORCH – Bolivia – Slender light green clustering cactus to 6 feet, covered with bristle-like white spines; red tubular flowers attract hummingbirds.
6. *Espostoa lanata* – PERUVIAN OLD MAN – Peru Small columnar cactus to 3 feet, covered with beautiful cottony, snow white hair and short golden spines; pink flowers.
7. *Lophocereus schottii* – SENITA – Arizona, Mexico – Large clustering columnar cactus to 20 feet; deep green stems developing gray or golden bristles at the stem tips; nocturnal pink flowers.
8. *Lophocereus schottii forma monstrosus* – TOTEM POLE – Baja, California – Very strange spineless columnar clustering cactus, covered with large smooth knobs; occasional pink flowers.
9. *Myrtillocactus geometrizans* – BLUE MYRTLE CACTUS – Mexico – Branching tree-type with slender powder blue columns to 30 feet, greenish-white flowers, edible fruit.
10. *Neobuxbaumia polylopha* – AZTEC COLUMN – Mexico – Beautiful solitary golden-spined columnar cactus to 40 feet; dark purplish red flowers.
11. *Pachycereus palmeri* – CARDON – Baja, California – Gigantic tree cactus to 50 feet, with massive olive green branches; nocturnal white flowers.
12. *Pilocereus palmeri* – WOOLY TORCH – Mexico – Branching tree cactus to 18 feet, glaucous blue when young, covered with dense white hairs; purple flowers.
13. *Stenocereus (Machaerocereus) gummosus* – PITAHYA AGRIA – Baja, California – Erect to sprawling columnar cactus to 10 feet, dark green-gray stems, large purplish-white flowers; edible fruit.
14. *Stenocereus (Rathbunia) alamosensis* – OCTOPUS CACTUS – Mexico – Slender olive-green columnar cactus to 10 feet; erect at first, later with a sprawling habit; diurnal red flowers.
15. *Stenocereus marginatus* – MEXICAN ORGAN PIPE – Mexico – Columnar cactus, clustering with dark green branches to 20 feet; gray spines; greenish-white flowers.



16. *Stenocereus stellatus* – PITAYO – Mexico – Clustering columnar cactus, with deep green branches to 20 feet; short white spines; pinkish red flowers.
17. *Stenocereus thurberi* – ARIZONA ORGAN PIPE – Arizona, Mexico – Clustering columnar cactus with dark green branches to 30 feet, with gray to black spines; nocturnal purplish-white flowers.
18. *Stetsonia coryne* – TOOTHPICK CACTUS – Argentina – Clustering deep green columnar cactus to 6 feet with short golden brown spines; outstanding nocturnal white flowers.
20. *Trichocereus terscheckii* – CARDON GRANDE – Argentina – 'Saguaro like' cactus to 40 feet; satiny green body with stout golden spines; nocturnal white flowers.

Members head south

This past spring, 20 members of the Arizona Native Plant Society set out for a four day trip in southern Arizona and northwestern Sonora to "Red Cone Camp" in the Pinacate region. Our ultimate goal was to hike to the top of Pinacate Peak. The peak is approximately three and one half miles and 750 meters in altitude from "Red Cone".

The Pinacate region lies within the limits of the Gran Desierto of northwestern Sonora as defined by Felger (1980). Vegetationally, the area is included in the Lower Colorado Valley subdivision of the Sonoran Desert according to Shreve (1951). At 1190 meters (3900 feet) altitude, Pinacate Peak is the highest of the many volcanic hills in this area.

On Friday we took the northern approach, from Mexico Highway 2, to Red Cone. This route takes you by the Craters Elegante and Colorado. At over one half mile wide, Crater Elegante is an impressive sight. The drive to Red Cone is through vegetation dominated by creosote, bursage and brittlebush. Ironwood, palo verde, and mesquite are prominent in washes and depressions. The many-headed barrel cactus (*Echinocactus polycephalus*) occurs sporadically on slopes along with *Fagonia laevis*, *Dalea mollis*, and *Encelia farinosa*. We finally reached Red Cone Camp after driving for three hours on lava. There are many microhabitats around Red Cone because of the flatlands, washes, and hills. The flats are dominated by brittlebush, creosote and the annuals,

Lupinus arizonicus v. *sonorensis*, *Camissonia cardiophylla*, and *Dalea mollis*. Broom-rape (*Orobanche cooperi*) was quite common, occurring under and probably parasitic on brittlebush. Ironwood and little leak palo verde were common in washes. On Red Cone itself we encountered *Bursera microphylla*, *Peucephyllum schottii*, *Lotus humilis*, *Perityle emoryi*, *Phaseolus filliformis*, *Notholaena californica*, and *Eucnide* (*Sympetaleia*) *rupestris*.

Saturday was the day for our assault of Pinacate Peak. Sixteen Native Planters led by Pinacate veteran Gene Joseph set out to conquer the lava of Pinacate Peak. Although Pinacate Peak is the highest point in the region, it is not visible from Red Cone camp because Carnegie Peak stands in the way. Not knowing this the uninformed hiker will go directly to the top of Carnegie Peak and much to his or her dismay will see the taller Pinacate Peak to the northwest.

The walk to the top took about four hours. Fifteen of us made it to the top after one got too involved in photography to continue past the halfway point. Our final ascent of Pinacate Peak seemed to be an endless process of one step up the lava and sliding back two. The magnificent sight from the top will long be remembered by many people who have hiked Pinacate Peak.

Editor's Note: For a complete list of the Pinacate flora observed on this trip - write the editor.

For the Palate

NOPALES

Gather the new pads from the prickly pear when they are about six inches long. With a sharp knife, remove all thorns, rinse twice, and dice. Cook in salted water for five minutes, and discard the liquid. Nopales are now ready to add to other foods to make a meal.

Nopalitos

Oregano
1 clove garlic
2 cups cooked nopales
¼ onion, diced
1 tomato, diced
salt as needed
1 Tbsp. oil

Fry onions until transparent, add tomato, cook for 3 minutes, then add nopales, salt, oregano, and garlic. Cook for five minutes.

Nopalitos con Carbanzos

2 cups cooked nopales
¼ small onion, chopped
1 tomato, diced
1 clove garlic
1 Tbsp. oil
1 can garbanzos
Oregano

Cook onion until transparent, add tomato oregano, salt, and garlic. Cook for three minutes, then add nopales and one can of garbanzos, and cook for five minutes.



Nopalitos con Chile

2 cups nopales
1 can tomato sauce
¼ cup chile powder
4 Tbsp. oil
¼ cup water
¼ small onion
salt as needed

Mix chile powder with water and salt. Fry onion until transparent, add chile mixture. Fry for ½ minute, add tomato sauce and nopales, cook for five minutes.

Opuntia Omelette

¼ small onion, diced
1 small tomato
2 Tbsp. oil
1 cup cooked nopales
4 eggs
1 cup grated cheese
salt & pepper as needed

Fry onion until transparent, add tomato, cook for three minutes. Add nopales, salt, pepper, eggs and grated cheese.

Chapter Events

South Central

Normally meet at Central Arizona College on the first Saturday of each month at 10:00 a.m.

Sept. 1 - Annual Chiricahua Field Trip - Tucson Chapter

Oct. 6 - First general meeting. Pot luck and slides of Aravaipa Canyon Field Trip and Chiricahua Field Trip.

Oct. 20 - Field trip to Peppersauce Canyon

Nov. 3 - General meeting (speaker to be determined)

Nov. 17 - Field trip and hikes planned - Chiricahua National Monument

Dec. 1 - General meeting (speaker to be determined)

Dec. 15 - Field trip and hiking - South Mountain Park

Jan. 5 - General meeting (speaker to be determined)

Jan. 19 - Field trip to Desert Botanical Garden - view progress of Native Flora Trail

Feb. 2 - General meeting (speaker to be determined)

Feb. 16 - Field trip to Coke Ovens near Gila River, Pinal County

Mar. 2 - Plant Fair (tentative) in cooperation with city of Casa Grande, Casa Grande Historical Society, and U of A Extension Service.

NEW OFFICERS

President - Marie Luttrull

Vice President (programs) - Mary Lou Durbin

Vice President (field trips) - Lewis Ehrlich

Treasurer - Gerry Krepanky

Secretary (corresponding) - Pat Mar Laren

Information on other Chapters' meetings and events to be announced.

Tucson

Tucson Chapter monthly meetings start Sept. 12th, Wednesday at 7:00 p.m. at Tucson Botanical Gardens. This first meeting preceded by annual potluck dinner at 6:00. Second meeting is Oct. 10th. Speakers for both meetings to be announced.

A field trip to Mt. Graham in the Pinaleno Mountains is Saturday, August 18th. We will meet 8:00 a.m. at Hospital Flat. For more information contact Horace Miller (297-4633) or Meg Quinn (624-7331 home or 883-1380 work).

Cindy Baker is planning a discovery trip to Eastern Sonora Aug. 15th to 25th. For more info call her at 327-5333.

COMING SOON! Fifth Annual Visit to the Chiricahua Mountains

Sponsored by the Tucson Chapter for all members of the Arizona Native Plant Society

August 30-September 3, 1984

Meg Quinn (Chairman) 883-1380 (W); 624-7331 (H)

Horace Miller 297-4633 (H)

Cindy Baker 327-5333 (H)

Stephanie Meyer 296-4385 (H)

David Ingram 299-3615 (H)

Mary Wilkins 299-6573 (H)

We hope to see you all in the great Chiricahuas!

PHOENIX

Vic Kalva

Ann & Del Murphy

Tom & Phyllis Rotkis

James H. Seaman

Carol Shuler

Jim Spinkle

Charlene Weise

PRESCOTT

William J. Fleishman

TUCSON

Clem & June Chase

Betty Hyman

Leona L. Jones

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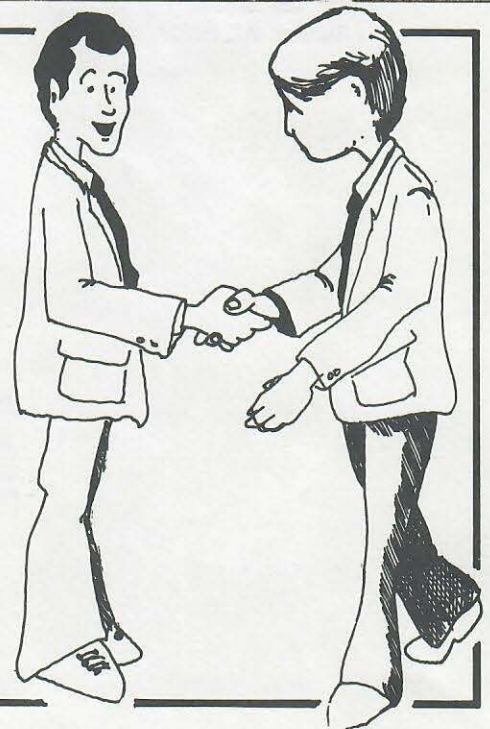
UNAFFILIATED

Larry E. Morse
Washington, DC.

Dry Country Plants
Las Cruces, New Mexico

Jim Borland
Denver, CO

Chuck Anderson, Sunset Magazine
Menlo Park, CA



Welcome New Members

The Plant Press

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