Native Plant Society of New Mexico

NATIVE PLANT SOCIETY OF NEW MEXICO NEWSLETTER

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Flora Neomexicana:

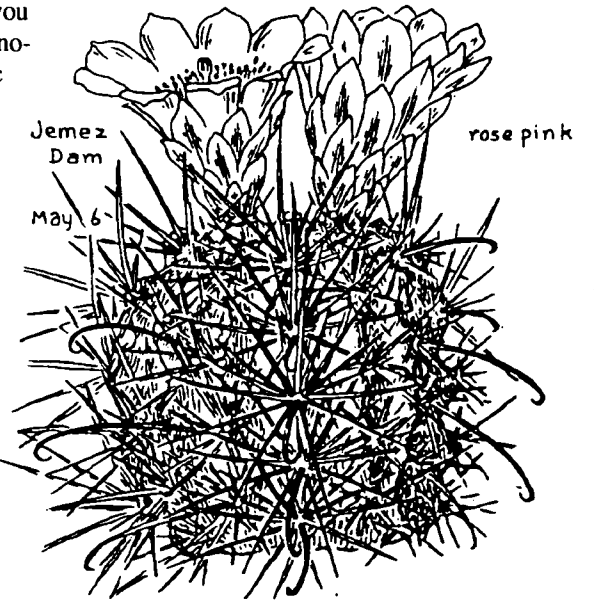
Cactus Confusion

Robert Sivinski, NM Forestry Division

New Mexico is blessed with many unique and interesting cacti, however, the number of genera and species occurring in the state will vary greatly depending on which botanist you ask to do the counting. Many academically trained taxonomists have made valiant efforts to bring some systematic sense to the Cactus Family. These plants have also inspired an army of professional growers and amateur collectors to dabble in the taxonomy of the Cactaceae. No other group of native plants has received more field study, greenhouse experimentation, and close examination of minute detail. And yet, new names and new combinations are commonplace events in the unrefereed *Journal of the Cactus and Succulent Society of America.*

With this extremely high level of scientific endeavor, the waters of cactus systematics are rarely calm. Generic concepts and many taxa are hotly debated by academics and the cactophilic public. The academic taxonomists often consider the amateur taxonomists to be untrained "stamp collectors" and "loose cannons", while the amateurs accuse the academics of inhabiting ivory towers and not spending enough time in the field to study the plants in their natural habitats. Both groups are sometimes aghast at the recent inroads of European botanists into American cactus taxonomy. In truth, it appears that all these different people have made valuable contributions to science, but the nomenclatural debris and lack of consensus is enough to make your head swim.

To further confuse the situation, a few of our New Mexican cacti are highly promiscuous and form fertile hybrid swarms that have been named as species. A good example of this is *Echinocereus lloydii* (Lloyd's hedgehog cactus) which was one of the first cacti to be listed as endangered under the federal Endangered Species Act. This plant is the result of hybridization events between the *E. pectinatus* group of species and the *E. triglochidiatus* group of species. Dr. Allen Zimmerman has recently placed the New Mexico bunch of hybrids and backcrossed introgrades into the hybrid taxon *Echinocereus* X *roetteri.*



Sclerocactus - Sclerocactus whipplei

Many good species of plants were originally of hybrid origin, but over time they became relatively isolated from their parent species and were passed through the sieve of natural selection. The hybrids previously known as *E. lloydii* have not yet accomplished this evolutionary sorting and taxonomic boundaries continue to be blurred by frequent backcrosses with the original parent species. The U.S. Fish and Wildlife Service (F&WS) is now considering the removal of this cactus from the endangered species list.

Another confusing, but interesting, group of cacti are those that Allen Zimmerman considers to be variations of *Coryphantha sneedii.* Several other botanists have placed them all in the genus *Escobaria* and usually rank them as species rather than varieties. Every major mountain range in southern New Mexico has one or more of these taxa. West of the Rio Grande they are called *orcuttii* (Orcutt's pincushion); the Franklin Mountains - Bishops Cap area has *sneedii* (Sneed's pincushion); the Organ Mountains have

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organensis (Organ Mt. pincushion); the San Andres Mountains have *sandbergii* (Sandberg's pincushion); the Sacramento Mountains have *villardii* (Villard's pincushion); and the Guadalupe Mountains have both *guadalupensis* (Guadalupe Mt. pincushion) and *leei* (Lee's pincushion). Sneed's and Lee's pincushion are listed as threatened and endangered respectively under the federal Endangered Species Act.

A few years ago, Sneed's pincushion cactus was reported to have been found in the Guadalupe Mountains in great numbers. The F&WS thought this new population could change the threatened status of this cactus and contracted the NM Forestry Division to investigate. We found hundreds of sneedii-looking cacti, but each population had a mixed bag of characteristics and we were never quite sure what to call them. Allen Zimmerman has made the same observation and offers the following logical solution: There are only two taxa in the Guadalupe Mountains - *guadalupensis* on the Texas side of the line and *leei* at the northern tip of the range in New Mexico. Everything in between are hybrids of these two taxa and may superficially resemble *sneedii*. Therefore, the real Sneed's pincushion cactus only occurs in the mountains between Las Cruces and El Paso. Makes sense. I never was comfortable with the concept of a rare variety of cactus occurring in two widely separated mountain ranges, especially when the Guadalupe Mountain *sneedii*-looking plants are in close proximity (a few hundred meters) to a different variety of the same species (var. *leei*). The problem now, however, is that even some of the experts cannot tell the difference between the real Sneed's pincushion and the Guadalupe Mountain hybrids.

That's enough cactus confusion for one day. If you would like to continue on your own, a taxonomic study of the *Sclerocactus parviflorus/whipplei* (hardwall barrel cactus) complex of northwestern New Mexico will make you scratch your bewildered head.

Many thanks to Robert Dewitt Ivey for permission to use his wonderful drawings from *Flowering Plants of New Mexico*, second edition, in our *Newsletter*.

The **Newsletter** is published six times per year by the Native Plant Society of New Mexico. The Society is composed of professional and amateur botanists and others with an interest in the flora of New Mexico.
Articles from the Newsletter may be reprinted if fully cited to author and attributed to the Newsletter.

Membership in the Native Plant Society of New Mexico is open to anyone supporting our goals. We are dedicated to promoting a greater appreciation of native plants and their environment, and to the preservation of endangered species. Members benefit from chapter meetings, field trips, publications, plant and seed exchanges and a wide selection of books available at discount.

We encourage the use of suitable native plants in landscaping to preserve the state's unique character and as a water conservation measure.

We maintain a register of business and professional people who are members and can supply information and services related to native plants. To be added to this roster or to request information, contact the Membership Secretary.

Advertising Schedule
Approved advertisements will cost $40 per year.

Schedule of Membership Fees
Dues are $10.00 annually for individuals or families. "Friends of the Society" include organizations, businesses, and individuals, whose dues of $25.00 or more provide support for long range goals. To join us, send your dues to Membership Secretary, 443 Live Oak Loop NE, Albuquerque, NM 87122

Newsletter Contributions
Please direct all contributions for the newsletter to Tim McKimmie, editor.
Deadline for the next newsletter is July 23.

CHARLES WEDDLE and THE FUTURE OF NATIVE PLANTS

reprinted from NPSNM Newsletter May 1982

Charles Weddle ("It rhymes with meddle.") was the feature speaker at the annual meeting in Magdalena. He has been a plant breeder and horticulturalist for many years and has worked for several seed companies, including Ball Seed. He currently owns and operates Weddle Laboratories in Palisade, CO, which specializes in drought and salt tolerant plants. The company motto is "We grow what sells, but we sell what grows!" The following are excerpts from his talk on the future of native plants and from an interview with Mr. Weddle.

Why natives? Most of our cultivated plants have taken thousands of years to become what they are today. Only recently have they rediscovered the wild ancestor of corn. Civilizations have come and gone based on plants such as corn, potato, etc. Perhaps we could have a saltbush *(Atriplex)* civilization. Man has brought plants westward, even those not always adapted to the new climate. This has been perpetuated. Nurseries buy and sell what they can get from major suppliers (usually located in California or Texas), and they won't sell anything that they don't know.

Why are we interested in natives? First, they're already adapted to the area and they often use less water. They're more challenging; we already know how to grow petunias and snapdragons. But best of all, they are suitable to the Southwest and to our Southwestern architecture. Native plants are also beautiful and I'm surprised that horticulture hasn't discovered them

As an ornamental horticulturalist and a plant breeder I look at all plants with a horticulturalist's eye. Does it have appeal, is there a niche for it? Does the plant have good horticultural characteristics, ease of growing and good growth habit? American people love color, the more there is, the better they like it. Color is the result of time and square inches. For example, irises bloom for about a week, maybe two, then you have 50 weeks of no blooming color. Paperflower *(Psilostrophe)* only blooms for 2 weeks in the wild, but with additional water and some shearing, it can bloom all summer.

As a plant breeder, I have bred flowers for color and seed and now there are many varieties of petunias and snapdragons. People want us to find something new. We haven't had a new cut flower in a long time— perhaps it's time for a native. We all know that natives are highly variable and this makes them exciting to breeders. There are three species of Manzanita *(Arctostaphylos)* growing in an area of Colorado, each adapted to specific conditions. Nature has done the breeding work. It only remains for us to learn how to propagate and grow them. Breeding programs to upgrade species are being conducted for such species as tulip gentians and columbines. Most of these are intraspecific, that is, within the species, hybrids.

Working with snapdragons has benefitted my work with penstemons because I understand the family very well. This could be done with other related genera. I love penstemons because there are so many species and if I had 100 years, I would work on some of them. There was a Nebraska Agricultural Experiment Station worker who worked on penstemons for 30 years, but nothing came of it. This is sad because his research would provide valuable clues and could be continued today.

Some one needs to finance research on native plants, both for public good and private gain. Such questions as "How do you germinate this?, When do you take cuttings? Can you take cuttings? and Where is it adapted? need well organized applied research to develop answers. Conventional institutions will do some of the work, but there is much for the curious individual to do. Amateurs selecting for the cultivated Texas bluebonnet have found an inoculum to help with the germination of the seed.

Good research begins with searching the literature for what has been written. We need someone, a PhD student perhaps, to compile the literature that is available. Several government agencies such as the Soil Conservation Service, the Forest Service and the Bureau of Land Management have published information on natives from their own bias. No one has compiled anything on the ornamental aspect. We need to get this information together.

As I look into my Flower Breeder's Crystal Ball, I see many things happening. We have had our pioneers, such firms as Plants of the Southwest and Native Plants, Inc. Next there are the imitators, then the retailers will pick it up and want more sources. The demand and need is here. The more people in the business, the better. Almost all nurseries will offer collections of natives,at first in small amounts because they're afraid they won't grow. But interest will grow and soon I suspect we will have someone growing natives in every area. We'll begin to have specialists; people growing only *Atriplex* or *Cercocarpus* much like we have people who only grow roses. The business will grow.

There is currently a way to get a native plant into the trade. It can be entered in the All-American Trials. The cost is $200 per trial and anyone can enter. We've already had a native win. Several years ago, the Tansy aster *(Machaeranthera)* was an All-American winner, submitted by a Colorado State University worker. Another good candidate, I think, would be the Desert Marigold *(Baileya multiradiata)*, even though the All-American trials are biased toward annuals.

There are other promising things happening. The National Parks System tries to protect the natives in its parks. Highway departments in several states including New Mexico are not mowing along roads as often as they used to. Several housing developments require the owners to maintain a natural landscape and where water is scare, this is especially true. Landscape designers are beginning to put natives in their designs, and the contractors are able to supply them.

Native Plant Societies can do many things to promote native plants. Put pressure on the highway department to continue its less frequent mowing, let them know what you like and don't like. Try to get a Wildflower Day designated by the State Legislature, it worked in Texas! Coordinate plant digs to remove plants that would be destroyed by new construction. Offer a scholarship or an award for a paper, project or research done on native plants. Best of all, talk to other people about natives, get together and share your experiences. It enriches us all.

CALENDAR

OTERO

17 July. Red Cloud, sw of Corona. 9 a.m. at Carrizozo, NE corner of hwy intersection.

19-21 August. Otero County Fair exhibit. Need volunteers.

27-29 August. Magdalena trip. There are campgrounds in Water Canyon and Datil Wells, a motel in Magdalena.

GILA

25 July. Mogollon Mountain. 8 a.m. WNMU Fine Arts Bldg.

22 August. McMillan and Cherry Creek. 9 a.m. WNMU Fine Arts.

LAS CRUCES

14 July. "Wolves" by Robin Dixon. 7:30, Ag. Building, Room 200.

18 July. San Mateo Mountains. Pan Am Center, 7 a.m.

11 August. "New Mexico Wilderness" by Storm Sermay. 7:30 Ag. Bldg. Rm 200.

15 August. Las Cruces Home Tours and Potluck. 4 p.m.

28 August. Florida Mtns. Pan Am Center, 7 a.m.

SANTA FE

26 June. Butterfly count in Los Alamos with Steve Cary and Dorothy Hoard. 8:15 a.m. PERA front parking lot.

27 June. Santa Fe Butterfly count with Steve Cary. 8 a.m. PERA lot.

11 July. Field trip led by Sean Houtman near the Pecos River valley. 9 a.m. PERA lot. information 988-9141.

1 August. Trip led by Bob Sivinski to search for species in limestone-gypsum. 9 a.m. PERA lot.

11 August. "Our Local Mushrooms" by Nelson Jeramie and Fran Rogers. 7 p.m. Randall Davey Audubon Center.

14 August. Mushroom walk, call 988-9141.

Housekeeping notes.

It has recently come to my attention that the key for composites in the Martin and Hutchins *Spring Wildflowers of New Mexico* is incomplete (there are no *see* references for # 5 or #7, p. 35-37). I called UNM Press and they do not have corrections, and the book is out of print. If anyone has this or any other corrections please contact me and I will publish them in the newsletter.

Did you notice the coverage of native plants for use in landscaping in Time magazine (May 17, p.55-57)? Not bad.

The recent trip to Gray Ranch can be considered a success. Many NPS members got to see this area for the first time. A few of us, including Dewitt Ivey, spent quite some time in the field observing and collecting specimens. Over 50 specimens were pressed and will supplement those already collected at the ranch. The caretakers for the new owners (The Animas Foundation) are the same people who worked for the Nature Conservancy. They expressed their appreciation for our interest and help. The good news is that they have acquired an herbarium cabinet for storage of the specimens. This means that a quality collection can be preserved. Some of our time was spent examining and identifying existing specimens. There is still much to be done as many specimens have yet to be ID'd and many more are yet to be found or collected. This is a long term project. Future trips to the ranch by interested persons are being discussed.

TM

Annual State Meeting Notes

The Native Plant Society of New Mexico will hold its annual meeting in Las Cruces Sept. 10-12, 1993. There will be a mixer Friday evening and field trips into the Organ Mountains both Saturday and Sunday. A banquet Saturday evening will feature the NPSNM slide collection as well as other slides of interest from members' private slide collections. Attendees will be able to present a favorite slide of their own. More details and registration information will appear in the next newsletter. Those wishing to make early reservations may call the Mesilla Valley Inn (Best Western) at 524-8603. Our banquet and mixer will be held there. Those lodging there will also be eligible for a group discount.

CHAPTER REPORTS

Otero-Jean Dodd

The Otero Chapter was fortunate to have DeWitt and Vivian Ivey with us on 4-16-93 for slides of the Gray Ranch and a field trip to San Andreas Canyon the next day. Ivey reports that there is a conservation easement covering the mountainous area of the Gray Ranch (now owned by the Animas Foundation). The new owners will continue the working ranch while protecting one of the state's most ecologically diverse areas. Ivey expects to help start an herbarium of the plants on the ranch. At our meeting, three tables were covered with finished pencil drawings and a folder containing enough drawings for a new book. Two plants from our field trip will be in the next book-*Penstemon alamosensis* and *Amsonia longiflora.* Many of the plants shown on the slides from the Ranch were familiar to us from where we live and from field trips. On a camping trip in Gray Ranch Ivey and Vivian went through a lower encinal and a much wetter encinal (grove of oaks). The highest peak in the Animas Mountains is 8600'. They experienced a total absence of human sounds-not even airplanes. On our field trip we saw the lovely, pink *Stenandrium barbatum*, (bearded stenandrium) which we had seen on the UTEP Research Ranch. Some headed for the cliffs to photograph the bright red flowers of *Penstemon alamosensis*. After the first sighting we found they were sprinkled all through the canyon in full bloom. An unknown *Salvia* will be checked out at the NMSU Herbarium by Charley Pase. Fragrant Mexican Orange (*Choisya dumosa*),Ivey p. 258, is blooming in all the canyons now. The little dwarf gilia, *Ipomopsis pumila* is covering the desert sometimes making a blue-lavender carpet. Texas Green Lily carried only empty seed pods on its slender, long stems above its clumps of grass-like leaves. Little leaf sumac, Apache plume, and *Dalea formosa* were all in full bloom as well as the flowering ash *Fraxinus cuspidata*. For those of you who have gone to the Indian Wells with us, the road is now impassable. It was one of the places checked out for the trip.

Our annual "during the week" trip to the Jarillas down by Orogrande with Dee Umberson happened 4-23-93. By now we are becoming familiar with Dee's haunts but not to the extent that we can list the kinds of cactus that grow on the various hills, when they bloom, and whether they sit there and hybridize as many do. What we really needed on this year's trip was a specialist in tiny to small wildflowers. Carol Fashing,,member from ElPaso, took pictures. Maybe we can learn something from them. Blooming cactus included (bright chartruse flowers) *Echinocereus chloranthus*. We were too early for the deep pink of the haystack, *Echinocereus stramineus. Echinocereus pectinatus* var. *neomexicana* were blooming with the yellow flowers with a greenish cast at the base . The area is famous to us for its *Echinocereus polyacanthus* with blossoms of pink, various shades of rose, yellow, orange, and some near white. Shrubs in bloom were *Dalea formosa*, pea bush, and Apache Plume. Not in bloom were the familiar bushes of knife leaf Condalia, buckthorn family, and *Aloysia wrightii* of the Verbena family. Desert Chicory, *Rafinesquia neomexicana*, is interesting for the maroon colored stripes on the underside of the white petals. Desert dandelion, delicate yellow, mostly very short in this very dry, rocky area. *Stephanomeria tenuifolia*,the dainty wire lettuce, was popping up everywhere. Have been seeing the white tackstem on trips this time of year, *Calycoseris wrightii*,. All these are composites. Once again the 4 o'clock Trailing Windmills, *Mentzelia* sp., chocolate flower, and under many bushes the spots of pink were the flowers of the Desert Holly, *Perezia wrightii*, Ivey p. 113. This was the first time we have all been transported on a field trip by only two vehicles. Hanawalts drove a seasoned Suburban with newly covered seats and Cap Naegle from Ruidoso drove his brand new Suburban just purchased in Roswell.

5-22-93. Perhaps we went to Sabinat Canyon; we are not certain of the name of the canyon east of the truck stop (Alamarosa south of Tularosa). We know that it is beautiful. Floyd and Pat Nott have shown us this canyon and San Andreas. Both canyons merit repeated visits. For geology buffs there are many different rock formations and the boulders are massive. There were also many different kinds of plants..

Las Cruces-Paul & Betty Shelford

On Friday, April 9th, our meeting was held in the newly enlarged Southwest Environmental Center. Robert DeWitt Ivey, Albuquerque author and illustrator of Flowering Plants of New Mexico, gave a slide presentation on "Wildflowers of the Gray Ranch." He pointed out that grazing on the ranch is restricted to the plains areas, and that the mountain slopes are still in a natural condition. Of particular interest were the Star Thistle and the Narrow Leaf Globe Mallow. Mr. Ivey also brought copies of flower illustrations to be included in the next edition of his book. The next day Mr. Ivey accompanied a group led by Tim McKimmie on a field trip to Solidad Rocks in the foothills of the Organ Mountains. Among the more than 55 plants seen in flower were: *Lotus neomexicanus*, senna, *Coldenia canescens*, *Krameria lanceolata*, lupine, hibiscus, *Evolvulus cerriseus*, and sarcostemma.

On April 18th we took a field trip to the Placitas Arroyo, led by Jack Barnitz, a biologist with the BLM. This is a riparian area fed by a spring. A good working relationship has been established with the ranchers, and some sensitive areas have been fenced off from cattle. A judicious amount of water is piped to nearby water tanks. Salt cedar has been crowding out native plants. BLM is literally clearcutting the salt cedar and poisoning the stumps, and native plants are moving back in the sunlight. We saw about 25 wildflowers in bloom in the riparian areas and the surrounding desert. These included purple nama, *Ipomopsis longiflora*, wool star, and tackstem.

In our meeting of May 12th, our chapter president, Dr. Will Beattie, reported on Earth Day where we had a booth selling books as well as wildflower posters, and our joint operation with the Alamogordo chapter selling wildflower posters at the Native Plant Sale and Flora Fest at the Centenial Museum on the UTEP campus. Dr. Norman Lownds, Assistant Professor of Agronomy and Horticulture at NMSU, gave a program on "Research: Using Natives for Landscaping." There are four primary areas of concern in this research:

Chapter Reports cont'd.

Selection, Propagation, Production and Water Use. The extent of current research on this subject is most impressive. In the study of water use of selected woody plants, for example, it was determined that Rubber Rabbit Bush takes all the water it can, but in a drought situation it becomes dormant. Oleander does not shut down its growth demands and therefore dies in a drought situation. Some plants, such as Texas Sage, grow more with a minimum amount of water; overwatering results in oxygen deprivation to the roots. It was determined that the PET (potential evapotranspiration) equation for drip irrigation of plants was actually designed for growing alfalfa. Woody landscape plants do best at 22.2% of the water prescribed by the PET equation. Drip irrigation requirements are currently being studied to best meet the needs of Dwarf Coyote, Apache Plume, Tams Juniper, Oleander and Purple Coneflower.

On Sunday, May 16, four of us went to Bishop's Cap in the southern Organ Mts. The following plants were in bloom: Krameria, whitethorn, *Ibervillea tenuisecta, Coldenia gregii,* 3 prickly pear (*O. violacea, Macrorhiza, and phaeacantha*), wire lettuce, blackfoot daisy, mentzelia, 3 hedgehogs (*E. viridiflorus, triglochidiatus, straminium*), and a small four o'clock with cream colored flowers. We each carried out a grocery bag of trash.

Meet Our Poster Artist

by Ellen Wilde

Santa Fe is home to Niki Threlkeld now, but she has called many places home. Born in Holland, she spent her youngest years in Java, where her father managed a rubber plantation. Her parents and tutors were her teachers there and she displayed an early aptitude for drawing and painting and was given special training in art. She returned to Holland for more formal education when she was fourteen but developed tuberculosis at seventeen and was sent off to a sanatorium in the Austrian Alps for rest and recovery (there was no other treatment at that time). When she was able to be up and about she explored the mountain meadows around her and fell in love with the alpine wildflowers. She always had a sketch pad with her when she was out exploring. She started university studies at Innsbruck and in the summers went to Perugia, Italy for more art courses. The Second World War curtailed her studies and she fled to Holland and then to England when Holland was invaded. There, family friends helped her get a job drawing maps in the offices of Shell Oil Company. She became acquainted with the British Museum and Kew Gardens in her free time and was particularly attracted to their collections of botanical prints.

At the end of the war she was reunited with her mother and they set off for the south Pacific to seek her father who had been imprisoned by the Japanese. On a ship enroute she met her husband -to-be who was about to take up a position in the British protectorate of Swaziland as Director of Agricultural and Veterinary Services. With promises to return, mother and daughter sailed on to find her father in a recovery center in Singapore. When he was well enough to travel, the three journeyed back to Africa and a joyous wedding.

Life was easy and pleasant there for several years, but the Protectorate came to an end and Dr. Threlkeld was transferred to the Food and Agricultural Organization of the United Nations. This entailed much travel and the young couple lived for extended periods in Rome, Cairo and Baghdad. Everywhere she went, Niki's free time was devoted to studying and drawing the wildflowers she found. Gradually she realized that she had to limit herself in some way and she chose to specialize in the flowers that struggled in harsh conditions for survival, whether desert or alpine.

Dr. Threlkeld was called upon to join the World Bank for Reconstruction and Development and would be headquartered in Washington D. C. after an initial period of orientation with the British Foreign Office in London. While he was getting his training, Niki went to the British Museum to volunteer her services as an artist and was gratefully received and given training in the specialized skill of botanical illustration. She left with introductions and recommendations to the Smithsonian Institution, where she was again welcomed with enthusiasm. While Dr. Threlkeld travelled, she often worked full time as a volunteer.

Tragedy struck in the form of a brain tumor that took Dr. Threlkeld very swiftly. Working was salvation afterward, and the Smithsonian scientists helped her obtain a green card to stay in the United States and put her on a salary. She continued there for four years, working mostly on Bamboos, but willing to do anything they asked. However, working with dried specimens and almost always in black and white became tiresome after a while and she sought a change.

A big change it was, for she found a position with the University of Alaska Institute of Marine Science and drew everything from bacteria to a walrus. In her free time she drew the tundra flowers in the short summers and for the first time began drawing them with their companion plants. These would later form a book that she would have published in New Mexico. Occasionally she would also get calls to do assignments for the Smithsonian and she was able to get in trips to Sri Lanka, Japan and the Galapagos Islands.

Lung problems and a case of Giardia prompted her to seek a better climate and so she came to Santa Fe, where she did work for the Department of Natural Resources including many illustrations for Rare and Endemic Plants of New Mexico. In one of Bill Isaacs' classes she met Gail Haggard, who was just starting Plants of the Southwest, and did illustrations for her catalog.

Niki went to southern California for a while and built a house and lived in Las Cruces but Santa Fe drew her back and now she is happily settled in a little adobe not far from St. Francis Drive, where she has added a delightful studio and charming garden and wants to spend the rest of her life. Despite many illnesses and the trauma of moving and resettling here, she worked whenever she was able (more than three years) on drawing the flowers brought to her by friends from every corner of the state for our posters. She accepted the commission because she loves New Mexico and hoped that the Native Plant Society would become a real force in the preservation of its rich and varied ecosystems.

We have recovered all the costs for producing the posters now and will have a good income flowing in from them for many years to come. Let's all get involved in fulfilling the goals of the Native Plant Society to show her we appreciate her work!

Views from the South

(One member's opinion) by Tom Wootten

Secretary of the Interior, Bruce Babbitt held a public hearing in Albuquerque on May 6, 1993. I attended and intended to speak for our chapter but the drawings to see who would speak did not include me. Since this now seems to be the first time when a really serious look is being taken at public lands grazing, I think it is extremely important for each of us to register our thoughts and ideas. Below are some comments I had hoped to make.

1. Recommend that livestock grazing be excluded where there is a direct conflict with wildlife. An example would be allowing sheep to graze in an area where desert big horn sheep (an endangered species in New Mexico) are to be reintroduced.

2. Recommend exclusion of livestock in specifically designated areas where other values are given higher priority, such as some riparian areas and some Areas of Critical Environmental Concern or Research Natural Areas.

3. Oppose any permanent increase of livestock numbers in Wilderness areas or Wilderness Study Areas, and certainly oppose construction of any "improvements" to accomodate livestock in these areas. Often these improvements are disguised as being for the benefit of wildlife.

4. Encourage the concept of "natural areas" which call for exclusion of livestock in designated areas.

Further, the current system that allows a base property owner to collateralize the value of public lands needs to be changed.

We are greatly concerned about the grazing that is permitted on allotments that are not monitored and/ or where no grazing management plan is in effect. We believe that grazing should only be allowed where vegetative sampling indicates justification and where management and monitoring plans are in effect.

We support an increase in grazing fees believing that the current returns which do not support the managing agencies' costs are inadequate. We feel that careful attention also needs to be paid to the use of the income from grazing fees. Currently, approximately 50% of grazing fees are to be returned to the land in the way of range "improvements". We support rehabilitation of damaged lands, but question "improvements" made solely for the purpose of increasing or maintaining livestock numbers on an allotment.

We strongly oppose the current Animal Damage Control program and its negative affect on wildlife. This is just another subsidy to the livestock industry which can not be justified.

Finally, we know that livestock grazing is the dominant human impact on much of our public lands and that this can seriously impact or modify the land. Nevertheless, attempts persist to exclude the public from planning processes. Grazing Advisory Boards, for example, are composed totally of members of the ranching community in our area, yet the board is charged with recommending expenditure of public funds for the benefit of wildlife. Attempts are constantly being made to exclude the public from participation in allotment management planning or in decisions that determine grazing dates and use, numbers and location of livestock, and numbers and types of range improvements. The interested public should be encouraged to participate, learn, and be offered an opportunity to give input to these plans.

We urge you to develop a sound policy on public land grazing, and a strong policy that looks at the public lands as for the "public", not just the livestock industry. There are areas that ecologically will not tolerate livestock grazing and/or where other uses of the land should have priority. Other areas can tolerate grazing, but this use should be determined to be the best use. Only a "best use" policy will assure that our public lands are suitable to pass along to future generations.

Partners in Plant Protection

by Carol Brandt

The San Juan Basin in the far northwestern corner of New Mexico supports a variety of threatened and endangered plant populations. Among these plants are *Sclerocactus mesae-verdae, Astragalus humillimus, Atriplex pleiantha, Mammillaria wrightii, Pediocactus knowltonii,* and *Gilia formosa.* These rare plants and others, however, are jeopardized by the enormous amount of development that has occurred in this region in the past decade. The San Juan Basin, centering around Farmington, is the locus of intensive gas wells and pipeline construction. In addition, the landscape is severely impacted by off-road vehicle recreation, and cattle and sheep grazing. The natural shales of the Morrison and Animas formations that support these endemic plant populations are extremely sensitive to erosion and are easily disturbed.

In 1991 Bill Dunmire of the Nature Conservancy drafted a unique sensitive plant management plan for the Bureau of Land Management (BLM) Farmington Resource Area. This plan proposes a consortium among the BLM, industry, and the Nature Conservancy to study endangered plant populations. This management plan proposes a cost-sharing agreement with the New Mexico Natural Heritage program to complete inventories of threatened and endangered plants within three Areas of Critical Environmental Concern (ACEC) in the Farmington Resource Area. Management of the ACECs includes closing certain areas to off-road vehicles and wood collecting, and the restriction of energy development.

In addition to the designation of the three ACECs in the sensitive plant management plan, gas and oil companies are jointly funding a 5-year study of *Gilia formosa,* the Aztec gilia, a federal candidate species. The study is designed to assess the effects of the disturbance related to pipeline construction on the Aztec gilia. This information will be useful for formulating protection strategies in the future.

For the last two summers Ellen DeBruin, a botanist from the New Mexico Natural Heritage Program, has been monitoring 26 permanent plots of the Aztec gilia. These study areas were chosen because they represented the range of distribution, topographical position, and the amount and sources of disturbance found in the BLM Farmington Resource Area. Data from these plots will help botanists and BLM resource managers gain an understanding of the pollination, seed dispersal, and population dynamics of the Aztec Gilia. For more information on Ellen's work,see her article in *Proceedings of the Southwestern Rare and Endangered Plant Conference* edited by Robert Sivinski and Karen Lightfoot. This volume can be obtained from the New Mexico Forestry and Resources Conservation Division, Energy, Minerals and Natural Resources Department, P.O. Box 1948, Santa Fe, NM 87504.

The Farmington sensitive plant management plan is indeed an ambitious endeavor and Bill Dunmire should be applauded for his efforts to bring together diverse groups in protecting the endemic flora of the San Juan Basin. The real challenge, however, will be to effectively implement the management plan. How will closure of certain areas be enforced? Can ranchers, outdoor recreation, the gas industry, and rare flora co-exist? I am hoping that we will hear more from northwestern New Mexico, an area that deserves our attention.

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