

Native Plant Society of New Mexico ***newsletter***

VOLUME VII NO. 1

JANUARY - FEBRUARY 1982

- January 7 Glenn Niner Chapter meets (first Thursday of each month) at the Middle Rio Grande Branch Station, Los Lunas. 7pm. Dan Scurlock will speak on "Medicinal Plants of the Rio Abajo."
- January 20 Albuquerque Chapter meets at the Albuquerque Garden Center, 10120 Lomas Blvd., NE, 7:30pm. Jack Hawley of Wildland & Native Seeds Foundation will discuss seed collecting and storage.
- January 20 Santa Fe Chapter meets at St. John's College, Laboratory Building, Room 122, 7:30pm.
- February 4 Glenn Niner Chapter meets at the Middle Rio Grande Branch Station, Los Lunas. 7pm.
- February 17 Santa Fe Chapter meets at St. John's College, Laboratory Building, Room 122, 7:30pm.
- February 17 Albuquerque Chapter meets at the Albuquerque Garden Center, 10120 Lomas Blvd., NE, 7:30pm.



NOW IS THE TIME TO PAY YOUR NPS DUES!

Please send your 1982 membership dues to our new membership chairman Iris David, P.O. Box 5917, Santa Fe, N.M. 87502.

Regular membership is now \$8.00 per year, or be a Friend of the Society for \$25.00 or more. All members receive the newsletter and a membership roster.

The deadline for renewing and keeping your name on the roster is February 15th.

GLENN NINER NATIVE PLANT PARTY

The Glenn Niner Chapter hosted a native plant food party for their December meeting. The menu included Indian Ricegrass Seed Bread, Navajo Cottage Cheese (the rennet agent is silverleaf nightshade berries), Prickly pear jelly and candy, and pinon nuts. Recipes are available for these dishes plus a few wines. We hope to expand this and make it an annual event.

A WORD FROM NPS STATE PRESIDENT-ELECT

It is a privilege to follow Fairley Barnes in the office of President of the Native Plant Society of New Mexico and to set as our 1982 goal the acceleration of her deep concern for the well-being of earth and life.

New Mexico is taking its place among pace-setters in the West for judicious care of our world and for the responsibility of leaving to inheriting generations the same enchantments willed to us in our time by Nature itself.

A free-standing mountain never goes out of style. Nowhere is it written that we "must" destroy such things before our grandchildren ever see them. There are no elk, aspens, cranes, or penstemons in outer space. We have ours, and we keep them or we lose them. Forever is too long to go without eagles and streams.

Mary C. Wohlers
December 28, 1981

Rt. 3, Box 767
Los Lunas, N.M. 87031

AUDUBON SHOWS US HOW TO SPEAK OUT & BE HEARD

In November of 1981 the National Audubon Society held a two-day workshop in Albuquerque, concentrating on techniques of effective citizen action in influencing both national and local legislation on behalf of preservation of natural resources and the protection of life.

Mr. Kenneth Berlin of the Audubon office in Washington, D.C., an attorney and full-time lobbyist-expert in rare and endangered species, told the Albuquerque audience that with respect to Congressional action New Mexico is now the most influential of the Western states, owing largely to membership of Senators Domenici and Lujan on key committees affecting the environment.

The Native Plant Society of New Mexico may not itself act to influence legislation because of its tax-exempt status, which precludes direct political involvement. It may and it does encourage members as individuals to write, phone, telegraph, and personally buttonhole all representatives

and senators to make the conservation point of view clear.

Mr. Berlin feels that as we demonstrate skill and competence in presentation of our case, we should expect to be asked for expert opinion by Congress. It will assist him materially to receive from us copies of what we write, or at least a statement that we have written, so that he has the evidence at hand to support his position during hearings.

Dr. Dede Armentrout, Audubon representative from the Regional Office at Brownwood, Texas, spoke from abundant experience of ways to go after publicity and editorial support in the media. She, too, would appreciate copies of letters. Besides free and well-worked-up handouts from the Audubon Society, she made available for \$2.50 The Guide For Citizen Action, a 40-page booklet of detailed information about the most efficient and direct procedures. She recommended letter-writing parties as a successful means of applying legitimate pressure upon legislators.

A number of local speakers addressed the meeting, and their thoughtful comments will be mentioned from time to time in future newsletters.

May we recommend that every chapter own and use at least one copy of The Guide For Citizen Action.

Send copies of your letters to:

Kenneth Berlin
National Capitol Office
National Audubon Society
645 Pennsylvania Ave., S.E.
Washington, D.C. 20003
phone(202) 547-9009

AND

National Audubon Society
Southwest Regional Office
P.O. Box 416
Brownwood, TX 76801

attn. Dr. Dede Armentrout
phone(915) 646-6586

A letter-writing party sounds like a good idea for a January or February meeting.

HIGHLIGHTS FROM THE ANNUAL MEETING OF THE EXECUTIVE BOARD

Our Executive Board meeting met December 5th in Santa Fe with fourteen members present. The Society increased by 44% in 1981, and three new chapters were formed in Los Lunas, Otero-Lincoln counties, and Roswell. Outgoing State Coordinator Fairley Barnes stated that it was exciting to see the Society growing so rapidly. Our new leaders for 1982 are:

Mary Wohlers, State President
Bill Mayfield, Vice President
Nina Eppley, Corres. Secretary
Frances Silverman, Treasurer
Iris David, Membership Chairman
Lisa Johnston and Judith Phillips, Co-editors of the newsletter
Anna Deardorff, Education committee chairman
Lisa Johnston, Logo committee chairman
???????? Conservation committee chairman (Could it be you?)

A few words about our new officers and chairmen - Mary Wohlers brings a wealth of experience and concern for the natural world with her to the office of State President. Her experience in California and her involvement with the California Native Plant Society during its formation will surely help the Society as it continues to grow and achieve its goals.

Bill Mayfield has helped to organize the new Otero-Lincoln Chapter as well as the Southeastern New Mexico Chapter. He will continue to help members form local chapters around the state in the office of vice president.

Nina Eppley is another of the southern New Mexico members who has been instrumental in the formation of the Southeastern New Mexico Chapter.

Frances Silverman of the Santa Fe Chapter willingly stepped in as 1981 Treasurer pro tem and will continue in that office with the goal of formalizing the bookkeeping somewhat. She reported that at the time of the meeting (Dec.5th) the State account showed a balance of \$772.26. The majority of this money pays for the printing and mailing of the newsletter.

Iris David, Santa Fe Chapter, will take on the big job of maintaining our membership files and enrolling new members. Some of the clerical burden of this job will be ably handled by volunteers in Los Lunas who have access to a word processor. Please send your dues for 1982 to Iris care of our NPS mailbox (5917) in Santa Fe this month.

The Co-editors of the newsletter, Lisa Johnston and Judith Phillips, are both in the Albuquerque and Los Lunas area. With the help of constant reporting from each chapter, they can help inform members of coming NPS events around the state as well as coordinate the various projects under way.

As education chairman, Anna Deardorff's main project is to assemble a slide collection illustrating our flora and plant communities which can be drawn upon by any chapter. She also will seek to compile a speaker's list of members who can present illustrated talks to schools, NPS chapters, etc. There is some money available for duplicating slides, so you photographers out there would want to share some of your fine work, please submit your slides to her for copying, care of the NPS, P.O. Box 5917 in Santa Fe.

The Logo committee's goal for 1982 is to choose a graphic design for the Society which we can use everywhere and which will represent us in the public eye.

The Executive Board is still searching for a Conservation committee chairman to lead a committee of one member from each chapter, at least, in speaking to and for the Native Plant Society on the important issues of conserving our natural landscapes and rare plants. This most important task cannot go begging! Please contact Mary Wohlers if you can accept the challenge. The committee does have some members already but needs a chairman as a focal point.

The new by-laws of the Society were approved, and the Executive Board accepted the petitions for chapter formation from the Glenn Niner Chapter, Los Lunas; the Otero-Lincoln Chapter, in those counties; and the Southeastern New Mexico Chapter, centered in Roswell. Arrangements were

made to provide new chapters with some financial assistance until they establish their own fundraising power.

Considerable discussion took place of the possibility that the Reagan administration will drop plants from the Rare and Endangered Species Act this year. The Executive Board informally agreed that the fight to retain legal protection for rare and endangered plants was an important one and one which the Society should focus its energies on in early 1982 - now. See the "AUCUBON SHOWS US ..." article in this newsletter for more details and suggestions as to what NPS members can do to speak up effectively for preserving rare and endangered plants.



FINDLING WELCOMES NPS ACTION IN STATE PARKS

The State Parks and Recreation Division is experimenting with native plant landscaping at several of its park facilities, the Santa Fe NPS learned at its November meeting when Bob Findling, head of the State Parks Planning Office spoke to the group. He also made it known that NPS Chapters around the state could really contribute to interpretive efforts at State Parks by compiling plant species lists, helping propagate seedlings to use in park landscaping, and collecting wild seed.

Due to the expense of revegetation, the goal of the state park planners has been to disturb as little as possible of the natural vegetative cover when the development of the site is taking place. Did you know that 80% of compaction of a soil occurs with the first footfall upon an area? Rejuvenation of compacted soil is a real challenge. That's why the footpaths are often officially designated after the first crowd of visitors has laid them out - put the paths where the people walk because they'll walk there anyway.

Most of the native planting done in state parks in New Mexico has been with cactus and succulents. They are easy to transplant and park visitors do not disturb them. A 2.5 acre area at Smokey Bear Historical

State Park in Capitan has been intensively landscaped with native plants, many of which are not cacti and include some 60,000 wildflowers. A small pond and artificial stream were constructed to create microenvironments for different plant communities, which eventually will be interpreted. At Oliver Lee Memorial State Park, south of Alamogordo at Dog Canyon, they will be doing some interpretive native plant landscaping around the new visitor center. A botanical garden is part of the City of Rocks State Park near Faywood, New Mexico, and Pancho Villa State Park features a good cacti display.

One of the problems faced by park managers is that people who prefer naturalistic landscaping rarely write to express their support for the simple, undeveloped parks. The most vocal groups say they want various facilities including sewer and electric hookups, and other conveniences. Park administrators generally are supportive of some RV development, arguing that senior citizens will not visit parks that lack these facilities.

The State Parks Division is also doing some native plant landscaping around the Villagra Building in Santa Fe, which is the headquarters for the Natural Resources Department. They are experimenting with a temporary drip irrigation system that can be dismantled and reused elsewhere when the plants are well established. This project is under the direction of Bob Findling.

Send your letters of support for your favorite State Park to Bob Findling, State Parks Planning Office, Villagra Building, Santa Fe, N.M. 87503, with the all-important copies to The Secretary of the Department of Natural Resources, Bill Huey, Villagra Building, etc., and to the Governor, Bruce King, Capitol Building, Santa Fe, N.M. 87503.

NPS Chapters interested in preparing plant surveys, propagation and/or seed collecting in the State Parks contact Peter Greene, State Parks Planner at 827-2166, same address as Bob F.



PUBLICATIONS OF INTEREST

Trees and Shrubs of the Southwestern Deserts. Third Ed. Lyman Benson and Robert Darrow. More than 500 illustrations and 250 maps, 430 pages. Cloth \$49.50. Available from University of Arizona Press, Box 3398, Tuscon, AZ 85722

Discovering the Desert: The Legacy of the Carnegie Desert Botanical Laboratory. William G. McGinnies. 250 pages, cloth \$21.95, paper \$9.50. Available from the University of Arizona Press, Box 3398, Tuscon, AZ 85722.

Endangered Plant Species of the World and their Endangered Habitats: A Compilation of the Literature. \$3.50, available from the New York Botanical Garden, Publications Office, Bronx, NY 10458. This is a comprehensive bibliography of literature up to 1978. For 10¢ a page, the publisher will send reproductions of articles included in this bibliography.

Common Texas Grasses: an Illustrated Guide Texas A & M Press, Drawer C, College Station, TX 77843, 1979. 267 pages, \$10.95 cloth, \$6.95 paper. A guide to the 150 most common grasses of Texas, including their uses and containing keys and glossary.

And Some Brought Flowers: Plants in a New World. Mary Alice Downie and Mary Hamilton. University of Toronto Press, 33 East Tupper St., Buffalo, NY 14203, \$24.95. A selection of 70 plants, illustrated in delicate color, briefly described, with interesting quotations from early travelers in North America from 17th through 19th centuries, and with short biographies of the writers.

Biogeography of the Intermountain Region. Dr. James Reveal, *Mentzelia* #4, Journal of the Northern Nevada Native Plant Society. Single copies, \$5 each from NNNPS, Box 8965, Reno, NV 89507

THE NATIONAL ALLIANCE FOR PLANTS

The National Alliance for Plants is part of a grassroots effort to save native plants. It is an outgrowth of Alice Q. Howard's work as an amateur lobbyist on rare plant legislation, beginning in 1977. She is the editor of *Network*, "an intermittent newsletter to friends of the native flora", which is an informational newsletter with a political focus. In a recent issue, she outlined briefly the history and the goals of NAP: "Events surrounding the re-authorization process for the Endangered Species Act in 1979 convinced many of us that national public support for native plants was badly needed. Animals have long had vocal, well-organized supporters. Plants have tended to get second-class treatment because they haven't had them. We think they are out there, just not organized effectively.

"NAP will try to alert you to situations where public comments in a timely manner may help to change things for the better for plants. Many people have never dabbled in politics and might even find the thought repugnant. If things are to change, we shall have to plunge in. It gets easier with practice."

We will bring you a few highlights from *Network* each time it is issued. If you would like to receive it yourself, contact NAP, c/o Alice Q. Howard, 6415 Regent Street, Oakland, CA 94618. Donations to NAP are always acceptable.



TOXIC PLANTS AS POSSIBLE HUMAN TERATOGENS

by Wendell W. Kilgore, Donald G. Crosby, Arthur L. Craigmill, Norman K. Poppen

reprinted from California Agriculture, Nov.-Dec., 1981.

Circumstantial evidence points to lupine toxin in goat's milk as cause of human birth defects.

Teratogens are substances that cause birth defects. Although nongenetic deformities have been recorded throughout human history, evidence that they could be caused by exposure to toxic chemicals did not appear until the 1930's, and it was the 1961 Thalidomide episode that generated today's public concern over teratogenic chemicals. Compounds as chemically diverse as vitamin D, quinine, aspirin, marijuana cannabinoids, and 2,4-D have shown some evidence of teratogenicity in laboratory rodents. We now suspect that toxic constituents of common plants may contribute to human birth defects.

Birth defects in domestic animals are commonplace. In 1960, Wayne Binns and his USDA co-workers discovered that a severe skull deformity known as "monkey-faced lamb," which had been thought hereditary, could be produced by feeding a toxic range plant, Veratrum californicum, to the dams during early pregnancy. Another deformity commonly observed by ranchers was "crooked-calf disease," characterized by bone abnormalities in the forelimbs and, to a lesser extent, spine and skull (scoliosis and cleft palate); K.A. Wagnon proposed that range lupines (Lupinus spp.) might be the cause, and Binns later proved it with feeding experiments in pregnant cows. More detailed investigation by Richard Keeler over the past few years shows that crooked-calf disease can be directly attributed to ingestion of a specific lupine alkaloid, known as anagryne, by the mother at some time during the second or third month of pregnancy.

In September 1980, a baby boy born in the mountainous backcountry of northwestern California (Trinity County) was brought to the U.C. Medical Center in Sacramento with severe bone deformities in his arms and hands, including a partial absence of

forearm bones (radial aplasia) and absent thumbs. Extensive medical histories and genetic analyses of his parents indicated that the probable cause was environmental rather than hereditary, and his mother feared that somehow exposure to 2,4-D spraying was responsible; popular association of forest spraying and a reportedly high incidence of birth defects in northwestern California and southern Oregon has been highly publicized in recent years and has become controversial. Indeed, it appears likely that this herbicide had been applied to a forested ridge several miles distant from the mother's home more than a year before the child's conception, but no closer. She provided the evidence that her goats also gave birth to kids stillborn or with deformed legs during and after the period of her pregnancy, and that puppies born to a dog fed the goat's milk during pregnancy were likewise deformed. (Local goat's milk has become a common food item in the area, and the child's mother drank it regularly herself throughout pregnancy.)

Our examination of the animals' deformed bones revealed a distinct similarity to those of calves born with crooked-calf disease and to those of the little boy. A thorough survey of nearby areas where the goats had regularly browsed at the time of the mother's early pregnancy showed that a perennial lupine, identified as the widely distributed Lupinus latifolius, often formed the principal lowgrowing forage. Gas chromatographic analysis of seeds and dry foliage from these plants showed them to be very high in anagryne.

Other alkaloids, such as those from tansy ragwort (Senecio) already have been shown to transfer readily into the milk of animals to which they or their plant source have been fed. When we fed the lupine seeds to a lactating goat, anagryne and other alkaloids were detected almost immediately in the milk by gas chromatography/mass spectrometry.

Today, the presence at that time of 2,4-D in the mother's environment cannot be proved or disproved. However, the circumstances rule out significant exposure, and an alternative explanation of these simultaneous deformities is needed. We propose the possibility that anagryne or



Lupinus latifolius

var. latifolius

a similar alkaloid from the lupines was the teratogen, that it was transferred to the mother in milk of the foraging goats, and that the embryo was exposed at the critical time for limb formation during the second month of development.

This hypothesis has some analogy in the well-known "milk-sickness" of the last century, in which the toxic tremetol in snakeroot (*Eupatorium rugosum*) poisoned many people who drank milk from foraging cows that had fed on the plant. Keeler demonstrated through feeding tests the teratogenicity of wild tobacco (*Nicotiana*), poison hemlock (*Conium*), and skunk cabbage (*Veratrum*) in sheep or cattle, and all three were found in browsing areas near the child's home. *Lupinus latifolius* has not previously been indicated to be teratogenic, although the crooked-calf

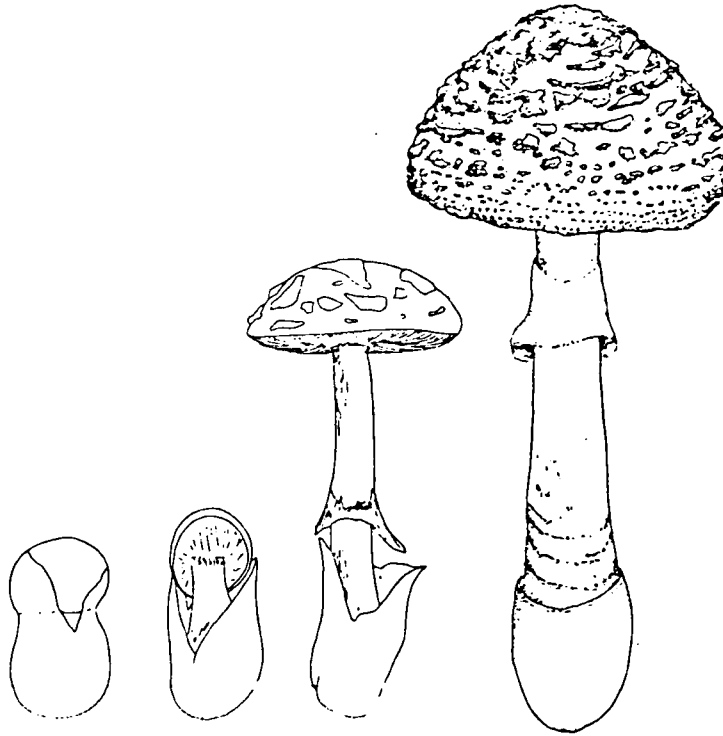
disease has been found within its geographic range, but a number of other perennial lupine species cause deformities in cattle. Goats seem especially prone to browse on toxic plants, and, in winter, the perennial lupines may make up a substantial part of the available forage.

Admittedly, our evidence is circumstantial. Anagryne-containing milk cannot be fed to human mothers, and the high potency of the teratogen during a short period early in pregnancy almost certainly precludes its analytical detection by the time any defects could be recognized. Epidemiological correlation of specific deformities with the incidence of toxic plant species or dietary peculiarities might produce positive leads, but adequate proof may be long in coming.

Possible harm might have been largely circumvented by avoiding milk products from foraging cows and goats during the first trimester of human pregnancy or by restricting the foraging of milk-animals during that period. The extent of the hazard is not known at present - if it had not been for chance and the striking deformity, even this case would have escaped investigation. However, the ease with which some alkaloids and other substances apparently can pass into milk suggests that an important route of prenatal exposure to plant toxins has been previously overlooked.

"A number of natural (plant) chemicals seem to be transferred from forage into milk (witness 'off taste' in some milk, especially if the cow has been eating *Allium* [onion], but this is the first sign that they can cause trouble in people," added Donald Crosby in a letter to Mary Wohlers.

Kilgore and Crosby are Professors, Dept. of Environmental Toxicology; Draigmill is Toxicology Specialist, Cooperative Extension; Poppen is Asst. Professor of Orthopedics, School of Medicine. All are with the University of California, Davis. The authors acknowledge the assistance of Thomas Nelson, Calif, State Univ.- Humboldt, in identifying the lupine species, Clayton Reese for mass spectral analysis, Jerry Ito for technical assistance, and Richard Keeler for an authentic sample of anagryne.



ORDER AN "ENDANGERED WILDFLOWER CALENDAR"

Proceeds from the sale of these calendars, put together by an impressive list of native plant societies, the New York Botanic Garden, U.S. Fish and Wildlife Service-Federal Endangered Species Program, and others, will benefit both regional and national conservation programs.

The calendar is 10¼" x 17" when open and includes:

14 attractive, full-color photographs of endangered wildflowers in their native habitats, with species from each section of the country.

information about the habitat, unique features, reasons for endangerment and recovery plans for each of the flowers shown.

suggested ways for concerned citizens to help endangered flowers in their region of the country, with addresses for further information.

a map of the U.S. showing the number of endangered plant species in each state.

a list of selected reading material, including two books suitable for children.

full page calendars with space for notes each day of the month.

You can send for your calendars using the order blank printed in this newsletter. special offer! 4 calendars for the price of 3!

BUTTERFLIES AND THEIR FAVORITE NATIVE PLANTS

Steve Cary, a Santa Fe hydrologist with a fondness for butterflies, showed the Santa Fe Chapter a dazzling array of New Mexican butterflies at the December meeting.

Here are some important adult food plants which Steve mentioned:

- Monarda (horsemint, bergamot)
- Apocynum (dogbane)
- Geranium (cranesbill)
- Eriogonum (wild buckwheat)
- Compositae (thistles, coneflowers, rabbitbrush, other yellow members of the sunflower family)
- Phlox
- Leguminosae (lupines, milk vetches)

Calendar Order Form (Please print clearly)

Please send me ___ copies of the Endangered Wild Flower Calendar.

Name: _____
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Enclose \$5 per calendar, or \$15 for four calendars. Please add 50¢ for each calendar to cover mailing costs.

Total number ordered: _____
 Amount enclosed: _____

Send to Rare and Endangered Native Plant Exchange, c/o New York Botanical Garden, Bronx, N.Y. 10458.

Please send gift calendars to:

Name: _____
 Street: _____
 City, State, Zip: _____

Name: _____
 Street: _____
 City, State, Zip: _____

Name: _____
 Street: _____
 City, State, Zip: _____

Your payment will assist local and national conservation efforts. Thanks for your help.

Asclepias tuberosa (butterfly weed)
Fallugia paradoxa (Apache plume)
Dudleya (butterfly bush) not a native to N.M.

Some important larval food plants and the groups of butterflies whose caterpillars feed upon them:

- Cruciferae(mustards) -whites, orange-tips
- Leguminosae(peas) -sulphurs, blues, Gray Hair-streak, skippers
- Gramineae(grasses) - wood nymphs, satyrs, inglets
- Compositae(sunflowers) -checkerspots, crescents, Painted Lady
- Urtica(nettles) -anglewings, tortoiseshells, Red Admiral
- Viola(violets) greater fritillaries
- Juniperus(junipers) -hairstreaks
- Salix, Populus (willows, cottonwoods) - Vice-roy, admirals, Tiger Swallowtail
- Eriogonum(wild buckwheat) -hairstreaks, metalmarks
- Quercus gambelii(Gambel's oak) -hairstreaks, alifornia Sister, skippers
- Celtis(hackberry) -snouts, emperors
- Prunus, Fraxinus(cherry, ash) -Two-tailed Tiger Swallowtail, hairstreaks
- Scrophulariaceae(beardtongues, paintbrushes) -checkerspots, Buckeye
- Aristolochia(pipevine) -Pipevine Swallowtail
- Pinus(pine) -Pine White, Pine Elfin
- Ceanothus(buckbrush) - hairstreaks, blues, metalmarks
- Ribes(currant, gooseberry) -Tailed Copper, anglewings

THE NATIVE PLANT SOCIETY OF NEW MEXICO

The Native Plant Society of New Mexico is a non-profit organization dedicated to promoting public interest in native plants and to the preservation of endangered species. This organization is open to anyone who shares that interest. The Society is active in studying and mapping the distribution of plants and in encouraging the use of natives in landscaping, especially as a water conservation measure.

As a member, you will have the opportunity to learn more about the native plants of New Mexico, their unique habitats and ecological relationships. If you wish, you may share your knowledge and thereby increase the awareness of others. Field trips, seminars and programs are being planned to encourage appreciation and enjoyment of our native flora. These activities will be offered through all six of the Society's chapters around the state.

The Society's work is voluntary and completely supported by membership dues and gifts. These, of course, are tax deductible.

Be a regular member for \$8.00 per year.

Be a Friend of the Society for \$25.00 or more.

Please fill in the following questionnaire and address your check payable to The Native Plant Society of New Mexico to Box 5917, Santa Fe, New Mexico 87502.

	Area of Interest	Will Help		Area of Interest	Will Help
Gardening with natives			Newsletter		
Conservation, ecology			Program planning		
Rare or endangered plants			Photography		
Field trips			Other _____		
Form a local chapter					

NAME: _____ PHONE: _____

ADDRESS: _____
 Street City State Zip code

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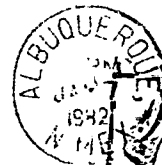
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President Continental Congress
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