

## Desert Botanical Garden and the Arizona Botanical Garden Association — Their Commitment to the Rare and Endangered Plant Program

The Desert Botanical Garden is an institution dedicated in part to conserving Arizona's native flora. In a memorandum (February, 1983) Dr. Huckins, Garden Director, suggested how the Arizona Botanical Garden Association (ABGA) might cooperate more actively in alleviating the rare and endangered species problem in Arizona. He pointed out that institutions like the garden must commit publicly in an active way (both by propagating plants for cultivation for the purpose of mixing as well as preserving gene pools and by monitoring plants in their natural habitat).

### What is the ABGA?

The Arizona Botanical Garden Association (ABGA) is an informal consortium of institutions throughout the state dedicated to the dissemination of information about plant life — especially the fascinating plants adapted to arid regions.

Among the cooperating network of botanical gardens, arboreta, and living museums are both small, local, public gardens and world renowned institutions.

Our goals are to coordinate our educational programs and special events; share staff talents and material resources such as traveling displays; coordinate programs to introduce the business community to new horticultural development (nurserymen, landscape contractors and architects); pool information and ideas for better exhibits and interpretation to the public; encourage smaller

institutions in their efforts to increase tourism and community support; and facilitate communications between governmental departments devoted to the protection of native plants and private organizations that can aid in the protection process.

ABGA is in a unique pivotal position to publicize information effectively through their communications network about the native plant law, salvage of plant materials, endangered species, and other subjects relating to botany and horticulture.

### What is the Planned Strategy?

A proposed plan was developed by Dr. Huckins for the garden to follow in alleviating the rare and endangered plant problem in Arizona. Other ABGA institutions were encouraged to commit themselves to those species deemed important to study within that institution's respective geographical area. This commitment represents the first concerted effort among public gardens in the United States in dealing with this problem.

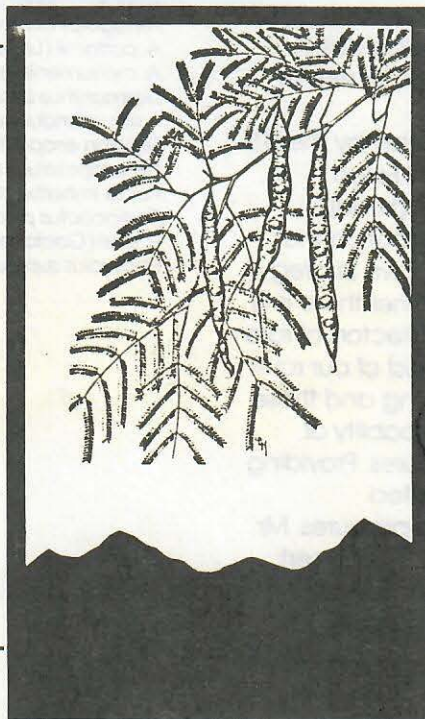
The following is a brief explanation of types of commitments an institution may follow:

- 1 = *Primary Repository*: Assume primary responsibility for the welfare of specific plant taxa, including:
  - a) maintaining records on the status and location of all known existing individuals or populations (preferably in nature as well as in cultivation);

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b) propagating the endangered taxon and distributing it as reserve material to institutions assuming secondary responsibility for its welfare; and c) abrogating or transferring primary responsibility only after the need is eliminated or a suitable substitute for this level of responsibility is appointed.

2 = *Secondary Repository*: Assume secondary responsibility for the welfare of specific plant taxa, including: a) monitoring and providing records on the status and location of individuals or populations under the institution's care or surveillance to the institution with the primary responsibility for them; b) maintaining reserve stocks of the endangered taxon for use by the primary repository in breeding or vegetative propagation; and c) abrogating or transferring secondary responsibility only after the need is eliminated or a suitable substitute for this level of responsibility is appointed.

A = *Active Strategy*: Introduce into cultivation for propagation, distribution (exchange and/or sale), display, reintroduction into nature, etc., depending upon legal constraints or prearranged contractual agreements.

P = *Passive Strategy*: Monitor confidentially populations of specific plant taxa in natural habitats and report regularly on their status to those in positions of accountability or authority.

For example, using this system the Garden is, assuming responsibility for *Agave arizonica* as 1A/zp. The Garden assumes primary responsibility for the welfare of the plant and follows an active strategy of introducing it into cultivation for propagation and distribution. The Arizona-Sonora Desert Museum lists *Agave arizonica* also but assumes secondary responsibility following an active strategy (*Agave arizonica* 2A).

This is a prudent course of action as it provides a "back up" repository for a species which is extremely limited in range and numbers.

The program has been received favorably by the U.S. Fish and Wildlife Service and the National Forest Service. Reggie Fletcher, Forest Service Regional Botanist, suggests that the greatest contribution the Association can make is to follow the "Active Strategy" as outlined above. According to Mr. Fletcher there is a desperate need of a bridge between collectors of rare species and the plants in the wild. For most of our rarer cacti, especially those nominated for listing and those listed, the best way to enhance their probability of survival is to alleviate black market pressures. Providing whatever the market demands in cultivated specimens will most likely alleviate these pressures. Mr. Fletcher points out that organizations like the Desert Botanical Garden, Boyce Thompson Southwestern Arboretum, and Arizona-Sonora Desert Museum are the intermediaries between commercial dealers and the U.S. Fish and Wildlife Service.

Much needed information on a species' reproductive biology can be provided by member institutions of the ABGA committed to rare and endangered plant studies. As pointed out by Mr. Fletcher, these institutions have resources available for this type of study whereas the Forest Service does not.

The Desert Botanical Garden looks forward to continuing and expanding its commitment to rare and endangered plant study, as well as working with sister ABGA institutions, and governmental agencies involved with this work.

**Wendy Hodgson, Assistant Curator of Herbarium  
Desert Botanical Garden**

*EDITOR'S NOTE* — Although the ANPS is not a member of the ABGA we have and will continue to work alongside the above mentioned institutions on plant protection.

Plants listed by the FWS as PT, PE, RC, or LE are not presently considered by ABGA institutions for study:

**Endemic Plants**

	FWS CURRENT STATUS
<i>Allium gooddingii</i> (Liliaceae)	PT
<i>Amsonia kearneyana</i> (Apocynaceae)	PE
<i>Astragalus cremnophylax</i> (Leguminosae)	PT
<i>A. xiphoides</i> (Leguminosae)	PT
<i>Camissonia exilis</i> (Onagraceae)	PT
<i>Cimicifuga arizonica</i> (Ranunculaceae)	PT
<i>Dalea tentaculoides</i> (Leguminosae)	PT
<i>Erigeron kuschei</i> (Compositae)	PT
<i>Eriogonum mortonianum</i> (Polygonaceae)	PE
<i>E. thompsonae</i> var. <i>atwoodii</i> (Polygonaceae)	PE
<i>Senecio franciscanus</i> (Compositae)	PT
<i>Hedeoma diffusum</i> (Labiatae)	PT

**Nearly Endemic Plants**

	FWS CURRENT STATUS
<i>Arctomecon californica</i> (Papaveraceae)	PE
<i>Asclepias cutleri</i> (Asclepiadaceae)	PT
<i>Aster lemmonii</i> (Compositae)	PT
<i>Astragalus bamebyi</i> (Leguminosae)	PT
<i>A. cottamii</i> (Leguminosae)	PT
<i>A. monumentalis</i> (Leguminosae)	PT
<i>Desmanthus bicomutus</i> (+ <i>D. virgatus</i> (L.) Willd. var. <i>glandulosus</i> B.L. Turner?) (Leguminosae)	PT
<i>Erigeron eriophyllus</i> (Compositae)	PE
<i>Graptopetalum bartramii</i> (Crassulaceae)	PT
<i>Pectis imberbis</i> (Compositae)	RC
<i>Pediocactus papyracanthus</i> (Cactaceae)	PT
<i>P. sileri</i> (Cactaceae)	LE
<i>Phaseolus supinus</i> (Leguminosae)	PT

**SYMBOLS AND ABBREVIATIONS**

**Institutions**

DBG — Desert Botanical Garden  
 ASDM — Arizona-Sonora Desert Museum  
 BTSA — Boyce Thompson Southwestern Arboretum

**Agencies**

FWS — U.S. Fish & Wildlife Service  
 FS — U.S. Forest Service  
 BLM — Bureau of Land Management

**Protection Status**

(Note: All FWS listings are Current Status as of June, 1983)

LE — Listed Endangered      SB — BLM Sensitive Bureau  
 LT — Listed Threatened      SC — BLM Sensitive Candidate  
 PE — Proposed Endangered    SE — FS Sensitive  
 PT — Proposed Threatened  
 RC — Retain as FWS Candidate  
 DL — Delist

Plant Species	Status			DBG	ASDM	BTSA
	FWS	FS	BLM			
<i>Agave arizonica</i>	PE	SE		1A/2P	2A	
<i>A. murpheyi</i>			SB	1A/2P	2A	A, P
<i>A. parviflora</i>	SE	SC		2A, P		
<i>A. toumeyana</i> var. <i>bella</i>	DL	SE	SC		2A	A
<i>Armsonia grandiflora</i>		SE			2A, P	
<i>Apacheria chiricahuensis</i>	DL	SE		2A		
<i>Asclepias lemmoni</i>					2A, P	
<i>Berberis harrisoniana</i>	DL		DL	1AP		
<i>Carex scirpoidea</i> var. <i>curatorum</i>		SE		2A		
<i>Caryophanthe recurvata</i>	PT	SE			2A	
<i>C. robbinsorum</i>	PT	SE	SC	1A/2P	2A	
<i>C. scheeri</i> var. <i>robustispina</i>	PE	SE	SC		2A	
<i>C. vivipara</i> var. <i>buoiflora</i>		RC	SE	SC	1AP	2A
<i>Cowania subintegra</i>	PT	SE	SC	1AP		
<i>Echinocactus horizontalis</i>						
var. <i>nicholii</i>	LE	LE	LE		2A, P	
<i>Echinocereus ledingii</i>		SE	SC	2A	2A, P	A
<i>E. triglochidiatus</i>						
var. <i>arizonicus</i>	LE	LE	LE	2A	2A	A, P
<i>Epithelantha micromeris</i>					2A, P	
<i>Erigeron pringlei</i>		SE		2P		
<i>Eriogonum apachense</i>	DL	SE	SC	1A, 2P		
<i>E. ericifolium</i> var. <i>ericifolium</i>				1AP		
<i>Errazurizia rotundata</i>	DL		SC	2A		
<i>Ferocactus eastwoodiae</i>	DL		SC	2A	A, P	
<i>Fraxinus gooddingii</i>		SE				A, P
<i>Heuchera eastwoodiae</i>				1P/2A		
<i>Jacobinia ovata</i>						A
<i>Lilium paryi</i>	DL	SE			2A	
<i>Lysiloma microphylla</i> var. <i>thomberi</i>			SE	2A	2A	
<i>Mammillaria mainiae</i>					2A	
<i>M. thomberi</i>	PT	SE	SC		2A, P	
<i>M. viridiflora</i>	PT	SE	SC		2A	A, P
<i>M. wrightii</i> var. <i>wilcoxii</i>		SE			2A	
<i>Maurandya acerifolia</i>			SB	1AP		A, P
<i>Neoevansia striata</i>			SB		2A	
<i>Neolloydia erectocentra</i>						
var. <i>acunensis</i>	PT	SE	SC		2A	
<i>N. erectocentra</i>						
var. <i>erectocentra</i>	RC	SE	SC	2A		
<i>Pediocactus bradyi</i>	LE	LE	LE	2A		
<i>P. paradenei</i>	PT	SE	SC	2A		
<i>Pediocactus peeblesianus</i>						
var. <i>fickeiseniae</i>	PT	SE	SC	2A		
<i>P. peeblesianus</i>						
var. <i>peeblesianus</i>	LE	LE	LE	2A		
<i>Penstemon bicolor</i>						A, P
<i>Polygala rusbyi</i>			SB	1AP		
<i>Rumex orthoneurus</i>	PT	SE		2AP		
<i>Salix arizonica</i>	DL	SE				A, P
<i>Sclerocactus parviflorus</i>				2A		
<i>Sophora stenophylla</i>			SB			
<i>Talinum gooddingii</i> (T. <i>marginatum</i> ?)		SE			2A	
<i>Triteliopsis palmeri</i>	DL		SC		2A	
<i>Tumamoca macdougalii</i>	PT	SE	SC		2A, P	
<i>Vauquelinia pauciflora</i>	DL	SE	SC		2A	
<i>Astragalus titanophilus</i>		SE	SC	2A		

## Chapter Events

### FLAGSTAFF

To be announced

Chapter meets on third Thursday of month at Flagstaff Adult Center, 7:30 p.m.

For information call Susan Husband 774-7924

### PHOENIX

January 16, 7:30 p.m., Desert Botanical Garden  
Kent Newland, horticulturist at Boyce Thompson Arboretum, presents a slide show on the vegetation of Sonora, Mexico.

January 21, 8:00 a.m., call for details  
Field trip to Cave Creek north of Phoenix.

February 11, 8:00 a.m., call for details  
Field trip to South Mountain Park to view the aromatic Elephant Tree (*Bursera microphylla*).

February 13, 7:30 p.m., Desert Botanical Garden  
Landscape architect James Able speaks on historic Casa Blanca, a gracious mansion built in the 1930s which now has drought tolerant plants included in its landscape.

March 2-4, 8:00 a.m., call for details  
Field trip: Marc Mittleman and Wendy Hodgson will lead a trip to Palm Canyon, Kofa Mountains.

March 12, 7:30 p.m., Desert Botanical Garden  
Sherry Crandall, plant breeder, will discuss current research and development of *Plantago* (Indian wheat).

Monthly meetings held second Monday of the month at Desert Botanical Garden at 7:30 p.m. unless otherwise stated. For information about field trips contact Peg Gallagher 894-0994 or Marc Mittleman 265-0670.

### SOUTH CENTRAL CHAPTER

January 7, 10:00 a.m., general meeting

January 21, field trip to Patagonia Bird Sanctuary

February 4, 10:00 a.m., general meeting

February 18, field trip Mountain States Wholesale Nursery, Phoenix

March 3, general meeting, Picacho Peak State Park

March 24, Plant Fair, Peart Park

Monthly meetings are held at Community Room, Student Center, Central Arizona College, first Saturday of month, 10:00 a.m. unless otherwise stated. For information call Bill Kinnison 836-8562 or 836-8243.

### TUCSON

January 11, 7:30 p.m., Tucson Botanical Garden  
More on Baja California, Mexico

February 4  
Tucson Nursery Tour

February 8  
Learn about *Erythrina* from Wade Sherbrooke

February 23-26  
Gene Joseph will lead a four day camping trip to the Pinacates. Consult Gene for details, 883-1380.

March 3  
Phoenix Nursery Tour

March 14, 7:30 p.m., Tucson Botanical Garden  
Desert wildflowers with Dr. Charles Mason

Monthly meetings are held on the second Wednesday, 7:30 p.m. of the month at Tucson Botanical Garden unless otherwise stated. For information call Meg Quinn 624-7331 (H) or 883-1380 (W)

### YUMA

January 9, 7:30 p.m., Yuma Extension Service Office  
Gary Nabham will speak on native plants cultivated by the Indians of the southwest.

February 13, 7:30 p.m., Yuma Extension Service Office  
Tim Clark, ANPS president and the executive secretary of the Friends of the Arboretum, will address the chapter. (Topic to be announced.)

March 12, 7:30 p.m., Yuma Extension Service Office  
Tom Van Devender, Research Botanist, ASDM, will discuss history of the vegetation of the Lower Colorado.

March 24, 9:00 a.m., Art Museum, 281 Gila St.

SPECIAL SATURDAY EVENT! Benefit plant sale for the Depot Desert Trail. A public sale of native plants to raise money for Yuma's desert garden. Slide shows by Charles Sacamano.

Monthly meetings are held on the second Monday, 7:30 p.m. at the Yuma Extension Service Office unless otherwise stated. For information call 783-8338.

**ARIZONA NATIVE PLANT SOCIETY GENERAL MEMBERSHIP MEETING WILL BE SUNDAY, MARCH 25, 1984 AT THE ARIZONA SONORAN DESERT MUSEUM. PROGRAM AND TIME TO BE ANNOUNCED.**

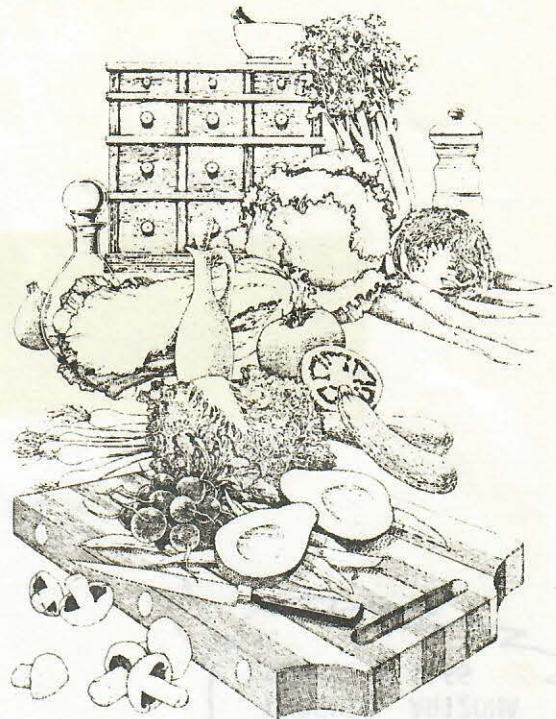
## Welcome New Members

### PHOENIX

Ray Wyatt  
Marcia Frances  
Mona McCroskey  
James Sprawls  
Carole Whittaker  
Marilyn Carman  
Jon and Clarice Nelson  
Walter Jorgensen  
Alan Lee Cima  
Jack Pilgrim  
Jim Borland  
Jordan Adler  
W. Wallace Covington  
Patrick Quirk  
Nancy Kyle  
Ruby Coombs  
Carolyn Townsend  
Bruce Parfitt  
Kathy Roberts

### TUCSON

Merry Austin  
Margaret Evans  
Barbara Foss  
Alice Goodrich  
Ruth Harless  
N. Elder James  
David Lazaroff  
Lily and Michael Phelan  
Mike Siesel  
Jacqui Soule  
David and Shirley Young



## For the palate . . .

### Mesquite bread

½ cup mesquite flour  
½ cup all purpose flour  
2 tsp. baking powder  
1 tsp. baking soda  
¼ cup oil  
Approximately 2/3 cup water (enough to make a stiff dough)

Sift dry ingredients then add oil and water. Mix and form into a loaf on a cookie sheet. Bake at 350° for 30 to 40 minutes until done.

Mesquite beans should be harvested in early fall, washed, and then heated for four hours at 170°. Store in airtight container or blenderize immediately. Sift the flour and discard the pieces of unground pods.

### Tepary bean stew

1 cup of tepary beans should be soaked at least overnight. Discard water. Mix beans with 1 cup of whole wheat or hominy, cover with water, and cook 4 hours or until tender. Add boiling water if more is needed during cooking. After cooking, season to taste with salt, pepper, and sauteed onions.

## Announcements



**Dr. Howard Scott Gentry**, author of "Agaves of Continental North America", celebrated his 80th birthday December 10.

**J. Harry Lehr**, Curator of the Herbarium, Desert Botanical Garden, has retired as of January after 14 years of dedicated service. Because of his efforts the Herbarium has been listed as a national resource. *We'll miss you, Mr. Lehr!*

**Dr. Charles Huckins**, formerly Director of the Desert Botanical Garden, has been named Director of the American Horticultural Society.

**Attention members!** Please submit any articles, announcements, stories, insights, native food recipes, etc. to the editor. The Society would greatly appreciate all contributions.

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55 E. Thomas, Suite 205, Phoenix, AZ 85012.

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The officers and board of  
directors wish all our friends a  
prosperous and productive  
New Year.

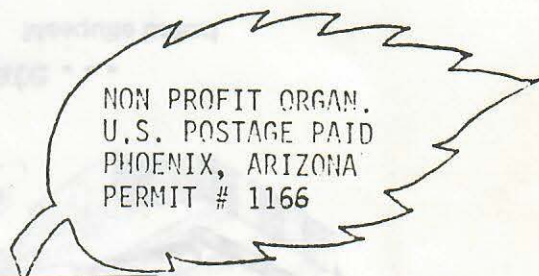
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THE OFFICE OF THE DIRECTOR OF THE ARIZONA NATIVE PLANT SOCIETY

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The Arizona Native Plant Society  
P.O. Box 41206  
Sun Station  
Tucson, AZ 85717



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