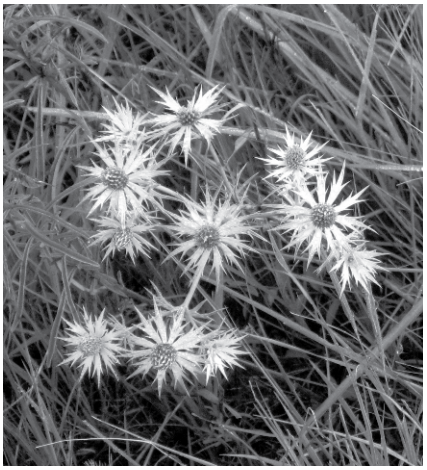
New Mexico's Voice for Native Plants

Newsletter

of the

Native Plant Society of New Mexico

January, February, March 2010 **Vol. XXXV No. 1**



A botanical field trip to Mexico. Left, rock formations delight Native Plant Society and Penstemon Society field-trip participants; right, *Eryngium* sp.; below, flowers of the shrubby *Penstemon fasciculatus,* photographed south of Creel.
Left and right photos by Ellen Wilde; bottom photo © 2002–2009, Patrick Alexander.

See article, page 3.

Inside this Issue

From the President

by Tom Antonio

My best wishes to all members of the Native Plant Society for a very happy New Year. By now each of you should have received an annual appeal letter and hopefully will consider sending a generous tax-deductible donation to the Society. As I mentioned in my letter, the need is greater than ever. Increasing development across the state, more invasive weeds entering and expanding each year, along with a whole range of other factors make the need to protect the beautiful native plants of New Mexico critically important. It is primarily through the Jack and Martha Carter Conservation Fund that we award grants to a variety of individuals and institutions, each working to save and protect our flora. As funding sources shrink, it is urgent that we support the many New Mexicans studying, researching, and working to conserve and defend our native plants. My thanks to Joy Mandelbaum, Mariana Bornholdt, Jamie Douglass, Arabelle Luckhardt, Josie Ozelton, and Joan and Truel West, who spent hours helping me sort, fold, stamp, and mail the annual appeal letter.

For some time now the Society has been discussing the possibility of online memberships and donations. I am pleased to report that due to the work of our website editor, Jane Mygatt, this is now possible. Aside from being easier for members, it will also cut down on postage and administrative costs, so I urge you to please use the NPSNM website http://npsnm.unm.edu/ to renew your membership and to donate to the Society. Just visit the website and click on Join Us.

January 30–31, 2010, the NPSNM board will hold its annual winter board meeting at the UNM Sevilleta Field Station, 60 miles south of Albuquerque. This is a chance for all local chapter presidents, chapter representatives, committee chairpersons, and all interested members of the Native Plant Society to come together to discuss and plan for the upcoming year. All members are welcome to attend and to have your voice heard as we all work to make the NPSNM a stronger voice for New Mexico's native plants. If you would like to attend, please contact Sandra Lynn, Sandra.d.lynn@gmail.com, to reserve a space in their cabins. ❖

LETTER

The Eye of the Beholder

Dear Editor,

I'm writing in response to my friend Donald Heinze's article in the last newsletter entitled "The Silent Invasion." While I appreciate Don's efforts on behalf of the battle against noxious weeds, I would question his statement that "under some conditions native plants can be noxious also. Broom snakeweed is a good example. . . . Most people do not consider this scrubby plant with its tiny blossoms aesthetically pleasing." He concludes that it offers nothing, and the tract of land upon which it grows is "rendered worthless."

I'm afraid I must take exception to Don's indictment of snakeweed. A few years ago I was writing a monthly column for *Desert Voices*, the newsletter of the Chihuahuan Desert Conservation Alliance. Each month I would do some research on and then write about a plant of the region. The column would then be posted on the NPSNM website. One of my columns was on snakeweed, and I took the unexpected position that the plant is actually not noxious and is in fact attractive. I was pleased when Bob Sivinski, state botanist and past president of NPSNM, called attention on our listserv to my column and said, "I thought I was the only person in NM who purposely used this beautiful and much maligned native plant in an urban landscape. I am no longer alone in my appreciation of this hardy shrub."

In my research on the plant, I learned from another past president of NPSNM, Wynn Anderson, curator of the Chihuahuan Desert Gardens at UTEP, that he also finds the plant appealing, saying "it provides great golden fall color, wonderful winter greenery, and I love its tidy mounding habit."

So, some of us with a good bit of experience in the appreciation of native plants do find snakeweed "aesthetically pleasing." In addition, as Wynn put it, "any animosity toward it [snakeweed] is really only a case of wanting to shoot the messenger instead of the land manager who allowed the land to degrade." In other words, snakeweed is not outcompeting grasses and invading grasslands, rather it is moving into degraded grasslands after the exposed topsoil has blown away, making the land unsuitable for grasses. On that degraded land, snakeweed provides some welcome cover and color.

Finally, I would say that land can be abused, but it cannot be rendered worthless. Land has intrinsic worth, just as people do.

~Sandra Lynn

A Botanical Trip to Mexico

Ellen Wilde, Santa Fe Chapter

Two members of the Native Plant Society of New Mexico made possible a wonderful botanizing expedition in northern Mexico for members of the American Penstemon Society. Wynn Anderson, founder and mentor of the Chihuahuan Desert Botanical Garden at UTEP, and Dr. Richard Spellenberg, of NMSU, assisted the leaders of the Penstemon Society in planning the trip, selecting the best time, locating penstemon sites and other places of botanical interest, and preparing plant lists for the attendees. They made several scouting trips with the planners and accompanied us on September 4, the day before our adventure began, with a tour of the Botanical Garden at the university to familiarize ourselves with the desert plants we would see the next day and at the end of the trip.

Early the next morning, 38 field trip participants boarded a very comfortable tour bus at the Hilton Garden Inn in El Paso—elevation 3700'—and started south through Ciudad Juárez and desert scrub. On our first stop, in sand dune country, we found plants of *Penstemon ambiguus, Heliotropium convolvulaceum, Palafoxia sphacelata, Senecio riddellii,* and *Baileya multiradiata,* among others. We gradually ascended through grasslands, small towns, and Ciudad Chihuahua, where we turned west and began seeing greener grasslands and farmlands as we came to the town of Cuautemoc, at 6700', for our second night. A nighttime storm cleared early and we could see mountains in the distance. Rich farmland with grain crops and orchards lined the road, and we pulled off several times to find *Penstemon stenophyllus* and other interesting plants. *Eryngium* species particularly caught my eye. Most of the orchards were covered with acres of black netting to protect the ripening apples from hail and birds.

Our home for several nights was the Best Western Lodge in Creel, a small Tarahumara town almost on the Continental Divide at 7400', from which we made several trips into the Madrean evergreen woodlands and higher Madrean conifer forest. Fields had been cleared and abandoned around Creel and were filled with colorful annuals several feet high, mostly golden, but also many pink cosmos. One trip took us to a woodland spot where we found four species of penstemons, two never found in the United States and two that have been brought into cultivation here. We also saw *Penstemon barbatus* in several places along roadsides. The woodlands abounded in a great variety of oaks, from six-inch-tall *Quercus striatula,* which spreads to form low colonies by rhizomatous roots, to large shrubs with leathery, net-veined leaves, to mighty trees. There were also many species of pines, madrone, junipers, and firs. On roadsides, on hikes, and in pull-offs we saw *Castillejas, Agastaches, Monardas, Commelinas, Ipomopsis,* and others. *Packera candidissima,* which unfortunately does not occur in the United States, was a most attractive roadside rosette, later identified by Wynn. The temperatures were very comfortable here and we were fortunate that storms came only at night or while we were on the bus.

The Copper Canyon train ride was the next stage of the trip. We boarded at Creel and descended the west side of the Sierra Madre to the town of El Fuerte in the state of Sinaloa. Two heavy diesel engines pulled the three passenger cars and bar and dining cars for the seven-hour trip and the change in vegetation was amazing. There were many bridges and tunnels but unfortunately no botanizing stops. The only stop was soon after the trip began, at an open-air Tarahumara market by a wonderful overlook, where baskets, weavings, crafts, and food could be purchased. We

Continued page 5

Announcement

The Board of Directors of the Native Plant Society of New Mexico, all committee chairs, and all interested members are invited to attend the Winter Board Meeting at Sevilleta National Wildlife Refuge on January 30 and 31, 2010. The Winter Board Meeting is very important because grant applications are considered and grant funding is decided upon at this meeting. Also, because we meet in a two-day session, we discuss plans, programs, the budget for the coming year, and issues in detail that time doesn't permit at the much shorter board meeting at the annual meeting. Besides, the Winter Board Meeting is fun. Many of us stay in the cabins at the Sevilleta Research Field Station and enjoy the beautiful surroundings and the opportunity to socialize with our colleagues. The Native Plant Society is not just about plants—it's also about friends.

If you wish to attend, please let Sandra Lynn, the administrative coordinator, know whether or not you will want to stay overnight for one or two nights. The cost is $35 per person per night if you supply your own bed linens and towels.

To reserve a place or for further information, please e-mail Sandra at sandra.d.lynn@gmail.com.

The Newsletter of the NPSNM

January–March 2010. Vol. 35 No. 1. This newsletter is published quarterly by the Native Plant Society of New Mexico (PO Box 35388, Albuquerque, NM 87176) and is free to members. The NPSNM, a nonprofit organization, is composed of professional and amateur botanists and others with an interest in the flora of New Mexico.
Original articles from the newsletter may be reprinted if attributed to the author and to this newsletter. Views expressed are the opinions of the individual authors and not necessarily those of NPSNM.

Next deadline is March 1, 2010. Articles and high-resolution artwork are enthusiastically welcomed and can be submitted to the editor, Sarah Johnson, at ***sarita505@yahoo.com.***

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A Botanical Trip to Mexico *(continued from p. 3)*

could recognize a few plants from Wynn and Richard's list, which they'd entitled, "Components of vegetation identifiable from a careening bus or speeding train." Near the end of the trip there were many more colorful shrubs, vines, forbs, and butterflies. We emerged from the train at dusk to find it very warm and humid at 350' elevation. We were driven to a beautiful old hacienda several stories tall and filled with folk art, where we were treated to margaritas and wonderful fresh fish from a nearby reservoir, and we slept in air-conditioned comfort. Early the next morning we hurried out early to walk around the attractive town, which was undergoing much historic renovation, before boarding the train for the trip back to Creel.

The last part of our journey took us north through grasslands, farmlands, and desert scrub, to the Casas Grandes ruins and the famous pottery town of Mata Ortiz, before we crossed the border at Palomas and made our way back to El Paso. It was a marvelous trip and left us with much new botanical knowledge to absorb and assimilate! ❖

The Good, the Bad, the Dangerous, and the Deadly: The Solanaceae Family in New Mexico

by Martha Carter, Gila Chapter

This article originally appeared in the Gila chapter's Bulletin.

The Good In the summer our vegetable gardens are filled with members of this plant family—tomatoes, peppers (both mild and spicy hot), potatoes, and shiny aubergine-colored eggplant. In fact, one common name for Solanaceae is "Potato Family." Petunias are included in this family and commonly cultivated as ornamentals. This plant family has been under cultivation for centuries as a safe food source for human populations.

Safe, that is, unless one takes a big bite of certain varieties of Habanero chili (*Capsicum chinense*), rated on the Scoville heat units (SHU) scale at up to one million heat units! That is, for each part of pepper extract, one million parts of water are required to put out the fire. For comparison, bell peppers have 0 SHU and jalapeño peppers as much as five thousand SHU. The only antidote appears to be a fat protein such as butter, milk, or cheese. A good strong margarita may help, too, as alcohol works as a solvent.

Nightshade is another common name for this plant family, which includes New Mexico natives as well as invasive plants. Sacred thorn-apple (*Datura wrightii*), wolfberry (*Lycium* sp.), and ground-cherry (*Physalis* sp.) are examples of familiar natives bearing fruit in late summer.

The Bad Jimson weed (*Datura stramonium*), downy thorn-apple (*Datura inoxia*), and certain nightshades and horsenettles (*Solanum* sp.) are examples of invasive weeds known to occur in New Mexico. All members of the genus *Datura* are poisonous. The seeds, especially, contain tropane alkaloids that cause hallucinations and seizures. The settlers on Jamestown Island discovered the near deadly effects of *Datura stramonium* and used it to their advantage in 1677 when they slipped some leaves into the food of British soldiers sent to put down an uprising of the fledgling colony. The nickname "Jamestown weed" gradually evolved into "Jimson weed," the bane of cattlemen. When I see Jimson weed I think of Georgia O'Keeffe's several early depictions of *Datura*.

The Dangerous Black henbane (*Hyoscymus niger)*, another weedy invasive annual, occurs in New Mexico and is just as poisonous as *Datura*. Henbane is recognized primarily by its rank odor; among its common names are fetid nightshade, hog's bane, and stinking Roger! The Romans used henbane in combination with opium poppy and mandrake as a very risky form of anesthesia.

The Deadly Medical students memorize a mnemonic trick to help them recognize signs of poisoning: "Hot as a hare, blind as a bat, dry as a bone, red as a beet, and mad as a hatter." Madness refers to meaningless speech, a sign of poisoning by the deadly nightshade *Atropa belladonna*. Fortunately, this plant is not known in New Mexico.

Perhaps the most deadly member of the nightshade family is tobacco, *Nicotiana* sp. New Mexico has but one native member of the tobacco family, *Nicotiana attenuata* (coyote tobacco). The deadly cultivated *Nicotiana tabacum* has taken the lives of ninety million people worldwide, fueled wars, and led to the establishment of slavery—and it supports a global industry worth $300 billion.

References

Allred, Kelly W. 2008. *Flora Neomexicana I: The Vascular Flora of New Mexico.* Lulu Books.

Stewart, Amy. 2009. *Wicked Plants: The Weed That Killed Lincoln's Mother and Other Botanical Atrocities.* Chapel Hill, NC: Algonquin Books. ❖

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. . . all members who have made monetary contributions above their regular dues in the past year. This list includes those who sent in extra contributions with their memberships. It doesn't include other contributions people make, such as those sent directly to the treasurer or the contributions of cooperation and energy from the wonderful members of this volunteer organization.

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. . . all who have contributed to the Jack & Martha Carter Conservation Fund in the past year. This fund, now in its second year, was created to assist the NPSNM in maintaining a balanced budget while continuing to increase the funds available for research and educational grants to individuals and organizations. It is a long-term endowment fund that has the potential to provide considerably more funds in the future than are currently available. Every dollar is important and we deeply appreciate your participation.

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Chapter Activities & Events

For further information on the following events, notify the contact person listed, or visit the chapter's Web page: first go to http://npsnm.unm.edu; click on Local Chapters; then select the chapter. **Hikers** should always bring plenty of water, hat, sun protection, lunch and/or snacks, field guides, and wear sturdy shoes, suitable for rough, uneven ground.

Note: *Most chapters had not finalized their January–March activities schedules by the time the newsletter went to press. Please check chapters' websites and local bulletins for updates.*

Albuquerque

All scheduled monthly meetings are first Wednesday of every month at 7 p.m. in the NM Museum of Natural History, 1801 Mountain Rd. NW. For more info contact Jim McGrath, sedges@swcp.com, 286-8745.

Jan 6 Meeting. Deserts of the World. Woody Minnich, world botanist on cacti and succulents.

Feb 3 Meeting. Control of Our Seed Supply and Its Implications for Biodiversity. Isaura Andaluz, Executive Director of Cuatro Puertas, and Joshua Cravens, Project Director for the Arid Crop Seed Cache.

Mar 3 Meeting. Environmental Forum. Tentative topic is "Current Strategies in Salt Cedar Management."

El Paso

All programs are second Thursdays at 7 p.m. at El Paso Garden Center, 3105 Grant Ave. All society events are free unless otherwise noted. Nonmembers are always welcome. Info: elpasovlm@sbcglobal.net or jimhastings@elp.rr.com.

Jan 14 Talk. Opuntia on Your Table. Jim Hastings, Cactus and Rock Club president and NPS member.

Feb Field Trip TBA.

Feb 11 Talk. Winter in the Franklin Mountains State Park.

Mar 11 Talk. Unspoiled: The Natural Side of White Sands Missile Range. Dave Anderson, WSMR Range Manager.

Gila (Silver City)

All programs and hikes are free and open to the public. Meetings are third Fridays at 7 p.m. at WNMU's Harlan Hall, with refreshments following the program. Activity updates posted on www.gilanps.org.

Jan 15 Program. Ethnobotany. Richard Felger.

Feb 19 Program. Insect mimics of plants and related topics. Peggy Spofford, retired science teacher.

Mar 19 Program. Otero Mesa. Steve West.

Las Cruces

Meetings and programs are Wednesdays at 7 p.m. in the conference room of the Social Center at the University Terrace Good SamaritanVillage, 3011 Buena Vida Circle, Las Cruces. (On the right, while traveling east on BuenaVida from Telshor.) Field trips are Saturdays; most last into the afternoon. Participants must sign a release-of-liability form. Children must be accompanied by their parents. Programs and field trips are free; nonmembers always welcome. Contacts: Carolyn Gressitt, 575/523-8413; Al Krueger, 575/532-1036.

Jan 13 Attendees will share images from nature taken in 2009. Refreshments served.

Feb 10 Talk. "Sex and the Single Flower," focusing on floral morphology, color, nectar, and pollinator type. C. Edward Freeman, UTEP botany professor.

Feb 13 Walk. Aden Crater. Meet at east end of Rio Grande Bank parking lot, corner of University & Telshor, 9:00 a.m.

Mar 10 Talk. The Negev Desert of Israel. Comparisons with the Chihuahuan Desert. Phil Alkon, adjunct professor.

Mar 13 Walk. Location TBA. Meet at east parking lot of K-Mart on Hwy 70, 8:00 a.m.

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For field trip information, contact Eric Metzler, metzlere@msu.edu, 575/443-6250; or William Herndon, laluzlobo@gmail.com, 575/437-2555. More info available by the beginning of each month.

Jan–Mar Activities and programs TBA.

San Juan (Farmington)

Meetings are third Thursdays at 7 p.m. at San Juan Community College. For more info, contact Les Lundquist at 505/334-8634 or Dalunk54@yahoo.com.

Santa Fe

Meetings are third Thursdays at 6:30 p.m. at the meeting room of the REI store, 500 Market Ave. For more information, contact Tom Antonio, tom@thomasantonio.org, 505/690-5105; or Carol Johnson, gcjohnson@comcast.net, 505/466-1303.

Jan 21 Talk. The Tree: Tales of the Tall and Towering Biology, Architecture and Natural History of the Tree. Thomas Antonio, PhD, botanist and president of the NPSNM.

Feb 18 Talk. Aldo Leopold: Native Plant Preservation. Ken Simonsen, professor of environmental ethics and Renesan instructor.

Mar 18 Talk. Planting Native Plants in the Spring. Bob Pennington, owner of Agua Fria Nursery.

Taos

Meetings are second Wednesdays at 7 p.m. at the Kit Carson Electric Co-op Conference Room, 118 Cruz Alta Rd. Check Web link for this chapter to get updates. Chapter members will get e-mail or USPS mail notification.

Jan–Feb No programs.

Mar 10 Talk. Plant Dyeing in New Mexico, Pre-History and Today. Glenna Dean, New Mexico archeologist.

Plan Ahead!

It's not too early to consider donating to the silent auction for the next annual meeting! The 2010 NPSNM annual meeting will be held in Silver City in August. Anyone with an item to donate can contact the silent auction organizer, C. N. Flanders, at (575) 534-9355 or cnspikeflanders@gmail.com.

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CONSERVATION CORNER

The Diversity of Conservation

by Jim Nellessen, NPSNM Conservation Committee Chair

In general terms, diversity refers to the variety of things—whatever the "things" might be that we are discussing. For those of us interested in plants, those things are plants. We have probably all heard about conserving plant diversity, which means protecting and conserving plant communities composed of a wide variety of plant species. This variety can be extended well beyond the species themselves; there can be diversity in life history and in lifeform. Life history refers to the annual, biennial, or perennial nature of a plant. Lifeform refers to a plant's generalized structure or shape. There are trees, shrubs, grasses, and forbs. Conservation of diversity can also refer to diverse landscapes that may contain a variety of plant communities.

Now I would like to turn the tables and briefly discuss the diversity of conservation. Conservation itself contains a diverse array of topics, approaches, methodologies, focal points, and considerations.

Plant Species and Communities. For plant conservationists this is what we think about first and foremost. This can involve a focus on individual plant species, rare species, specialized plant communities, common plant communities, dominant plant communities, varied landscapes, or unique landscapes, just to name a few.

Soil. Soil is very important to most plants. An understanding of soil involves looking into its structure, components, and constituents—such as clays, silts, sand, organic and inorganic nutrients—and water-holding capacity. Many plants are adapted to certain types of soils, while others are generalists and will do well on a wide variety of substrates—such species will have natural tendencies to become quite common.

Weeds. A weed is simply a plant growing where we (humans) do not wish for it to grow. Conserving particular plants or plant communities may mean managing certain weeds. These weeds may be nonnative or native. They may be invasive (with strong tendencies to spread—either on their own or with assistance) or noninvasive (with minimal tendencies to spread). They may be noxious (have certain adverse impacts we have defined—such as being toxic to our livestock) or nonnoxious. Going back to the native-nonnative comparison, this can be circumscribed on a variety of scales from local to continental, but ultimately all are native to the planet.

Microbes. Being aware of the soil's microbial flora is important. Soil crusts of fungi and algae are instrumental in minimizing soil erosion and loss. There are all kinds of microbes instrumental in moving nutrients through the ecosystem and let's not forget those that form intricate associations with plant roots and facilitate nutrient uptake.

Atmosphere and Climate. Human activities have pumped unnaturally high levels of various pollutants into the atmosphere. These are many and varied but include nitrogen and sulfur oxides, both of which contribute to acidic precipitation, while nitrogen oxides contribute to ozone formation. These pollutants are well known to directly injure and impact vegetation, more so in moister climates. Carbon dioxide contribution to global warming is a hotly debated topic. Another aspect of increasing carbon dioxide that is not often mentioned is its potential to aid C3 plants over C4 plants. C3 and C4 refer to the photosynthetic mechanism of plants. C4 plants are more efficient at using carbon dioxide, but an increasing concentration will make it easier for C3 plants to compete with C4 plants. This could alter the composition of some plant communities.

Restoration. Humans greatly affect and impact their environment. We do so directly and indirectly in many ways. We have great abilities to restore or redirect impacts we cause into "better, more correct, or more natural" courses. I have qualified my terms with quotation marks because restoration is an open-ended term, depending on what it is we are trying to restore, whether it be conditions from a certain time period, a certain assemblage or diversity of species, or state of the environment. Since we are also fully embedded within the ecosystem, how we define restoration can be varied.

Ecological Processes. Conservation also involves ecological processes, such as plant succession, nutrient cycling, energy flow, or plant-animal-microbe interactions. This means taking a hands-off approach and letting things be. It does not mean not intervening, for example, if an invasive species disrupts the balance, but it also does not mean overmanipulation. It means trying to deal with a particular issue without causing any further disruptions. Sometimes this can be very difficult since many things in the system are or become highly interconnected.

Management and Ecological Ethics. Finally, conservation is all about management, how we manage our plant and environmental resources, and how we place ethical value on plants and all forms of life on this planet. Personally, I feel we have an obligation to protect and conserve our plants and environment. Our ethical approach to the diversity of conservation is probably the most important. The ramblings of a naturalist and plant ecologist never end. . . . ❖

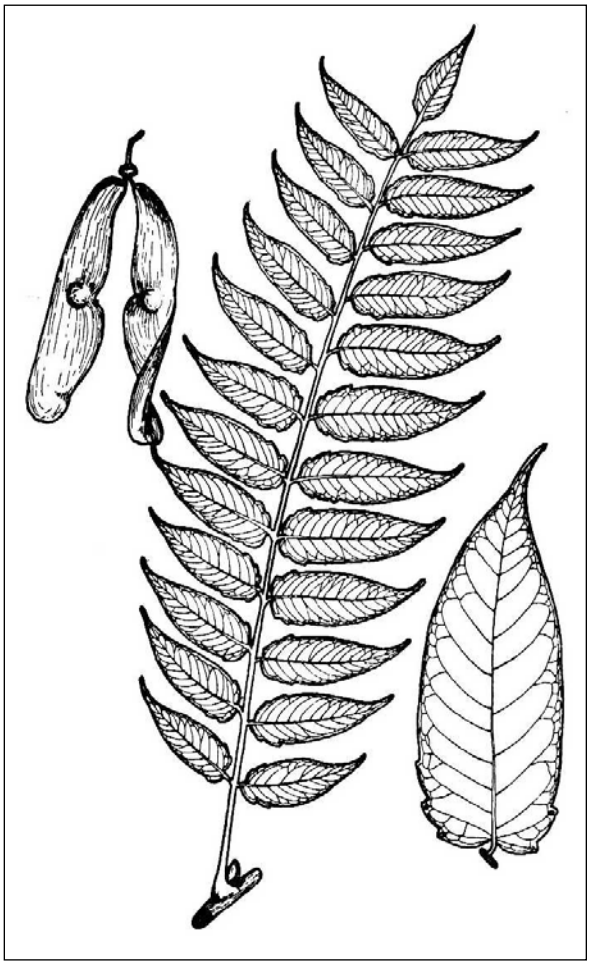
PROFILES OF THE IGNORED ENEMY

The Most Hated Tree in New Mexico

by Donald H. Heinze, NPSNM representative to the state Noxious Weed Advisory Commitee

Tree-of-Heaven (*Ailanthus altissima* [Mill.] Swingle) epitomizes the concept of a noxious weed. It can and does grow in almost any soil and in almost any place. It is arguably the most aggressive weed in New Mexico. Extremely prolific, one tree may produce 350,000 seeds in a single year from its massive number of tiny, unshowy flowers. These seeds have a high germination rate and produce a copious number of seedlings. The plant secretes a chemical that kills the seedlings of other plants. Adventitious buds on extensive rhizomes give rise to abundant asexual reproduction. It is an extremely fast grower (sometimes 10 to 18 decimeters per year). This trait means that it can and does overtop and shade out native vegetation. It also takes water and mineral nutrients from the native plants. It causes poison ivy–like dermatitis in some people, and is malodorous to most people. It forces us to utilize herbicides, whether we like them or not.

The New Mexico Department of Agriculture has classified *Ailanthus* as a "Class B Species" of noxious weed. This means that it is "limited to portions of the state. In areas of severe infestations, management should be designed to contain the infestation and stop any further spread." Ironically, its common name suggests that it might be associated with a deity in its native land, southern China and Indonesia. (Since "tree of Heaven" seems so inappropriate, I will refer to it as *Ailanthus* for the balance of this article). Some of the oldest Chinese writings record that it was cultivated in the Orient several millennia ago. It was important to the Chinese culture and was used medicinally by Asian people. It was initially introduced to North America as an ornamental plant in Philadelphia in 1784. By 1840, it was available in many East Coast nurseries. It was also introduced as food for silkworms. *Ailanthus* was brought to the west coast by Chinese miners during the California Gold Rush (1849–1860) for cultural and sentimental reasons. Old Chinese towns and mines can be still be told today by the presence of *Ailanthus*.



Two fruits (left), leaf (center), and leaflet (right). Note the tiny, diagnostic teeth on the lower end of the leaflet. (Source: McMinn, H. E., and E. Maino. 1959. *An illustrated manual of Pacific Coast trees.* Berkeley and Los Angeles: University of California Press.)

Ailanthus is an easy tree to recognize. It is rarely alone; instead, it is usually surrounded by numerous shoots and young trees that are ramifications of the original plant. The leaves are compound, relatively large (three to six decimeters long), and have an odd number of many leaflets (eleven to twenty-five) that are arranged opposite one another on a central stem (odd pinnately compound). The unpaired leaflet is situated at the end of the central stem. The leaflets have one to five tiny, glandular teeth at their lower parts (this is diagnostic). Otherwise, they have smooth (entire) edges. The leaves have a skunky smell, especially when crushed (this also is diagnostic). Male and female reproductive organs are usually on different trees. The female trees (the ones to eliminate first because they produce seed) have large terminal masses of tiny greenish yellow flowers in the summer. These are replaced by long, tan to yellow pink to reddish brown, papery, flat, twisted seed pods (samaras) in the fall.

Before control measures are taken, one must be certain that one is actually dealing with *Ailanthus,* and not desirable trees. *Ailanthus* can be confused with valuable arboreals such as pecan, ash, and black walnut trees, which also have odd pinnately compound leaves. But they mostly have fewer leaflets and no skunky smell. They also lack the diagnostic blunt, glandular teeth at the lower part of the leaflets.

Maintenance of a healthful ecosystem is the best way to exclude *Ailanthus* and any other weed. It is naive, however,

Continued page 14

New and Recent Books

Butterfly Landscapes of New Mexico
By Steven J. Cary
New Mexico Magazine. 167 pages.

Review by Angela Flanders, Gila Chapter

Butterfly Landscapes of New Mexico is obviously a work of love. Steven Cary, the chief naturalist of New Mexico state parks, has traveled the vast and varied landscapes of our land of enchantment searching for its over 300 species of butterflies. Along the way he has carefully noted habitats, behaviors, locations, and much more. You see, Cary wants readers to understand that there is a connection between all things in an ecosystem. One reflection of this concern is his use of habitat photos in association with butterfly photos. Butterflies may be found in the habitat photos, but, delightfully, may also be found moving in and out of the photos to land right on the page. To add to their visual impact, Cary chose to make the butterflies approximately life-sized.

The book starts off by describing, with the aid of a drawing, the basic parts of a butterfly. Cary briefly discusses coloration as protection and how to make a science-based collection. He then goes on to describe butterflies not by conventional means of identification but by location, in three groups: frequently seen butterflies, elevation and life zone, and specialized species.

Frequently seen butterflies are described in a section titled "Here, There, Everywhere." This includes an explanation of why these insects are ubiquitous and provides information about their plant associations. The five life zones of New Mexico—Arctic, Hudsonian, Canadian, Transition, and Upper Sonoran—are Cary's choice for his next grouping of butterflies, titled "Vertical Parade." The third grouping of butterflies, "Regional Specialties," is arranged by geographical location and turns into a journey through six eco-regions of New Mexico. This adventure begins with the eastern plains and ends with the desert borderlands. You will learn that the relationships between specialized species and their plants can be amazing.

Native plants are an important part of this book from the first page to the last. Cary refers to plants by common name followed by scientific name. While there may be a few objections to the use of a synonym such as *Chrysothamnus* for *Ericameria,* it is easily forgotten (who can keep up with native plant name changes, anyway?) when reading his plea for native plants on page 14:

> The use of native plants in all gardens is crucial. Non-native plants, like butterfly bush, are very attractive to butterflies, but if the critters spend their feeding time at non-natives, how will our native plants be pollinated? Many native ecosystems are under assault from invasive exotic plants, so gardeners should support indigenous species that help make New Mexico different from other places.

How many butterflies live in your county? You will find out in one of the many "Eco-notes" inserted among butterfly descriptions. Other inserts are interspersed as well. "Fine Dining" includes *Bouteloua gracilis* as one of its topics, and "History Highlights" mention some names familiar to native plant enthusiasts, such as Cockerell, Wheeler, and Townsend. Along with descriptions of where each butterfly occurs are tips on getting to those locations. Other extras include a checklist of over 300 butterflies, resources, glossary, and a list of state parks.

Besides being a pleasurable read, *Butterfly Landscapes of New Mexico* is thoughtful and thought provoking, and by the end of it a kind of metamorphosis has taken place in the reader's mind. No longer can a butterfly be viewed simply as an insignificant glimpse of fleeting beauty but now must be viewed as a vitally important link in the health of New Mexico landscapes. If you would like to pass on the essential idea of the interdependence of all things in an ecosystem, Cary's book of butterflies is a beautiful, enchanting, and memorable way to do that. ❖

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The Most Hated Tree in New Mexico *(continued from p. 11)*
to think that such an ecosystem is possible in all disturbed and waste places in the state. Removal is only practical and effective if a new, less-than-one-year-old infestation is located. After that, the roots and rhizomes are too extensive to excavate and eliminate them all. Any residual plant material in the soil can and will form new plants.

Cutting *Ailanthus* with no further action will do no good, as it is a vigorous stump sprouter. Pruning may actually stimulate it! Removing the flowers will, of course, prevent it from seeding, however. Cutting followed by herbicide application is the only possible means of coping with an established stand of *Ailanthus.* Trunks and shoots must be cut with the appropriate tool (chain saw, hand saw, loppers, or pruning shears). Then the severed ends must be painted with an herbicide. Gyphosate herbicides, such as Roundup, Rodeo, and Accord, are probably the most effective, but they are nonselective and will kill or injure any and all plants. Triclopyr herbicides, such as Garlon 3A and Garlon 4, are broadleaf selectives (designed to affect only broadleaf plants) and will not kill grasses. All are systemic chemicals that are translocated throughout the plant. They will not have an impact on the soil if utilized correctly. All agricultural chemicals absolutely must be applied in accordance with label directions.

Like all noxious weeds, *Ailanthus* is a tenacious survivor. Inevitably, some of the plethora of shoots do not die because they were either missed or did not get enough herbicide to kill them. Even if the treatment is done before seeds ripen, there will be ungerminated seeds from previous years. It is entirely possible that they will sprout. Therefore, the treated area must be monitored for several years after treatment. Surviving *Ailanthus* plant material must be located and destroyed.

The only way to avoid the use of agricultural chemicals is to spot, remove, and destroy *Ailanthus* in its first year. Vigilance is essential to recognizing and eliminating infestations of *Ailanthus.* This can only happen if a sufficient number of dedicated people learn how to identify the plants and carry tools like shovels and clippers in their vehicles to destroy them or at least keep them from producing seed. So, again, let's get with the program! ❖

New Mexico Noxious Weed List

This is from the website of the New Mexico Department of Agriculture, http://www.nmda.nmsu.edu; the list can be found at http://www.nmda.nmsu.edu/animal-and-plant-protection/noxious-weeds/weed_memo_list.pdf

Class A Species Class A species are currently not present in New Mexico, or have limited distribution. Preventing new infestations of these species and eradicating existing infestations is the highest priority.

Alfombrilla, *Drymaria arenariodes;* Black henbane, *Hyoscyamus niger;* Camelthorn, *Alhagi psuedalhagi;* Canada thistle, *Cirsium arvense;* Dalmation toadflax, *Linaria dalmatica;* Diffuse knapweed, *Centaurea diffusa;* Dyer's woad, *Isatis tinctoria;* Eurasian watermilfoil, *Myriophyllum spicatum;* Giant salvinia, *Salvinia molesta;* Hoary cress, *Cardaria* spp. *Hydrillaverticllata;* Leafy spurge, *Euphorbia esula;* Oxeye daisy, *Leucanthemum vulgare;* Parrotfeather, *Myriophyllum aquaticum;* Purple loosestrife, *Lythrum salicaria;* Purple starthistle, *Centaurea calcitrapa;* Ravenna grass, *Saccharum ravennae;* Scotch thistle, *Onopordum acanthium;* Spotted knapweed, *Centaurea biebersteinii;* Yellow starthistle, *Centaurea solstitialis;* Yellow toadflax, *Linaria vulgaris*

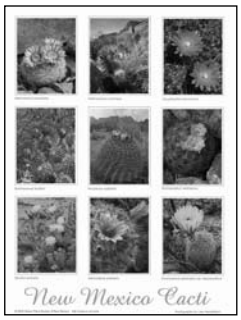
Class B Species Class B Species are limited to portions of the state. In areas with severe infestations, management should be designed to contain the infestation and stop any further spread.

African rue, *Peganum harmala;* Chicory, *Cichorium intybus;* Halogeton, *Halogeton glomeratus;* Malta starthistle, *Centaurea melitensis;* Musk thistle, *Carduus nutans;* Perennial pepperweed, *Lepidium latifolium;* Russian knapweed, *Acroptilon repens;* Poison hemlock, *Conium maculatum;* Teasel, *Dipsacus fullonum;* Tree of heaven, *Ailanthus altissima*

Class C Species Class C species are widespread in the state. Management decisions for these species should be determined at the local level, based on feasibility of control and level of infestation.

Bull thistle, *Cirsium vulgare;* Cheatgrass, *Bromus tectorum;* Jointed goatgrass, *Aegilops cylindrica;* Russian olive, *Elaeagnus angustifolia;* Saltcedar, *Tamarix* spp.; Siberian elm, *Ulmus pumila*

Membership in the NPSNM is open to anyone supporting our goals of promoting a greater appreciation of native plants and their environment and the preservation of endangered species. We encourage the use of suitable native plants in landscaping to preserve our state's unique character and as a water conservation measure. Members benefit from chapter meetings, field trips, publications, plant and seed exchanges, and educational forums. Members also qualify for membership in New Mexico Educators Federal Credit Union. A wide selection of books dealing with plants, landscaping, and other environmental issues are available at discount prices. The Society has also produced two New Mexico wildflower posters by artist Niki Threlkeld and a cactus poster designed by Lisa Mandelkern. These can be ordered from our poster chair or book sales representative.



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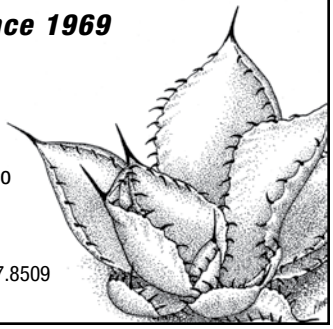

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Vascular Plants of the Gila Wilderness
Presented in Association with the
Western New Mexico University Department of Natural Sciences
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