NATIVE PLANT SOCIETY
OF
NEW MEXICO

NEWSLETTER

JANUARY/FEBRUARY 1989 Vol. XIII No. 1

CHAPTER REPORTS

Gila Chapter

The Gila chapter is much concerned about the future of the San Francisco canyon. The greatest threat to this beautiful and irreplaceable riparian habitat is the 30 mile stretch of the canyon from Highway 180 in New Mexico to an egress near Clifton, Arizona, currently being used by off-road vehicles.

December 12th a meeting was held at the Glenwood Ranger District of the USFS to discuss the future of this area. The off-road vehicles group was represented as were people interesting in protecting this area including members of the Gila chapter. At this time the Forest Service favors closing part of the river to off-road use. Apparently this is just a preliminary decision. If you wish to express your concerns over the future use of the San Francisco canyon you may write

Mr. Dave Jolly, Regional Forester
U.S. Forest Service
571 Gold Ave. SW
Albuquerque, NM 87102

with a copy to:

Mr. Clay Baxter, District Ranger
Box 698
Clifton, AZ 85902

As for chapter fieldtrips, we made a trip to the Gila Lower Box north of Lordsburg November 13th. We proceeded down the trail which is steep and rocky in places to the canyon floor. We attempted to find a "dry" trail into Box Canyon but found we had to go back up the trail to higher ground and descend by way of a narrow chute.

Once back out of the canyon and on our way back to our vehicles we came across Opuntia leptocaulis. The small egg-shaped fruit set the plant off nicely and made it quite apparent why the plant's common name is Christmas cholla.

Otero's Peloncillo Trip

From Animas, our rendevous area, we went to the east foot of the Geronimo Trail to pick out a camping place in the grasslands. Exploring we saw miles of native grasses at least waist high and numerous mountain ranges both in the U.S. and in Mexico. There are so few people in the "boot heel" of New Mexico that each passing car was time to stop and visit. We often saw the Gray Ranch signs, the 500 square mile ranch which is up for sale.

Saturday we stopped so much we failed to get to Guadalupe Canyon. Still we saw Border Pinon, Netleaf Hackberry, Evergreen Sumac, Chihuahua Pine and many different oaks including Q. turbinello that looks like a holly bush and the Silverleaf oak that makes a beautiful large shrub. Ted Hodoba was looking for specific plants he had seen in previous trips. He pointed out the Cholla spinosior which is quite different looking from the ones in Otero.

At lunch we saw Broom Baccharis at its peak with its own special bright green color. Hibisucs denudatus was everywhere. New plants to us were Arizona Rosewood, Fairyduster in bloom, Mortonia-sandpaper bush and a tall desert holly.

We enjoyed having Walter Graf of Albuquerque, Barbara Teelman of the NPS in Tucson and Steve Marlatt of Wilcox join us for the weekend. Jean Dodd, chapter contact, has a list of plants seen during the weekend.

PHOTOGRAPHS NEEDED

The Endangered Plant Project of the California Department of Fish and Game invites submission of photographs to be considered for inclusion in its soon-to-be-published field guide to California's state-listed endangered plants. Photos will be credited and photographers will receive one copy of the book. For more information write Endangered Plant Project, 1416 9th St., Sacramento, California 95814

CHAPTER CONTACTS

Albuquerque: Walter Graf, 4735 W. Lea SW, 87105. (877-6469)
Las Cruces: Melanie Florence, R.T. 1 Box 711, Las Mesa, 88044. (525-3529)
Otero County: Jean Dodd, 1302 Canyon Rd., Alamogordo, 88310. (434-3041)
Santa Fe: Mimi Hubby, 525 Camino Cabra, Santa Fe, 87501. (983-1658)
Silver City: Beck Smith, (538-5350)

OFFICERS NPS-NM

President: Lisa Johnston, 831 W. 19th St. Portales, 88130
Membership Chairman: Jean Heflin, 443 Live Oak Loop NE. Albuquerque, 87112
Editor: Susan Wachter, 2500 Norment Rd. SW. Albuquerque, 87105
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INDIAN PAINTBRUSH AND ROOT PARASITISM

(Exerts taken from Fremontia, a journal of the California Native Plant Society, October, 1988. Article by James N. Mill and Jochen Kummerow)

Parasitic vascular plants are generally divided into two broad groups. Those that lack chlorophyll and depend on the host for all of their water, mineral, and nutritional requirements are often called holoparasities. Holoparasites are obligate parasites; they cannot survive and reproduce in the absence of a suitable host plant. Familiar examples are dodder (Cuscuta) and broomrape (Orobanche). Many plants, however, are only partial parasites. They depend on their hosts for only part of their metabolic requirements or during only part of their life cycles. A partial parasite (also called a hemiparasite) usually contains chlorophyll and may be an obligate or a facultative parasite (which can complete its life cycle without a host).

Parasitism is not unusual in the Scrophulariaceae, or figwort family, to which Indian paintbrush belongs. Members of this family illustrate the entire array of parasites, from complete parasites to those that show no outward signs of parasitism but resemble self supporting plants with green leaves. Below ground, however, they all make parasitic root connections with host plants. These connections are made by projections called haustoria that penetrate the host and transfer substances to the parasite.

This genus Castilleja, consisting of facultative parasites is widespread in western North America. Although studies by Heckard (1962) have shown that some species are capable of surviving and reproducing in the greenhouse without a host, plants grown in this fashion are much less vigorous than those grown with hosts. (Should this genus be considered an obligate parasite because it is not known to occur without a host in its natural environment or is a facultative parasite because it can be grown in the laboratory without a host?)

The association between parasitic plants and their hosts is finely tuned and highly integrated. Seedling establishment and haustorial bridge formation are important early events in the life cycles of parasitic plants. Although most hemiparasites, including Castilleja, lack specific germination requirements, others will germinate only in the presence of host roots, in apparent response to some yet unidentified root exudate of the host plant. The host-recognition response of Castilleja begins after germination in the young seedling root tips. At this stage a host root exudate may be the important stimulus for haustorial formation.

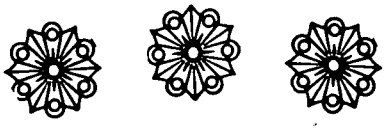
The developing haustorium presses against the host root tissue and eventually develops specialized cells that penetrate the host water conducting tissue (xylem) while forming a vascular core in the hastorium to conduct water and dissolved minerals to the parasite.

While green parasitic plants may rely just upon the host's water and dissolved minerals, non-green parasites may depend on the host for photosynthetic products as well. The evidence is ambiguous. The root parasites' haustoria rarely contains phloem, typical vascular food-conducting tissue. However, haustoria of parasitic Scrophulariaceae consistently posses a certain cell type with an unknown function. Discovered near the turn of the century and named phloeotracheids in reference to their presumed dual function as water and food conducting elements, it has been speculated that materials being transports in host phloem might be transferred to the parasite.

The effect of Castilleja on the host plant has not been adequately studied. The effect has been assumed negligible when water is abundant. Certainly the parasites' advantage is not to kill the host, or even to greatly decrease its

vigor. However, parasitism does no damage only in the case where the host has more than it can use of whatever the parasite takes. Such luxury probably occurs in some plants at certain times of the year or during certain periods of the plant's life cycle, but not all of the time. Thus, parasitism is likely to decrease the host's growth and vigor in most cases. The few experiments that have been done indicate that parasitism results in lower biomass of host plants as compared to non-parasitized controls.

According to Martin and Hutchins, 21 species of Castilleja are found in New Mexico. NPS invites others with more information about paintbrushes and their parasitic habits to submit information to this newsletter.



Desert Willow Released

The Agricultural Science Center at Los Lunas as released its 35th plant, a wine red flowered Desert Willow (Chilopsis linearis) named "Regal". This is the third release from ASC with "Barranco" (lavender) and "Hope" (white) preceding "Regal". (Here's hoping we see "Hope" and "Regal" in the nursery trade before the end of the century!)

CALENDAR

Gila chapter
- January 25 meeting
- January 22 Fieldtrip to Cook's Range, full day trip
- February 12 Fieldtrip to Knight's Peak, half day trip
- February 22 meeting
- March 12 Fieldtrip to Saddle Rock, half day trip
- March 22 meeting

Otero chapter
- February 25 meeting will be a slide show at the Alamogordo Public Library on 10th and Oregon at 2:00 p.m.
- March 19 meet at the Wilderness Park Museum in El Paso at 10:00 a.m. On Dyer (street?) look for the Transmountain sign on your right, the park is 2000 Transmountain
- April 8 cactus trip with Dee Umberson leading the way. Meet at the Holiday Inn parking lot in Alamogordo at 9:00 a.m. to go down to Orogrande.

Santa Fe chapter
- January 18 meeting at St. Johns College Lab Build Rm. 122 7:30 p.m. Judith Phillips on NPS Bosque del Apache Project
- February 15 meeting at St. Johns, Tina Rousslet, landscape architect on "Intermuseum Discovery Trail"

Albuquerque chapter
- January 4 meeting "An Evening with Wildflowers" by Ted Hodoba. Albuquerque Museum on Mountain Rd. in Old Town 7:30 p.m.
- February 1 meeting Xeriscapes with Judith Phillips
- March 1 meeting Landscaping Part I: Basic Design

Las Cruces chapter, winter dormancy

SOUTHWEST'S RIPARIAN AREAS MAY SOON BE MEMORIES

(exerts from Sustainable Living in Drylands, newsletter for Permaculture in the Southwest. Fall 1988)

Studies indicate only 5-10% of the Southwest's original riparian areas remain and they are among the rarest of all North American forest types. River valleys were far greener and wetter than they are today. The Hohokam of Snaketown along the Gila River decorated their pottery with pictures of waterbirds, often in the act of swallowing reptiles and fish. In 1699, , Father Kino wrote of the lower Gila and its people, " All its inhabitants are fishermen, and many have nets and other tackle with which they fish all the year, sustaining themselves with the abundant fish and with their maize, beans, and calabashes." These wet and productive valleys are now mostly dry.

Many streams and rivers moved slowly through very broad, unchannelled courses; they were perennial, although some went underground for long stretches. Cottonwood, brush, mesquite bosques, or marshes lined the rivers. The valleys were filled with grass, cienegas, and pools. Beaver dams were numerous, and fish abundant. Changes occurred, as they always do in a system as dynamic as a river.

The causes of death of decline of our rivers are many and much debated. Floods, droughts and changing regional climates are partially to blame. Although the weather may be a chief cause, most often humans are implicated in the destruction of a riparian system.

Humans have always lived along rivers, particularly in arid places where the waters are life. People have used rivers and wetlands to maintain life-styles often at variance with the land. We have lived along rivers, but not with them, and our uses have killed them.

Salt Cedar

Ever since the Spanish introduced cattle to the Southwest, cattle have grazed in riparian areas, ideal providers of food, water, and shade. Because they eat seedlings, cattle can prevent the reproduction of cottonwoods and other riparian plants, resulting in woodlands of even-aged, and aging, trees.

The water in rivers and streams has been "salvaged" for farmlands, for mining and other industrial uses, and for human consumption and recreation. Dams flood riparian areas above them, trap nutrients and sediment, desiccate the wetlands below, and change the flow and temperature of the stream for a long way beyond. Other water salvage projects divert water from streams to channels or remove water-using streamside-plants.

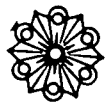
Urban development has filled watercourses and marshes with garbage, parking lots, and buildings. Development in the floodplain is protected from flooding with dams and levees, and with channelized, dredged, straightened, paved or devegetated watercourses. When overbank flooding is prevented, plants like cottonwood, whose ecology depends on floods, cannot reproduce and a dynamic woodland becomes a senescent grove. Deepening river channels, a plunging water tables, and the drying of streams mean plants can no longer reach water, and forests die.

While changes in the flow regime and mineral content of streams have negatively impacted native vegetation, they have made life easy for the invasive salt cedar which totally eliminates the native vegetation and provides little value to wildlife.

Riparian systems are old yet their outlook for continued life is bleak. We have treated the riparian areas as dangerous, wasteful areas to be eliminated or "improved" by human standards. As a result we have lost nearly all the plants and animals that made the riparian areas dynamic oasis in the desert. It

will take bold new approaches to preserve our remaining riparian areas and restore those now laid waste by mismanagement....that is if enough people really care.





PERMACULTURE IN THE SOUTHWEST

SPA, Sonoran Permaculture Association is a nonprofit organization devoted to educating mankind to live with the desert. The Southwest Regional Permaculture Institute appears to be an offshoot of SPA that greatly enlarges its regional influence. SRPI has a regional office in Santa Fe to aid in developing a facility for networking and research in our southwest region.
SPA publishes a most thought provoking newsletter, "Sustainable Living in Drylands", several times a year. The newsletter is funded by donations.

To receive newsletter send donation ($5-$25) to S.P.A., P.O.Box 27371, Tucson, AZ 85726-7371

XERISCAPE CONFERENCE

Mark your calendar for a Xeriscape conference in Albuquerque for October 27 and 28 (friday and saturday). Watch this newsletter for more information.

ARTIST NEEDED

The Floral of Missouri Projects needs botanical artists to complete new pen-and-ink drawings on a per-plate basis for the revised edition of Steyermark's Flora of Missouri. For more information contact George Yatskievych, Flora of Missouri Project, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166

ETC.ETC.ETC.ETC.ETC.ETC.ETC.ETC.TEC.

A publication listing 250 growers of native plants in 38 states, Canada and Mexico is available for $3.00 from

The Soil and Water Conservation Society

7515 N.E. Ankeny Rd.
Ankeny, IA 50021

Birdwatchers in Colorado have started a major research project with originated with British botanists. The project's aim is to survey the breeding birds of Colorado on a detailed scale. Each volunteer will cover a block 3 miles on a side or one volunteer per topographic map.

The survey idea originated in Great Britain where botanists produced an Atlas of British Flora. The survey took ten years. Shortly there after the British decided to survey the birds and developed the Atlas of Breeding Birds in Britian and Ireland.

The Colorado project will be conducted with the cooperation of federal and state agencies concerned with wildlife, various Audubon and bird clubs across the state and interested colleges and museums. The five year project will culminate in a published atlas and database compatible with the wildlife database used by the Colorado Division of Wildlife.

The Colorado Native Plant Society expressed interest in a possible future native plant atlas.

DON'T FORGET!!

NPS-NM IS COLLECTING WILDFLOWER SEEDS FOR THE BOSQUE DEL APACHE PROJECT SEND SEEDS TO BEY GRADY 939 BOBCAT BLVD. NE ALBUQUERQUE, 87122

SEEDS NEEDED BY FEB. 15!!

BURPEE AIDS NATIVES

Burpee seed company, the largest mail-order seed company in the U.S. has removed all woodland wildflowers and native ferns from its catalogs in response to over collecting native growing specimens.

The 1988 International Green Front Report

Friends of the Trees International Green Front Report is a compendium of noteworthy deeds, projects, organizations, movements, individuals, periodicals, books and articles concerning Re-Greening the Earth. (196 pages tightly packed with information-and attractively done) This edition contains the names/addresses of over 500 organization/people and over 350 books/magazines that deal with trees. This edition is suitable for the backyard tree planter to tropical rainforest protector. Sections in the 1988 edition include educational opportunities and apprenticeships in sustainable agriculture, resource guide to sustainable land use in arid and semi-arid lands, herb gardener's and users's resource guide and international volunteer placement services. For more info contact Friends of the Trees Society, PO Box 1466, Chelan, Washington 98816

MEMBERSHIP APPLICATION

Name _____
Address _____
_____
Phone No. _____

Other interested family members:
_____
_____
_____

Please enclose your check payable to:

Native Plant Society of New Mexico
P.O. Box 5917
Santa Fe, NM 87502

Annual Dues:
___Individual & Family $8.00
___Friend of the Society $25.00

Please send a gift membership and card to:
_____
_____
_____
_____

To better serve our membership, please check areas of particular interest.

Conservation:
___Endangered species, Habitats
___Restoring abused areas
___Water conservation
___Propagation ___Seed Collection

Landscaping: ___Residential
___Civic ___Commercial ___Highway

Special Uses: ___Food ___Fiber
___Medicinal ___Dyes
___Photography ___Field Trips
___Ethnobotany ___Paleobotany
___Growing for resale
___Informal classes
___Newsletter ___Youth projects
___Organize new chapter
___Membership drive
___Other (please specify)

How would you describe your level of expertise? What areas would you be willing to help with?

Are you a member of an organization with related purposes (Garden Club, NM Wildflower Association, etc.)?

NATIVE JUNIPER REVEGETATION

Keeping the Land of Enchantment enchanting is a challenge for forest researchers. By the year 2000, coal strip mining in the western United States will alter more than 200,000 acres. In New Mexico, some of those acres will be pinyon-juniper woodlands.

These woodlands are valued for wood products, pinyon nuts, forage, wildlife habitat and Christmas trees. They help protect the soil from erosion. Importantly, junipers are part of the beauty of New Mexico. For these reasons, researchers study juniper revegetation.

Revegetation at mine sites can be difficult; temperatures vary widely, conditions are generally dry and rainfall is irregular. Surface mined land ranges from flat to rolling hills, and many areas are badlands formed by steep-walled gullies separated by rugged rock ridges. In addition, animals eat tender young seedlings planted for revegetation.

NMSU researchers Gregory Fancher of NMSU Mora Research Center and Drs. James Fisher and Robert Neumann recently completed a study to evaluate planting dates, mulch treatments, drip irrigation, fertilizer regimes and seedling protection methods. These are cultural techniques that could solve revegetation problems.

The researchers planted containerized juniper seedlings on minespoils near Raton, Gallup and Grants. They found that waiting until after June drought to plant seedlings was critical. A July planting date resulted in good survival at the Raton site, where the elevation was high and the moisture moderate. At Gallup, where the elevation was lower and conditions drier, August was a better planting date.

Drip irrigation and wood chip mulches increased seedling survival. Mulches conserved soil moisture so that mulched trees had survival rates better than those of unmulched trees, and often equivalent to those of irrigated trees. On extremely harsh sites drip irrigation might be required.

Fertilization treatments also increased survival, with a triple-superphosphate fertilizer being more effective than a slow release fertilizer. Fertilizers should be applied in shallow pockets near the trees, not directly into the planting holes.

Protecting seedlings from animals, particularly rodents, proved to be an important step in getting seedling survival. At some sites, only protected seedlings survived. A lightweight, small gauge plastic mesh effectively protected young seedlings. The mesh was attached to the seedling before going to the field and degraded after a year.

NPS-NM Editor
2500 Norment Rd. SW
Albuquerque, NM 87105

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