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Arizona Native Plant Society

Bulletin

Argemone pleiacantha

Drawing by Lucretia Breazeale Hamilton
Courtesy of the University of Arizona Herbarium

Arizona Native Plant Society
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EDITORS' PAGE

Welcome! You hold in your hands the first issue of our "revised" newsletter, and we hope that you will be pleasantly surprised by the new format. Your new editors are Judy Conger and George Yatskievych. We are both members of the Tucson Chapter and study in the Department of Plant Sciences at the University of Arizona. You may write to either of us c/o Dept. of Plant Sciences, University of Arizona, Tucson, Az. 85721.

In upcoming issues, we plan to try all sorts of new ideas and innovations to keep you, the reader, enlightened and entertained, BUT WE CAN'T DO IT ALONE! We need your comments and suggestions to make this newsletter something more than ordinary and to provide it with continued quality.

We are soliciting articles on any Native Plant or ANPS subject from all Society members. Ideally, we would like to have a wealth of material to choose from for each issue. To keep the newsletter interesting and to have it include a broad variety of articles will take the personal involvement of every Society member.

We need to hear from you, even if it is only to praise us or chew us out. THIS IS YOUR NEWSLETTER! It will turn out to be largely what you make of it. To encourage your participation in the newsletter, we are announcing our first-ever NAME THE NEWSLETTER CONTEST. Newsletter of the Arizona Native Plant Society is too long and simply doesn't have the right ring to it, so we are asking Society members to suggest something more appropriate.

Names should be short and be relevent to the Society and its function on a statewide basis. There will be one winner chosen by our state board of directors and the editors, and it will appear on the newsletter cover, starting with next issue. To keep things interesting. the winner will have his or her name announced in the issue and will receive, as a PRIZE, a copy of the newly Revised The Trees and Shrubs of the Southwest Deserts by Lyman Benson and Robert Darrow (Scheduled for release in late June).

This exquisite (and fairly expensive) volume would be a handsome addition to the bookshelf of any Native Plant Society household, and we hope that the mere mention of the prize will stimulate hundreds of members to send in their entries.

Entries should be mailed to the editors at our above address and should be postmarked no later than July 15, 1981. They should be neatly tpyed or printed on a 3 X 5 inch card or piece of paper, and should also have your name and address on them. Enter as many times as you like, but send in each proposed name only once. We wish you all the best of luck!

Judy Conger

George Yatskievych

Ipomoea thurberi

SPECIAL PLANT COMMUNITIES OF ARIZONA -- DUNESCRUB

Most of us long-time Arizonans have friends or relatives back East who visit from time to time. One of their most common reactions surfaces after they have spent a few days here. They look puzzled and ask, "This is very beautiful, but where is the desert?" The colloquial view of the desert is that it is a place of sand dunes and year-round stifling heat. Most people who have never been here have picked up that impression from cheap novels and B-grade westerns.

Beginning in the 1890's such well-known scientists as C.Hart Merriam (U.S.Biological Survey) and D.T. MacDougal (Carnegie Institute) turned their attention to the North American Deserts. Early on, most scientists agreed to define deserts primarily on the basis of mean annual precipitation and it was decided that a given area could be called a desert if it received less than 10 inches of rainfall a year. The occurrence of sand dunes is relatively unrelated to mean annual precipitation. Active dunes are found on the shores of the Great Lakes, the Atlantic Coast, the semi-arid regions of the West, as well as the hot, dry deserts.

In Arizona, active dunes are mainly restricted to the northeastern and southwestern corners of the state. Those in the northeast, mostly on the Navajo Indian Reservation, are probably the result of centuries of overgrazing on easily disturbed soils. On the other hand, the dunes in southwestern Arizona have certainly been around for a long time and support an interesting variety of plants, many of which are found nowhere else but the sand seas surrounding the Gulf of California.

Our most interesting sand dunes are in Yuma County, south of Yuma on the border, south of Interstate 8 in the Mohawk area, north of Interstate 10 in the Bouse area, on the border in the Cabeza Prieta Game Range, and southeast of Parker. The four major perennial perennial plants on the dunes are creosote bush (Larrea divaricata), white bursage (Ambrosia dumosa), big galleta (Hilaria rigida - a coarse grass), and Mormon tea (Ephedra trifurca). Of these four, none are restricted to dunes and only the white bursage and big galleta actually seem to be more common on dunes than on more solid soils.

Some dunes move more rapidly than others and a study of the Yuma County dunes reveals an interesting pattern of dune stability between the dune systems. The most unstable and rapidly moving dunes are dominated by big galleta and Mormon tea. As these plants begin to hold the sands white bursage begins to move in and finally creosote bush appears. The dune crests south of Yuma are dominated by Mormon tea and a rare shrubby buckwheat (Eriogonum deserticola). Although the latter plant was known from nearby areas, such as the Gran Desierto of northwestern Sonora, Mexico and the Algodones Dunes of southeastern California, it was only recently discovered in Arizona by the Heritage Program staff.

Dune buckwheat is occasionally host to the bizarre and rare parasitic plant sand food (Ammobroma sonorae). It is a succulent nonchlorophyllous root parasite, restricted to sandy places and dunes in northwestern Sonora, southwestern Arizona, southeastern California, and perhaps northeastern Baja California. Another rare sand dune plant is the wire lettuce (Stephanomeria schottii), an annual Composite. Until 1978, when Elinor Lehto and Timothy Reeves (Arizona State University) re-discovered it in the Cabeza Prieta Game Range, it was known only from the type collection of 1841 by Arthur Schott in the (Valley of the Gila". It was later collected by John Schuler in 1979 south of Yuma, in the Yuma Desert. Heritage staff members may recently have found this elusive plant in the dunes of the Mohawk Valley; we are currently pursuing a determination by an expert.

Sand dunes present two very special problems to a plant struggling to survive. The most obvious problem is that the dunes move, and with surprising speed. We have measured the movement of a large dune, 20 feet tall and more than 100 feet wide at as much as two inches in ½ a day. A plant that grows at one level of a dune may find itself completely buried or with its root system totally exposed. Most perennial dune plants have, therefore, evolved the ability to rapidly sprout shoots from buried stems and exposed roots. Other plants avoid the problem by their annual habit. The second major problem is the sand itself, in that there is no soil with organic matter; the growth medium is sterile.

The Heritage Program has given the sand dunes a very high priority for study. We are convinced that sand dunes are in trouble in Arizona. Heavy off-the-road vehicle (ORV) use and the rapid growth of population centers such as Yuma present substantial problems for the public agencies managing these areas. We are studying the plant, animal, and habitat data to help solve these problems.

Frank W. Reichenbacher Jr.
Plant Ecologist,
Arizona Natural Heritage Program

FERN TALK

As many Society members by now know, Arizona is blessed with a marvelously rich and diverse Pteridophyte flora. There are over 100 different ferns and fern allies growing natively in the state, in habitats ranging from the driest desert to the highest mountaintop, and everywhere in between.

With such a variety to choose from, it is surprising that these plants have been largely overlooked by native plant enthusiasts for horticultural purposes. Actually, if one examines the issue, it is pretty obvious why this is so. First, most people are not even aware of the great variety of plants available to them. Ferns tend to grow in out-of-the-way habitats and like to hide from naturalists by growing in rock crevices or under the foliage of other plants. Second, it is a widely accepted stigma that ferns are hard to grow.

While those of us fortunate to have greenhouses won't have many problems growing any Arizona Pteridophytes, the rest of us can enjoy equal success if we take a little time and care. Let's talk a little about the cultivation of native ferns generally. There are two basic ways to introduce your favorite fern into cultivation: from spores or from actual plants that have been excavated. A few species can be propagated by cuttings, offsets or plantlets, but these are a minority.

Two good references for growing Pteridophytes are Barbara Joe Hoshizaki's Fern Growers Manual, available in paperback from Knopf, and John Mickel and Evelyn Fiore's The Home Gardeners Book of Ferns, published by Ridge Press/Holt, Rhinehart, and Winston. The last time I checked, both of these excellent volumes were selling for $7.95 each.

Of the introduction techniques, transplanting of plants from the field is the less desireable. While none of the Arizona Pteridophytes are currently protected by state or federal law, many are sufficiently uncommon enough that we don't want to unduly impact the few populations. Also, plants that have been growing in a particular place for several years, are often less flexible in adapting to a change in habitat than plants grown from spores under home conditions.

In some cases propagation from spores is difficult or impossible, so transplanting is the only convenient way of securing a living example. ALWAYS pay close attention to details of the habitat that the plant was originally living in! Try to reproduce these at home. Many ferns are restricted to certain soil or substrate types, so it is a good idea to take a little soil or a few small rocks home from the area to include in the pot or terrarium.

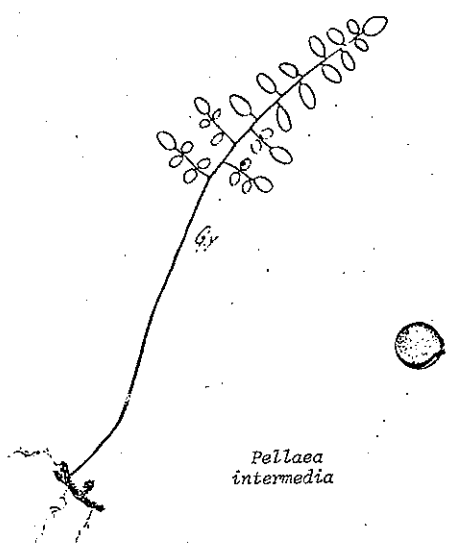
In choosing plants, generally the younger plants are easier to excavate and will suffer less when transplanted. Be careful to get as much of the root as possible and not to disturb nearby plants, if possible. In the case of larger plants, the rhizome (the underground stem of the plant) may sometimes be carefully sectioned with a sharp knife, thus leaving ½ of the plant to nature. Again, be careful to disturb the remaining plants as as little as possible.

Once you get your plant excavated, wrap it in moist paper towels and transport it home in a plastic bag. When planting your fern, try to place it in the pot at the same level,with respect to the soil,that the plant originally grew in. Many rhizomes do not tolerate burial. Generally, at home, your plant will like more shade than it did in the field, espec ially the desert ferns. Make sure to plant in light, porous soil and don't let it dry out. Most of the time the current leaves will die within a few weeks of planting. DON'T DESPAIR! This is common and the true test of success is whether any new growth appears in the next month or so. Some ferns will fool you by going dormant for a while before beginning new growth.

Cultivating ferns from transplants takes patience. Some ferns are more adaptable than others. Many of the desert ferns do very well in my front yard in Tucson year-round, in containers under a tree or on my porch. Others can be used as houseplants indoors, while a few of the tenderer species grow in terrariums. If your fern does not appear to be doing too well after a few months, you may have to experiment.

Next issue we will talk about cultivating ferns from spores, which is the preferred technique. Until then, good luck and fair fronds to you all!

G.Y.



Pellaea intermedia

BOOK REVIEW

Discovering the Desert: Legacy of the Carnegie Desert Botanical Laboratory by William G. McGinnies (University of Arizona Press, Tucson, 1981)

This is an account of the beginnings of scientific study on the extent and nature of deserts, the accomplishments of a small group of scientists dedicated to that research, and about Tumamoc Hill, where it all began. Dr. McGinnies knows whereof he writes. He developed close association with personnel at Carnegie's Desert Botanical Laboratory on Tumamoc Hill while at the University of Arizona in the 1920's. Then, after a research career with the U.S. Forest Service, he returned to the University in 1960 as head of tree-ring studies and arid land activities. He was founder and first director of the Office of Arid Lands Studies. As professor emeritus, Dr. McGinnies continues to serve as consultant to the Office of Arid Lands Studies and on the Tumamoc Hill Committee, an advisory group set up by the President of the University of Arizona to insure that the site and facilities of the "Hill" continue to serve their original purpose.

Dr. McGinnies stated purpose in writing the book is: "To credit the high level of scientific accomplishment by Laboratory personnel and to bring together in readable form the results of their work for the increasing number of people who are interested in deserts and their unique vegetation." In my view, he has succeeded admirably. The text is straightforward, readable, and free of technical jargon. Measurements are given in English units with metric equivalents in parentheses. Since only common names appear in the text list of plant names, both common-scientific and scientific-common equivalents are provided. The bibliography includes the complete list of titles done by personnel of the Laboratory, plus a few closely related, mostly more recent works. Of the over 500 titles in the bibliography, 85 percent were published prior to 1940. Over half of the titles were contributed by four of the men: D.T. MacDougal, Forrest Shreve, B.E. Livingston, and C.W. Cannon.

The book consists of a Forword, Preface, seven chapters, a list of plant names, bibliography, acknowledgements, and an index. The opening chapter is an account of the Laboratory and its work from its opening in 1903; the circumstances related to its closure in 1939; transfer of the property to the U.S. Forest Service in 1940 and then to the University of Arizona in 1960; and its current status.

Chapter 2 introduces the reader to the general nature of deserts, contrasts the North American Desert with other deserts of the world, and then focuses on the four major divisions of the North American Desert. Chapter 3 deals with the fourth division, the Sonoran Desert, and its vegetational subdivisions. Chapters 4 through 7 deal primarily with the climate, soil, physiography and vegetation of deserts, as observed within the Sonoran Desert.

This book will be welcomed by the lay reader who wants to know how plants of the desert survive, but does not want to learn a new vocabulary first. The text is spiced with quotations by Shreve and other Laboratory scientists that expressed their viewpoints at the time or revealed something of the conditions under which they worked. It describes the boundaries to which the science of desert ecology was advanced by workers at the Laboratory.

Research on deserts continues to build on the foundation laid by the Carnegie Desert Botanical Laboratory before it ceased operation on Tumamoc Hill. To close I quote from the Forword by James D. Ebert, President, Carnegie Institution of

Washington: "Today's contributions rest squarely on the shoulders of the giants of the past. For nearly four decades, the geographic frontier of research on desert plants was Tucson, and the intellectual frontier was found in the minds of Forrest Shreve, Frederic E. Clements, Herman Spoehr, and their collegues in the Carnegie Desert Laboratory.

Through William G. McGinnies'book, Discovering the Desert: Legacy of the Carnegie Desert Botanical Laboratory, we can now relive the story of what was, for a significant period, an intellectual oasis in the desert."

S. Clark Martin, School of Renewable Natural Resources, University of Arizona

SOCIETY NOTES

The Phoenix Chapter plans a trip to Ramsey Canyon in the Huachucas and the Mile-Hi Ranch on June 27-28. A visit to The Arizona Nature Conservancy's Canelo Hills Cienega is also planned.

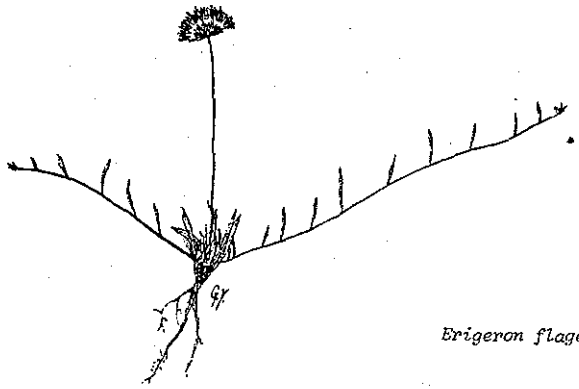
SOCIETY NOTES

Complete calendars were unavailable for both Chapters, but will be included in the next issue of the newsletter...

The Tucson Chapter is planning another visit to El Coronado Ranch to enjoy the diverse flora of the spectacular Chiricahua Mountains, and under the guidance of botanists, ecologists, and a geologist, the long weekend promises to be a memorable one. The Labor Day Weekend activities will begin with a supper on Friday, September 4 and conclude Monday afternoon, September 7. An announcement with details about arrangements and applications for space reservations will be mailed to all Society members in July.

The Phoenix Chapter will not hold monthly meetings during June, July, and August. The Tucson Chapter will follow suit.

Spaces for the Tucson Chapter's trip to Ramsey Canyon and the Mile Hi Ranch have been totally filled. There is always next year.



Erigeron flagellaris

*SCHEDULE OF SUMMER MORNING PROGRAMS OF THE BOYCE THOMPSON ARBORETUM, SUPERIOR
(Editor's Note: This calendar is printed as a service to Society members. All walks are scheduled to start at 9:00 A.M. and should last one through two hours.)

Sunday, June 14 through Saturday, July 11:

Sunday:	State Parks of Arizona - Gary Kuhn
Monday:	How to plant dish gardens using cacti and succulents - Barbara Mulford
Tuesday:	No program presented on this day
Wednesday:	Cacti of Arizona - identification - Kent Newland
Thursday:	Let's go look at bugs! - Carol Crosswhite
Friday:	Garden walk dealing with uses of plants and ethnobotany - Frank Crosswhite
Saturday:	Pruning techniques - tools and objectives - Jeff Clark

Sunday, July 12 through Saturday, August 8:

Sunday:	Hows and whys of growing cacti and succulents - Barbara Mulford
Monday:	Fragrance in the desert garden - Carol Crosswhite
Tuesday:	No programs on this day
Wednesday:	Irrigation systems in the desert garden - Gary Kuhn
Thursday:	Relations of plants with geology and soil types - Frank Crosswhite
Friday:	Landscaping for limited spaces - Jeff Clark
Saturday:	All you ever wanted to know about Boojum Trees but were afraid to ask - Kent Newland

Sunday, August 9 through Saturday, September 5:

Sunday:	A closer look at succulent plants - Carol Crosswhite
Monday:	Garden walk to look at shade trees - Greg Kuhn
Tuesday:	No programs presented on this day
Wednesday:	Agave and its relatives - Kent Newland
Thursday:	Arid land substitutes for traditional landscape materials - Kent Newland
Friday:	How to plant trees and shrubs - Jeff Clark
Saturday:	Plants of the Bible - Frank Crosswhite

Sunday, September 6 through Saturday, October 3:

Sunday:	Landscaping for wildlife - Barbara Mulford
Monday:	History and botanical exploration of Arizona - Frank Crosswhite
Tuesday:	No programs presented on this day
Wednesday:	The use of native plants for landscaping - Jeff Clark
Thursday:	Plant materials for walls and trellises - Gary Kuhn
Friday:	Bird-watching talk; bring binoculars and a field guide - Carol Crosswhite
Saturday:	Trichocereus, Lobivia, or Echinopsis ? - Kent Newland

*Schedule of events courtesy of Boyce Thompson Arboretum.

MISCELLANEOUS NOTES

NOTICE ON PROPOSED ADDITIONS TO THE ARIZONA NATIVE PLANT LAW

Arizona is fortunate to have a Native Plant Law that provides for many of our unique plants. The law is most effective and useful in controlling the exploitation of plants for landscaping and the trade in cacti and succulents. Most of the plants in the law can be collected for these purposes if the proper permits are obtained. In section 3-901B a number of plants receive a greater degree of protection and can only be collected for scientific or educational purposes.

The Arizona Natural Heritage Program has recently submitted the names of fouteen rare plants to be added to the list of plants protected under Section 3-901B. Status reports prepared by ANHP, U.S. Fish and Wildlife Service, U.S. Forest Service, and the Bureau of Land Management botanists were included for each plant. These report the distributions, habitats, and threats to each of these species. All of them have been proposed for threatened or endangered status by the federal agencies and are ANHP special plants.

If these plants receive protection under the Arizona Native Plant Law it will be a significant change in policy. None of the plants are important in the horticultural trade. None are best protected through law enforcement, but through proper land management or land acquisition by private conservation groups. Adding them to the State list would greatly encourage federal agencies to manage the conservation of these plants.

The plants can be added to the Arizona Native Plant Law through a relatively easy change in regulation. The proposed additions will probably be considered at a public hearing at the October meeting of the Arizona Commission of Agriculture and Horticulture. Your support by letter (to Lynn Anderson Chairman of the Commission, 1688 West Adams, Phoenix, Arizona 85007, prior to June 30) or personal appearance at the hearing could help.

The proposed plants are:

Apacheria chiricahuensis	Chiricahua Rock Flower
Cimicifuga arizonica	Arizone Bugbane
Cowania subintegra	Burro Creek Cliffrose
Erigeron kuschei	Kusch Fleabane
Eriogonum apachense	San Carlos Wild Buckwheat
Eriogonum mortonianum	Morton Wild Buckwheat
Eriogonum thompsonae atwoodii	Atwood Wild Buckwheat
Errazurizia rotundata	Roundleaf Errazurizia
Hedeoma diffusum	Flagstaff Pennyroyal
Penstemon clutei	Sunset Crater Beardtongue
Potentilla multifoliata	Arizona Cinquefoil
Rumex orthoneurus	Chiricahua Dock
Senecio franciscanus	San Francisco Groundsel
Vacquelinia pauciflora	Guadalupe Canyon Rosewood

1981

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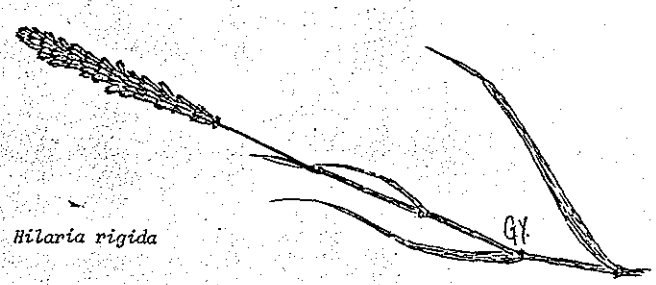

Hilaria rigida