

Newsletter of the Arizona Native Plant Society

Vol. 2, No. 2
Summer, 1978

MEMBERSHIP IN THE SOCIETY

Persons interested in plants either indigenous to Arizona or introduced but well adapted to our climate are invited to join the Arizona Native Plant Society. The schedule of dues is as follows -- Patron, \$100; Sponsor, \$50; Family, \$15; Institution, \$15; Individual, \$10; Senior Citizen, \$5; Commercial, \$50-\$100. Dues should be sent to the address below.

ARIZONA NATIVE PLANT SOCIETY
P.O. BOX 18519
TUCSON, ARIZONA 85731

OFFICERS

Frank S. Crosswhite	President
Ron Gass	Vice-President
Wayne Marx	Treasurer
Larry Holzworth	Corresponding Secretary
Irene Ferguson	Recording Secretary

BOARD OF DIRECTORS

BRADY, E. LEROY, Arizona Department of Transportation
CROSSWHITE, FRANK S., Boyce Thompson Southwestern Arboretum
DUCOTE, DON, Arizona-Sonora Desert Museum
ENGARD, RODNEY, Desert Botanical Garden of Arizona
GASS, RON, Mountain States Wholesale Nursery
HAMILTON, LOUIS, Copper State Chemical Co.
HAY, JOHN L., UA Office of Arid Lands Studies
HOGAN, LEMOYNE, UA Department of Plant Sciences
HOLZWORTH, LARRY K., U.S. Soil Conservation Service
JONES, WARREN, UA School of Renewable Natural Resources
LAMBERT, DICK, Arizona Landscape Contractors Association
MARX, WAYNE, Frontier Landscaping
MCGINNIES, WILLIAM, UA Office of Arid Lands Studies
PATTEN, DUNCAN T., ASU Dept. of Botany
AYBURN, F. MORGAN, Editor, *Que Pasa*
SACAMANO, CHARLES, UA Department of Plant Sciences
VINCENT, IRVING, Attorney and Counselor at Law

EUCALYPTUS FOR SOUTHERN ARIZONA

Ron Gass, President of Mountain States Wholesale Nursery north of Scottsdale, has expanded his study of adapted *Eucalyptus*. Ron began introducing species into Arizona several years ago. In 1974 he had 35 kinds in the nursery. Now he has 120 under propagation, most from western Australia. He has culled over species offerings to choose ones coming from climates similar to that of southern Arizona. Most of the seeds were obtained from commercial collectors located in Australia.

Much homework on choosing species was coupled with written correspondence and even transoceanic telephone calls to assemble the species being tested. There are approximately 670 different kinds of *Eucalyptus* in Australia and Tasmania. Only a small fraction are truly adapted to the desert. Many grow in rather mesic to moist areas and are not at all adapted to the desert of southern Arizona.

Eucalyptus previously planted in the state has for the most part been brought in from southern California. A notable exception has been the collection of 85 kinds assembled over the years at the Boyce Thompson Southwestern Arboretum near Superior through that institution's seed exchange program. Some of the species which have proven of value at the Arboretum are *Eucalyptus campaspe* and *E. microtheca*. Species that thrive in California have proven to be not as well adapted to the Arizona climate.

Ron is setting up tests of his new introductions at the Arizona State University Experiment Farm in south Tempe, the Soil Conservation Service Plant Materials Center in Tucson, the Desert Botanical Garden in Phoenix and Central Arizona College between Coolidge and Casa Grande. After the current plants are established, he is already thinking of increasing the number of ecotypes to be tested for the most promising species. Ron was trained as a horticulturist at the University of Arizona, Tucson. For several years he has been the major supplier of living native plants in Arizona.

PLANT SEARCH IN NORTHEASTERN STATES OF MEXICO

Warren Jones, Professor of Landscape Architecture in the UA School of Renewable Natural Resources, reports his recent expedition to Chihuahua, Coahuila, Nuevo Leon, Torreon and Zacatecas August 9-16. His purpose in going was to look for hardy desert plants that can withstand both cold and drought. The area covered is that of the bulk of the Chihuahuan Desert. This desert has already yielded plants of importance in landscape architecture in the Southwest, such as "Texas Ranger" (*Leucophyllum*). The Chihuahuan Desert has not yet thoroughly been exploited for landscaping introductions, however.

The expedition also included persons from the Arizona-Sonora Desert Museum, the UA Laboratory of Paleoenvironmental Studies and the UA Herbarium.

SIERRABLEN NURSERY MIX

For those who like to use a controlled release fertilizer for growing seedlings and container plants, Sierra Chemical Company of California has released a new product. "Sierrablen Nursery Mix" includes not only "Osmocote" controlled release fertilizer, but also enough rapidly available nitrogen and iron to take care of "those critical early days after potting-up." Controlled release fertilizers consist of chemicals encapsulated in a plastic or membrane-like covering. With each watering a small amount of fertilizer diffuses from the capsules and becomes available to the roots. These slow-release fertilizers revolutionized the container-plant nursery industry a few years ago, gaining almost universal acceptance.

LEAF TERMINOLOGY USED IN PLANT IDENTIFICATION

The two accompanying plates contain 58 labelled drawings illustrating correct application of terms commonly used in comparing leaves. Knowledge of these terms is necessary if a person is to identify a plant using one of the standard guides such as *Arizona Flora* by Thomas Kearney and Robert Debles (University of California Press, ed. 2, 1964, 1085 pp.). Ordinarily a particular species displays quite definite leaf morphology which is subject to very little variation. A few plant species may be confusingly variable in one or more leaf

characteristics.

Veins of leaves are *palmate* if they radiate from the base like fingers of a palm. Veins are *pinnate* if they extend laterally from the midvein like the pinnae of a feather. Some plants have veins which extend from the base to apex in *parallel* fashion.

A leaf may also be either lobed, cleft, parted or divided in a palmate or pinnate fashion. *Divided* indicates a separation all the way to the midvein. Such a divided leaf is referred to as *compound* and the divisions as *leaflets*. The terms *parted*, *cleft* and *lobed* indicate progressively less separation. A leaf that is not compound is referred to as being *simple*.

In studying a plant's leaves, it is extremely important to first determine the exact extent of a single leaf. It is common for persons to confuse a leaflet of a compound leaf with a single true leaf. A true leaf ordinarily has a bud at its base. The *bud* is always in the same position -- a crotch between the leaf and stem referred to as the leaf *axil*. The bud is never present in the axil of a leaflet.

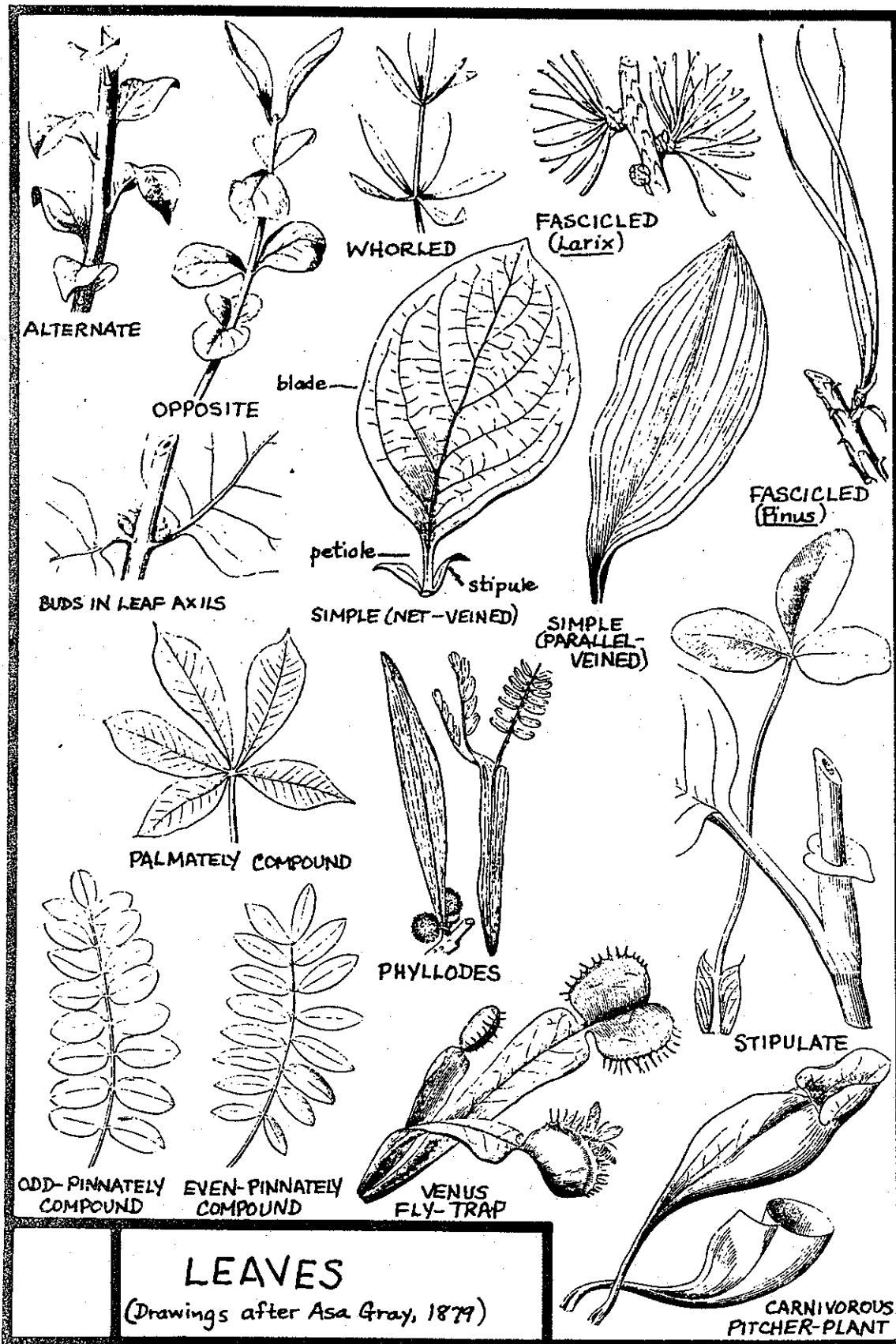
A leaf ordinarily has an expanded upper part (*blade or lamina*) and a contracted lower part (*petiole*) by which it is attached. Leaves which lack petioles are said to be *sessile*.

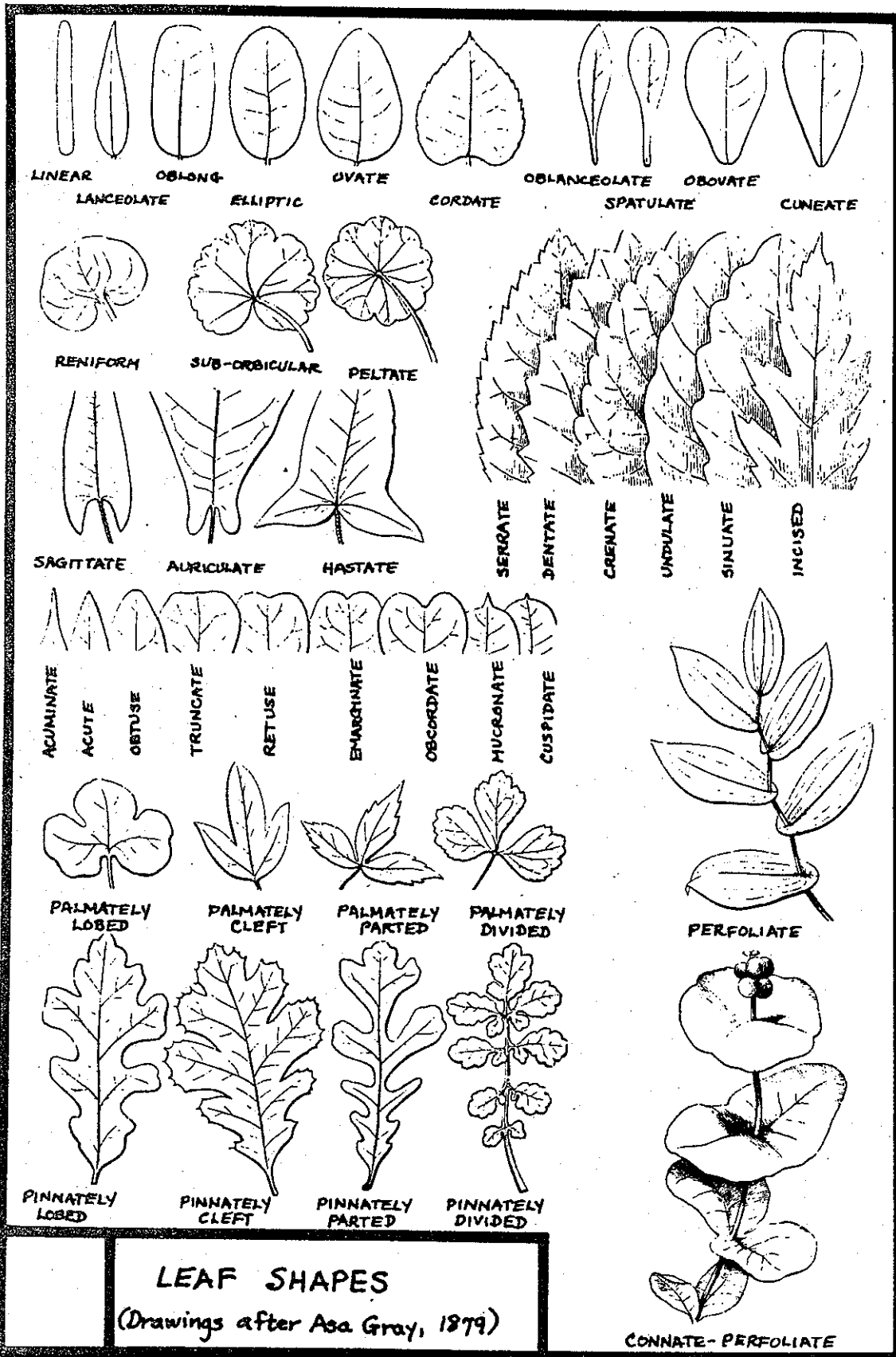
A petiole which takes on the function of a blade is referred to as a *phyllode*. Many species of Australian *Acacia* have phyllodes. In Juvenile condition they bear tiny leaflets similar to those of native Arizona *Acacia*. Leaflets are absent from the mature plants and the expanded phyllodes give the impression of a quite unrelated plant.

A leaf may have divisions at the base termed *stipules*. These divisions do not render the leaf compound. A leaf with stipules is referred to as being *stipulate*.

Specific terms are used in describing over-all leaf shape, leaf *margin* (edge), leaf *base* and leaf *apex*. Leaves which encircle a stem are termed *perfoliate*. If opposite leaves are fused together to envelope the stem, they are termed *connate-perfoliate*.

The terms in the accompanying plates are illustrated by the classic standard drawings of Asa Gray in 1879. Most of these terms are self-explanatory when joined to the drawings.





LEAF SHAPES
 (Drawings after Asa Gray, 1879)

KEEP US INFORMED

One function of the Society is the exchange of information. If you are active in the native plant field, please share your findings and activities with us. Send information to the newsletter editor at the address below.

FRANK S. CROSSWHITE
P.O. BOX AB
SUPERIOR, ARIZONA 85273

COMPUTERIZED INFORMATION SYSTEM
ON ARID-ZONE LANDSCAPING PLANTS

Mariana Holland, graduate student in the Landscape Architecture Program at the University of Arizona is engaged in developing a computerized information system for arid land plants, using the plant collection at the Boyce Thompson Southwestern Arboretum as a data base. It is hoped that information concerning well-adapted plant species can be presented in readily usable computer print-outs subject to rapid update so as to aid landscape architects in responsible and sensitive design and planning.

TUCSON LANDSCAPE AND GARDEN SHOW,
TUCSON COMMUNITY CENTER -- OCT. 6-8

The second annual plant show at the Tucson Community Center is planned for the following hours --

Friday, Oct. 6 -- 2 p.m. to 10 p.m.
Saturday, Oct. 7 -- noon to 10 p.m.
Sunday, Oct. 8 -- noon to 6 p.m.

Sponsor of the event is Richlyn Companies, Inc., who also sponsor the annual Phoenix show in the Civic Plaza. Several hundred people will work feverishly bringing tons of displays into the huge downtown Community Center. In fact, a whole city of plant booths will be built by carpenters and other workers by noon on Friday, only to be completely dismantled and removed Sunday night and Monday morning! Exhibitors pay anywhere from \$225 to \$700 for the privilege of having a booth, not including construction costs. Many exhibitors spend more on construction than for the space rental. We can expect to see some very nice exhibits, including several with arid land plants.

JOJOBA HAPPENINGS

Jojoba Happenings is an international quarterly newsletter that keeps persons and organizations interested in jojoba research and development aware of the most recent activities. It has been published since 1972 by the Office of Arid Lands Studies, University of Arizona. Annual subscriptions (calendar year, 4 issues) are \$5.00 (U.S.), check or money order payable to Office of Arid Lands Studies, University of Arizona, 845 North Park Avenue, Tucson, Arizona 85719 USA.

LANDSCAPE DATA MANUAL
IN THIRD EDITION

The California Landscape Contractor's Association has released a new edition of the "Landscape Data Manual." This is intended to provide charts and tables of weights, densities, coverages, spacing and other physical considerations for various landscaping materials such as soils, aggregates, lumber, masonry and plant materials. The book is available to schools and professionals in the landscaping industry at \$11.00 per copy from CLCA, 6252 East Telegraph Road, Los Angeles, California 90040.

FIELD-TRIP TO SEE
AMOREUXIA PALMATIFIDA

The Desert Botanical Garden in Phoenix has announced an upcoming field-trip to the Arivaca region to study *Amoreuxia palmatifida* in the Cochlospermaceae family. This striking plant is herbaceous from a large tuberlike root. The bright orange flowers are up to three inches long and are prominently blotched with maroon-red spots. The fruit, which is said to be used as food in Mexico, has a rather unusual structure. It is a dry dehiscent fruit properly classified as a capsule. The hard outer wall separates from the thin inner wall at maturity. As the outer wall falls away, the seeds are visible through the transparent inner wall as if through a window. The roots of the plant have been roasted and eaten as food in southern Arizona. For information on this field-trip or on other upcoming DBG events, call 947-2800. Date of this trip is Saturday, August 26.

R. THERESA FLORES TO STUDY NATIVE MEDICINAL PLANTS OF SAN CARLOS APACHE

Dr. Theresa Flores, psychologist and community health specialist at San Carlos, is beginning a thorough study of medicinal herbs indigenous to the San Carlos Apache Reservation. She has already gained much information from elders in the community.

She is preparing herbarium specimens of plants pointed out by Indian medicine practitioners. These will be identified by personnel of the Boyce Thompson Southwestern Arboretum, with back-up assistance from the University of Arizona Herbarium if needed.

DR. MARGARITA ARTSCHWAGER KAY PLANS MONOGRAPH ON NATIVE MEDICINAL PLANTS

A historical monograph on medicinal plants native to southern Arizona is being planned by Dr. Margarita Artschwager Kay of the University of Arizona College of Nursing. Dr. Kay is well-known for previous publications in this field. When the work is completed she wants it to become a guide for establishing a living museum of native medicinal plants in conjunction with some institution such as the Arizona State Museum. Such a garden of native medicinal plants should be of special interest to our membership.

MYCORRHIZAL FUNGI OF NATIVE DESERT PLANTS

Symbiotic fungi growing in association with roots of native desert plants may be utilized to increase productivity and disease resistance of crop plants. At least this is the hope of two University of Arizona scientists, Drs. Earl Bloss (Plant Pathology) and Eugene Mielke (Plant Sciences). They are studying effects of mycorrhizal fungi on plant growth in Arizona. One phase of the project involves identifying "native" mycorrhizal fungi associated with indigenous vegetation. These mycorrhizal fungi may confer on a plant the ability to better utilize certain mineral nutrients, to better transport and utilize water or display resistance to certain plant diseases. It is possible that crop plants currently grown in Arizona could benefit from inoculation of "native" mycorrhizal fungi.

A VISIT TO ROPER LAKE STATE PARK

Recently the newsletter editor made a trip to Roper Lake State Park to help in identifying some of the native plants to be featured in a nature trail under construction. The new trail will start at the headquarters building and wind uphill away from the lake to a flat-top mesa covered with Pygmy Buckwheat, *Chorizanthe rigida*. Along the way up the hill the most common plants were Creosote-bush, *Larrea tridentata*, and three species of Saltbush. These were Shad-scale, *Atriplex confertifolia*, Four-wing, *A. canescens*, and Little-leaf or Desert Saltbush, *A. polycarpa*. The trail passes an alkaline artesian water source which flows eventually into Roper Lake.

Abundant Salt-cedar, *Tamarix pentandra*, was growing wherever this water was available. Salt glands in the leaves of this plant actually excrete salt and allow it to utilize such salty water. The most interesting cactus observed on the new trail was the Devil's Club or Ground Cholla, *Opuntia stanlyi*. This unusual cactus seems to fit the form of a Hedgehog Cactus more than that of a Cholla or Prickly Pear. Nevertheless, it is a true *Opuntia*. As a state resource, Roper Lake originally was administered by the Arizona Game and Fish Department. Now it is managed by the State Parks Board with the Arizona Game and Fish Department cooperating.

