

NEW MEXICO'S VOICE FOR NATIVE PLANTS



NEWSLETTER

of the

NATIVE PLANT SOCIETY
OF NEW MEXICO

JULY, AUGUST, SEPTEMBER 2023

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Castner Range becomes a National Monument after over 50 years, the efforts of thousands, and over 100,000 letters of support. El Paso is proud to be the home of the most recent National Monument. Read more in the Conservation Corner as well as information provided by El Paso members Kevin Floyd and Julia Bailey. We would also like to thank photographer Mark Clune for allowing us to use his image. See more of his breath-taking imagery of plants and landscapes of the Southwest at his website: <https://www.markcluneart.com>. Image: Mark Clune

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The Newsletter of the Native Plant Society of New Mexico

July–September 2023, Vol. 48 No. 3. 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 native plant enthusiasts and advocates, from home gardeners to resource managers and botanists, 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. Articles and high-resolution artwork supporting NPSNM's mission are welcomed and can be sent to the editor, Margaret Ménache, [newsletter \[at\] npsnm.org](mailto:newsletter[at]npsnm.org).

The next submission deadline is August 25, 2023.

Mission The Native Plant Society of New Mexico (NPSNM) is a non-profit organization that strives to educate the public about native plants by promoting knowledge of plant identification, ecology, and uses; fostering plant conservation and the preservation of natural habitats; supporting botanical research; and encouraging the appropriate use of native plants to conserve water, land, and wildlife.

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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, to conserve water, and as a part of the regional ecosystem in support of native pollinators and other fauna. Members benefit from chapter presentations, field trips, plant and seed exchanges/sales, discounts on publications, a statewide conference, and a network of knowledgeable plant enthusiasts.



Joining is easy! Scan this QR code to be directed to our website or go there the old-fashioned way from your browser: www.npsnm.org. You may also snail mail your contact information, local chapter preference (if any), and dues to our main address (NPSNM, PO Box 35388, Albuquerque NM 87176). Yearly dues [\$30 regular individual, \$45 household, \$60 friend of the Society, and \$20 for youth (through 26 years) or PK-12 teacher] and donations are tax deductible. Higher supporting levels can be found on our website. ❖

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From the Presidents

by Wendy and Don Graves



Hello NPSNM members and friends! Since our last letter to you we have been busy getting to know the NPSNM chapters, making wonderful contacts with the Arizona Native Plant Society, strengthening collaborations with other non-profit organizations, following up on updates to NPSNM policies and procedures, and addressing members' comments and concerns.

Hitting the Road

Visiting NPSNM chapters is an important goal for us and we have recently paid visits to the more southerly chapters, including El Paso, Otero and Las Cruces, meeting with chapter leaders and members. It has been great to learn about exciting chapter projects and initiatives and to meet with as many NPSNM members as possible to learn more about the activities and rhythms of the chapters. A wonderful spring bloom accompanied us along the way, as we traveled. Northern chapters (Taos, Santa Fe, and Albuquerque) stay tuned as we will be visiting you this summer and fall.

We were in El Paso in early March to tag along with Chapter President Kevin Floyd's tour of the Chihuahua Desert Garden, for which he is the botanical curator. This beautiful botanical garden surrounds the Centennial Museum on the campus of University of Texas, El Paso. Hint to chapters: this makes a wonderful field trip!

Late March in the charming and historic town of Tularosa was quite pleasant when we attended a workshop on the history, care, benefits, and lore surrounding figs in New Mexico. While not "native," figs have been in the state for over five-hundred years! Chapter president Jen Gruger and vice-president Russell Davis organized and herded cats at this most interesting and well attended day-long workshop presented by the Fig Man of New Mexico, Lloyd Kreitzer.

Finally, in early May, we attended a fascinating program for the Las Cruces Chapter about the beneficial insects in gardens. The speaker, Dr. Joanie King, is a new faculty member at NMSU. A meet-and-greet organized by chapter leaders Gordon Berman and Ken and Mary Steigman before the program was very welcoming, offering a wonderful opportunity to meet chapter members!

Of course, we are both very active in our own beloved Gila Chapter and it has been a very busy quarter in Silver City. Programs, field trips, and ongoing development of the Silva Creek Botanical Garden have kept our chapter very busy. A recent program on alpine flora, by Dr. Hannah Marx, director of the UNM Herbarium, was well attended. It was great to get to know Hannah and learn about the exciting work that she, her students, and her herbarium staff are engaged in.

South of the Border

In mid-April, we traveled across the Mexican border to visit the Sonoran Desert with a group from the Arizona Native Plant Society, Tucson Chapter, of which we have become members. In the four days that we were there, we saw over two hundred species of plants, an incredible assortment of birds and 'herps,' and enjoyed great companionship. Still being fairly new to the southwest, we also spent our first quantum of quality time exploring the Sonoran Desert. The canyons, streams, and rich biological diversity of life at La Rancho Esmeralda, south of Nogales, Mexico were amazing.

Collaboration is Key

The leadership of each of the NPSNM chapters has been notified of some special opportunities that may be of interest to their members, so please check with your chapters for more information. We had a very productive meeting with Kaitlin Haase, Southwest Pollinator



Members of the public and the El Paso Chapter of the NPSNM talk about the cactus garden during a tour of the Chihuahua Desert Garden, University of Texas, El Paso, in early March, 2023.

Image: Don and Wendy Graves.

Conservation Corner

by Rachel Jankowitz,
NPSNM Conservation Committee Chair



Wright's marsh thistle (*Cirsium wrightii*).

Image: Bob Sivinski

Wright's Marsh Thistle Listed

The U.S. Fish and Wildlife Service has determined threatened species status under the Endangered Species Act of 1973 for the Wright's marsh thistle (*Cirsium wrightii*). They also designated critical habitat. In total, approximately 156.8 acres (63.4 hectares) in Chaves, Eddy, Guadalupe, Otero, and Socorro Counties, NM, fall within the boundaries of the critical habitat designation.

Wright's marsh thistle was historically known to occur in Arizona, New Mexico, and Texas in the United States, and Chihuahua and Sonora in Mexico. Wright's marsh thistle has been extirpated from all previously known locations in Arizona, two historical locations in New Mexico, and was thought to be extirpated from all known locations in Texas and Mexico. However, in 2018, a re-examination of Texas herbarium specimens determined that two specimens were collections of Wright's marsh thistle, with the most recent collection being from Presidio County, Texas in 2003; and in 2019, a team rediscovered a population of Wright's marsh thistle located on a private property in Chihuahua, Mexico. In

New Mexico, eight confirmed locations of Wright's marsh thistle cover an area of approximately 106 ac (43 ha).

Wright's marsh thistle is a rare wetland species that grows in marshy habitats with year-round water-saturated soils, at elevations between 3,450 and 7,850 feet. It is usually associated with alkaline springs and seeps ranging from low desert up to ponderosa pine forest. Wright's marsh thistle is an obligate of seeps, springs, and wetlands that have saturated soils with surface or subsurface water flow. The most common pollinators of Wright's marsh thistle are bees, especially bumble bees.

The largest threats to the future viability of Wright's marsh thistle relate to habitat degradation. Because the thistle occurs only in areas that are water-saturated, populations have a high potential for extirpation when the habitat dries up. Loss of water from Wright's marsh thistle habitat occurs through changing precipitation patterns or drought, or as a result of human impacts from groundwater pumping or diversion of surface water.

The Service has concluded that livestock grazing poses a current and future threat to Wright's marsh thistle and its habitat through direct mortality and habitat degradation. Some native and nonnative plants pose a threat to Wright's marsh thistle and its habitat through habitat encroachment and competition for resources. Potential contamination from both oil and gas development and mining could impact the plants.

Sacramento Mountains Checkerspot Butterfly Listed

The U.S. Fish and Wildlife Service is finalizing its rule to protect the Sacramento Mountains checkerspot butterfly as endangered under the Endangered Species Act. The ESA defines endangered as a species that is currently in danger of extinction throughout all, or a significant portion of, its range.



Sacramento Mountains Checkerspot Butterfly. Image: Janelle Alleman, US Fish and Wildlife Service.

<https://www.fws.gov/media/sacramento-mountains-checkerspot-butterfly>

“The Sacramento Mountains checkerspot butterfly is among a group of pollinators — including bees, bats and birds — experiencing serious declines across the country,” said Amy Lueders, the Service's Southwest Regional Director. “Protecting pollinators is vitally important to maintaining the natural mechanisms that sustain us and our world.”

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The Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*) is currently recognized as a subspecies of the variable checkerspot butterfly. These butterflies are about two inches wide as adults and are a member of the brush-footed butterfly family, Nymphalidae. This subspecies is only found in a few high-elevation mountain meadows within the Sacramento Mountains on the Lincoln National Forest in southeastern New Mexico. In the Sacramentos, the butterfly occupies subalpine meadows between 7,800 and 9,000 ft. in elevation.

Like many other butterflies, the Sacramento Mountains checkerspot relies on a single species of host plant, in this case the New Mexico beardtongue (*Penstemon neomexicanus*), to lay its eggs. When the caterpillars hatch, they spin a silken tent around the plant to protect themselves. Caterpillars spend the winter in a state called diapause, which is similar to hibernation. When they emerge in the spring, they consume more plants before becoming a chrysalis and later turning into butterflies. In summer, after the monsoon rains come, the adult butterflies emerge for a short time to mate and lay eggs. Adult butterflies prefer to drink nectar from orange sneezeweed (*Hymenoxys hoopesii*).

In recent years, Sacramento Mountains checkerspot habitat has been degraded by incompatible grazing, human recreation, climate change, altered fire regime, and invasive non-native plants. Fish and Wildlife is partnering with the U.S. Forest Service, butterfly experts, and non-governmental organizations to restore butterfly habitat on the Lincoln National Forest. America's fish, wildlife and plant resources belong to all citizens, and ensuring the health of imperiled species and their habitats is a shared responsibility.

The Service found that the designation of critical habitat for the Sacramento Mountains checkerspot butterfly is prudent, but they are unable to make a critical habitat determination at this time. The Service is continuing to consider what areas may be essential to the butterfly's conservation and expects to propose critical habitat in the coming year. The listing rule went into effect March 2, 2023. The rule, comments, and materials the Service received, as well as supporting documentation used in pre-

paring the rule, are available for public inspection in the docket on <http://www.regulations.gov>; search for Docket No. FWS-R2-ES-2021-0069.

Castner Range Update

President Joe Biden has used his authority under the Antiquities Act to sign a proclamation establishing the Castner Range National Monument in El Paso, Texas. Castner Range, located on Fort Bliss and within the Chihuahuan desert along the Rio Grande, is an ancestral homeland of the Comanche and Apache people. The range contains more than forty known archeological sites including living structures, hearths, remnants of pottery and other tools, as well as a myriad of petroglyphs and images. Castner Range also served as a training and testing site for the U.S. Army during World War II, the Korean War, and the Vietnam War.

As detailed in the Fall 2015 NPSNM newsletter, the Castner Range borders Franklin Mountains State Park, the nation's largest urban state park, and is otherwise surrounded by densely developed private residential and commercial property. Botanically, the area is best known for its spectacular floral display of extensive fields of poppies (celebrated at an annual Poppy Festival), and it appears to be at or near the easternmost range limit for Southwestern barrel cactus, another conspicuous and esthetically pleasing plant. Interestingly, although El Paso is within the natural range of the California poppy (*Eschscholzia californica*), the vast display on the Franklins was sowed by El Paso civic boosters in the 1930s.

Other values which will be promoted by conserving the Castner Range include scenic beauty (from Highway 54 and from residential neighborhoods of El Paso), urban open space, wildlife movement corridors, and the potential for recreation and education.

The new Monument is a parcel of approximately 7000 acres within the city of El Paso, formerly used as a firing range. Castner Range was used as an Army training site from 1926 to 1966 and still is littered by unexploded ordnance. Clearance of unexploded ordnance will be required before public access is possible. The

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Plant Natives, Reduce Pesticides, and Transform Your Community!



The Carroll Petrie Foundation announces a new grant program for municipalities, counties, colleges, and universities located in New Mexico interested in becoming Bee City USA or Bee Campus USA affiliates.

For more information on the grant opportunity visit: carrollpetrie.org
To learn about Bee City and Bee Campus USA visit: beecityusa.org

The Carroll Petrie Foundation is a private family foundation based in Santa Fe, New Mexico. Alongside its partners, the Foundation invests in the care and protection of animals and the natural world.

Chapter Activities & Events

For further information on upcoming events, email or call the contact person listed, or visit the chapter's web page at www.npsnm.org. Click on Chapters to select the chapter. **Hikers** should always bring plenty of water, hat, sun protection, lunch and/or snacks, field guides. Wear sturdy shoes, suitable for rough, uneven ground. **Check with your chapter for any fees or restrictions they or the event venues might require. Please check with the hosting chapter to be sure you know the current status of any event listed here.** ❖

Albuquerque Monthly meetings are normally the first Wednesday of the month at 7:00 pm at the New Mexico Museum of Natural History and Science, 1801 Mountain Rd NW. For more information contact Sara Keeney at [skeeney\[at\]swcp.com](mailto:skeeney[at]swcp.com), 505-379-3392, or check the Albuquerque Chapter page on npsnm.org.

Jul 5 Meeting. "Getting to know our Area *Eriogonum*." Lee Regan, an Albuquerque member, will provide a visual survey identifying the growth habits and diversity of *Eriogonum* (buckwheat) species close to Albuquerque and our surrounding region. His slides will show some details of plant progression through the seasons, sharing examples that will help us to identify species we are likely to encounter.

Aug No meeting.

Sep 6 Meeting. "Project Pine Cone." Renee Galeano-Popp will talk about the natural history of our New Mexico pines and the sad story of White Pine blister rust. She hopes everyone will learn something they didn't know before about pine trees.

El Paso Meetings are usually at St. Alban's Episcopal Church, 1810 Elm Street. Programs are second Thursdays at 6:30 pm. Coffee social at 6:15 unless otherwise noted. All events free unless a fee is specified. Nonmembers welcome. Info: Kevin Floyd, 915-747-6665; [kwfloyd\[at\]utep.edu](mailto:kwfloyd[at]utep.edu); and, <https://www.facebook.com/Native-Plant-Society-of-New-Mexico-El-Paso-Chapter-191913520833180>.

Jul 13 Meeting. "The importance of moths." Moths are among the most diverse organisms, yet because most are nocturnal we rarely appreciate them. Their colors and patterns can be bright and colorful, or so well camouflaged that it is rare to see them. One effort to increase our knowledge about moths is National Moth Week, July 22-30, 2023. During Moth Week everyone is encouraged to learn about, observe, and document moths. Dr. Paul Hyder will discuss moths and some of the events he is planning for El Paso's Moth Week.

Aug 10 Meeting. Program TBD.

Sep 9 Meeting. Note this is a Saturday and will be from 9:00–11:00 am Exploring the Chihuahuan Desert Gardens at UTEP. Come see what flowers were triggered by the monsoon rains. Join us for a special tour of the Chihuahuan Desert Gardens with Botanical Curator Dr. Kevin Floyd. We will learn about the plants in the gardens and see which ones should be available for the fall FloraFest Native Plant Sale, tentatively scheduled for **Sep 16** starting at 9:00 am (www.utep.edu/florafest). Parking is available in the lot behind the Centennial Museum, University 2 (UN2). Wear comfortable shoes.

Sep 21-24 The El Paso Chapter will be hosting the Annual NPSNM Conference in Alpine, TX. Read more beginning on p. 8.

Las Cruces Our hybrid meetings are held on the NMSU campus in the Biology Annex, Herbarium Building, 3080 Williams Avenue, Room 101 on the second Wednesday of each month at 7:00 pm. Zoom link available from LC [\[at\]npsnm.org](mailto:[at]npsnm.org). Check the NPSNM website, the LC Chapter's Facebook page, and recent email for updates, changes, additional news and other events and activities of interest.

Jul 12 Meeting. "Climate Ready Trees: Planting Smarter for a Warmer Future," presented by Dr. Marisa Thompson. Dr. Thompson is the NMSU Extension Urban Horticulture Specialist, based in Las Lunas. She is responsible for research programs in sustainable practices for New Mexicans.

Aug 9 Meeting. Mike Gaglio, founder and owner of High Desert Native Plants of El Paso, will discuss the four pillars that are the foundation of his business: water harvesting, a native plant nursery, permaculture-based landscape design, and conservation services. Mike is a fourth-generation El Pasoan and founded High Desert in 2007. Since then, he has built wetlands along the Rio Grande, talked in El Paso's Cultivate Forums, installed numerous rainwater harvesting systems at homes, churches, and parks, filled the El Paso area with native plants, and designed and built green infrastructure across El Paso. Mike is a UTEP-trained biologist and Watershed-Management-Group certified

Gila (Silver City) Monthly evening programs will resume in October on third Fridays at 7:00 pm. For more information go to www.gilanps.org/events/programs. Field trips will be scheduled this summer as opportunities arise. Check www.gilanps.org/events/field-trips/.

Jul 29-30 We will have a booth and activities for children at the Hummingbird Festival at the Mimbres Culture Heritage Site.

Aug 12 Our big event of the summer will be the Native Plant Sale in the parking lot across from Gough Park. We have five local native plant growers lined up to sell their plants to the public.

Now that we have a Master Plan for the Silva Creek Botanical Garden, we are proceeding with the first phase, which will entail managing water flow from the street along the north end of the garden so that we can create a wildlife thicket in that area. In this project we will have the help of the Town of Silver City, the expertise of the local firm Stream Dynamics, and the assistance of volunteers from the Youth Conservation Corps.



The Silva Creek Botanical Garden helps educate visitors about pollinators, such as this Tetraloniella Bee. Image: Eloy Limner.

Otero For workshop and field trip details, contact Elva Osterreich, [echoofthedesert \[at\] gmail.com](mailto:echoofthedesert@gmail.com), 575-443-4408, or Jennifer Gruger, [jengruger \[at\] gmail.com](mailto:jengruger[at]gmail.com), 505-710-2924. Contact Jen if you'd like to be on a list to receive information regularly. More information will be available by the beginning of each month.

Jul 8 Field trip. Switchback Trail (Bailey Canyon). Meet at the T5004 trailhead just inside Bailey Canyon at noon. The switchback trail makes a loop with the Harkey Pedestrian Bridge, and offers great views of the forest.

Aug 12 Field Trip. James Ridge Lookout area (16 Springs). Summer is a great time for a hike in the forest north of 16 Springs. The area around the James Ridge Lookout has many flat roads and areas, and offers great views. Meet there at noon.



The view from the James Ridge Lookout. Image: Russell Davis

Continued page 18

Santa Fe In-person meetings are on the second Tuesday of the month at 6:30 pm at Christ Church, 1701 Arroyo Chamiso. They will resume in the fall. For more information, check the NPSNM website. Meetings and talks are free and open to all.

The Santa Fe chapter had several interesting speakers this spring. **April's** presentation was on "Restoration of fire-adapted forests of the Southwest" by Mateo Pomilia of the Forest Stewards Guild. Learn more about this country-wide organization at: <https://foreststewardsguild.org>.

In **May** we had two speakers from the NM Department of Transportation Environment Bureau, John Busemeyer and Andrew Alderete, speaking about roadside design and integrated vegetation management.

Please note that our in-person meetings will resume in September.

Field trips have been filling rapidly and therefore haven't been posted to the state NPS calendar. More are being planned for July and August. If you would like to be on the Santa Fe Chapter's email list, please email Sylvan at santafe@npsnm.org.

Barbara Fix has been organizing several hands-on volunteer projects. Volunteers can contact her at 505-989-8654 for information on upcoming dates. There's something for everyone as the list of recent events and projects indicates. Please contact Barbara and join in some hands-on native plant work.

We worked with the Cactus Rescue Project's Go-Fer-Gopher tunnel collapsing day for the new cactus garden on the downtown Acequia Trail, but we hear that the gophers may be returning. Barbara also leads volunteer days for weeding the popular Acequia Trail. At the Leonora Curtin Wetland Preserve, she organizes volunteer weeding days with Yvonne from Institute for Applied Ecology. Most recently they were weeding houndstongue.

Taos Videos of past meetings are at <https://tinyurl.com/TaosNPSvideos>. For updates, check the Taos page on the NPSNM website, our Facebook page, the Taos News Calendar, email [TaosNPS \[at\] gmail.com](mailto:TaosNPS[at]gmail.com), or contact Mary Adams, president, at [mary_adams_co \[at\] msn.com](mailto:mary_adams_co[at]msn.com). Meetings will be held on the FIRST Wednesday of the month in the Kit Carson Electric Cooperative Boardroom, 118 Cruz Alta Road at 6:00 pm.

Our summer schedule of meetings, wildflower walks, and field trips is in full swing. By the time you read this, we will have already participated in a day-after Earth Day open house at the Rio Fernando Land Trust property, given out information and plants at a table at Taos Arbor Day, had Gwen Wion of IAE in Santa Fe talk about the Southwest Seed Partnership, successfully looked for flowers on the Rift Valley Trail, car-pooled to Santa Fe to see Christina Selby's Piñon Country exhibit, had Dr. John Ubelaker talk about Rocky Mountain Beeplant, car-pooled again for a field trip to the Mora Forestry Research Center and gone on a second wildflower walk.

Jul 5 Meeting. Dr. Andreas Wion will talk about the boom and bust cycles of masting with Piñon Pine.

Jul 8 Wildflower walk in the Jemez Mountains—Valles Caldera National Preserve.

Jul 29 Field trip to the Aldo Leopold cabin in Tres Piedras, walk on the interpretive trail and have lunch.

Aug 2 Meeting. Dr. Owen Burney, Director of the Forestry Research Center in Mora, will talk about how the center was affected by last year's fires and what's next for reforestation.



Aug 5 Wildflower walk in the Taos Ski Valley—take the Peak 4 chairlift to alpine terrain. Possible Field Trip—end of August, beginning of September: details will follow.

Sep 6 Meeting. Chick Keller will tell us about native grasses in Northern New Mexico.

There is a reason why this wildflower, *Cleomella serrulata*, is called Rocky Mountain Beeplant. Image: Mary Adams

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Native Plant Society of New Mexico
2023 Annual Conference
Exploring the Trans-Pecos: Texas' Wild West

Thursday,
 September 21
 to
 Sunday,
 September 24



Alpine Civic
 Center
 Alpine, TX

The details for the 2023 conference in Alpine, TX, have come into focus. Alpine is a long drive for many of our New Mexico members, so we wanted to make sure there is plenty of time for everyone to explore the area. We have an exciting lineup of presentations on Friday, September 22nd at the Alpine Civic Center. The talks will showcase the plants and habitats of the Trans-Pecos and a bit on how to grow them. In the evening, we will meet at the Chihuahuan Desert Nature Center outside of Fort Davis, about 30 min north of Alpine for a tour and dinner. We cannot stay up too late there, as the next day has several field trip options. The field trips will all start from the Civic Center parking lot Saturday September 23rd at 8:00 am. There are options for people who want to stick closer to Alpine and two trips to Big Bend National Park. One BBNP trip will be for hikers and the other for those who prefer to see the park from a variety of stops and short walks. Dinner on Saturday will be on your own, allowing time to dine and explore in Marfa, Ft. Davis, or Alpine. You might want to head up to the McDonald Observatory for some star-gazing.

The conference page on the NPSNM website (<https://www.npsnm.org/2023-conference/>) has a list of options for self-guided stops for Saturday afternoon and for Sunday morning as people either head home or continue to explore the region. Updates and changes will be posted there as we get closer to the date. The handy QR code here will also take you there.

Registration is now open, and spaces are filling up. As of June 10, there were 20 spots left for the Marathon Grasslands field trip, 4 for Marfa Gardens, 4 for Caldwell Ranch, 13 for Aquatics and Riparian habitats, 12 for Big Bend Hiking, and 15 for Big Bend Driving. The dinner at the Nature Center had 27 spots left.

Registration is only online this year via a link from the conference page (click the friendly 'Register' button) to a Square site. We know that some people have had problems with payments. If you are experiencing any problems, please reach out to Lindsey Luna at [npsnmmembership \[at\] gmail.com](mailto:npsnmmembership@gmail.com) or the El Paso Chapter at [elpasonativeplants \[at\] gmail.com](mailto:elpasonativeplants@gmail.com). We want to help everyone who wants to attend get their registration figured out.

We also encourage everyone to make reservations for their lodging accommodations soon. There are several options in the region, but once those are filled that is it. See you in September!



Accommodations: Holiday Inn Express & Suites, 2004 East Hwy 90. Twenty-five rooms are blocked off. Rooms are \$149.99 plus \$19.50 tax, for a total of \$169.49 per night. Reservations must be made before August 21 to get this rate. Call the hotel directly at (432) 837-9597 and select option "0" to speak to guest services. Mention the Native Plant Society of New Mexico conference. This hotel offers free breakfast 6 am-10 am, WiFi, and a Manager's reception with snacks and beverages Monday through Friday from 5:00-7:00 pm. Learn more at <https://www.ihg.com/holidayinnexpress/hotels/us/en/alpine/mrfal/hoteldetail>. There are several other hotels in Alpine, The nearby towns of Fort Davis, Marfa, and Marathon are all about 30 min away. Fort Davis State Park offers tent and RV camping, and there are several RV parks in Alpine. We recommend making your reservations soon, as places do fill up during the fall.

2023 Annual Conference Program—Native Plant Society of New Mexico

El Paso Chapter, Alpine, Texas

Thursday, September 21

1:00-3:00 pm NPSNM Board Meeting, Alpine Public Library.
805 W Ave E, Alpine TX 79830

Friday, September 22

8:00-9:00 am Registration, Alpine Civic Center. 801 W Holland Ave.
9:00-9:30 am Welcome and Opening Remarks. Dr. Kevin Floyd, President of the El Paso Chapter
9:30-10:30 am Keynote – Flora of West Texas: an overview highlighting selected habitats and the flora within.
Michael Eason
10:30-10:45 am Break
10:45-11:30 am The Cacti of Texas in Their Natural Habitat. Dr. Ad Konings
11:30 am-12:15 pm Rare Plants of Big Bend National Park. Dr. Carolyn Whiting
12:15-1:00 pm Lunch
1:00-1:45 pm Aquatic Plants of West Texas. Casey Williams
1:45-2:30 pm Growing Southwestern Native Plants. Patty Manning

4:30-6:00 pm Tour of Chihuahuan Desert Nature Center in Fort Davis for registered dinner attendees.
43869 TX-118, Fort Davis, TX 79734
6:30-8:30 pm Welcome dinner at Chihuahuan Desert Nature Center for registered dinner attendees

Saturday, September 23

Half to three-quarter day trips, which allow participants to explore the area on their own in the afternoon. See the list of self-guided hikes and area attractions for afternoon ideas. All field trips leave from the Alpine Civic Center at 8:00 am. Carpooling is encouraged. Unless otherwise stated, there are no fees for the field trips. Additional information (including links to other websites) and details about the field trips may be found on the website at: <https://www.npsnm.org/wp-content/uploads/2023/05/field-trip-descriptions-for-2023-conference.pdf>

F-01. The Nature Conservancy (TNC) – Marathon Grasslands Preserve Tour

30.311603,-103.118294, ~10 miles north of Marathon, TX toward Fort Stockton on HW 385.385; 42 miles, 40 min. The tour will last around 2-3 hrs, and people can return to Alpine around 1 pm or continue to explore the region on their own.

A private, guided tour of the Marathon Grassland Preserve which is closed to the public. Located in the northern portion of the Marathon Basin region, the 2,701-acre preserve is comprised of diverse grasslands that extend up to the Glass Mountains. The preserve represents some of the most diverse Chihuahuan Desert grassland habitat in Texas and supports an array of wildlife, including migratory raptors and grassland birds, pronghorn, kit foxes, burrowing owls, golden eagles and the federally endangered northern aplomado falcon. The Conservancy's work at Marathon Grasslands Preserve highlights conservation-friendly ranching techniques and complements more than two decades of conservation work in the Davis Mountains and Marfa grasslands. Leader: Dr. Carlos (Lalo) Gonzalez, NAU Endowed Professor of Habitat Research and Management at Borderlands Research Institute and Assistant Professor in the Natural Resource Management Department at Sul Ross State University. Difficulty: Easy to Moderate. Wheelchair/ADA accessible: No. Maximum number of attendees: 30
Other: Signed Liability Release Required

F-02. Marfa Garden "The Wonders of Dry Desert Plants" Tour

1000 N Capote Street, Marfa, TX; 32 miles, 30 min. The tour will last around 3 hrs, and people can return to Alpine around noon or continue to explore the region on their own.

A tour of the garden featured in the book "Marfa Garden: The Wonders of Dry Desert Plants" led by the author and landscape designer Jim Martinez. "Marfa Garden" is a full-color celebration of more than sixty flowering plants of the Chihuahuan Desert and neighboring regions. The desert, North America's second largest at 140,000 square miles, spans West Texas, parts of New Mexico and Arizona, and northern Mexico. It is a showcase for colorful plant diversity. This garden's recognition has included a PBS episode of Garden Fit, and the 2021 book "Under Western Skies: Visionary Gardens from the Rocky Mountains to the Pacific Coast." Leader: Jim Martinez, author and landscape designer. Difficulty: Easy. Wheelchair/ADA accessible: Yes. Maximum number of attendees: 12

F-03. Caldwell Ranch Tour

2 Caldwell Ranch Road, Fort Davis, TX 79734; 53 miles, 1.2 hours. The tour will last around 3-4 hrs, until around 2 or 3 pm.

A private tour of the Caldwell Ranch near The Nature Conservancy Davis Mountains Preserve. This pristine high-elevation ranch offers a unique opportunity to explore Davis Mountain vegetation communities in an area normally closed to the public. Depending on rainfall, the ranch will have diversity including native penstemons, golden rod, gay feather, Indian paintbrush, sumac, and Apache rose. Trees include pine, emery oak, grey oak, red oak, sycamore, black walnut, and wild Cherry. Leader: Michael Eason and Pam and Will Harte, owners. Difficulty: Moderate. Wheelchair/ADA accessible: No. Maximum number of attendees: 20. Other: Any photos taken during the field trip are for private use only, and may not be shared publicly, e.g., online. High clearance vehicles are recommended.

F-04. Aquatics and riparian habitats

Location TBD. Possible locations O6 Ranch is 30 min; Balmorhea State Park and Sandia Springs are 65 miles, 1.25 hours. The tour will last around 2-3 hrs, and people can return to Alpine around 2 or 3 pm.

Most people do not think of aquatic habitats when considering the Trans-Pecos. In fact, many of the aquatic habitats support rare plants that are at risk due to changes in hydrology caused by increased droughts and groundwater pumping. Casey Williams has been surveying these habitats for several years, and has found many interesting species. This field trip will visit some of the locations to see some of these plants. The locations visited will depend on the monsoon rains. The preferred location is the O6 ranch located between Alpine and Fort Davis. This private ranch has a variety of habitats including mountain streams, ephemeral pools and springs. A brief talk on the ranch history and watersheds of the ranch will open the tour. Species we may encounter include Hornwort (*Ceratophyllum* sp.), Beggar's ticks (*Bidens laevis*), Monkey flower (*Erythranthe guttata*) and several uncommon pondweeds (*Potamogeton* spp.). If the area is dry the reserve option is a visit to Sandia Wetlands and the Balmorhea cienagas which have a good array of aquatic species any time of the year. Leader: Casey Williams

Difficulty: Moderate; uneven and unimproved trails. Wheelchair/ADA accessible: No. Maximum number of attendees: 20

Fees: If visiting Balmorhea: Balmorhea State Park: \$7 per person or Texas Parks Pass.

Field trips to Big Bend National Park (full day). There are two options for Big Bend field trips. One will focus on hiking one or more trails, with limited stops at some of the scenic areas. The other will be a driving tour that will visit more locations in the park but without exploring much away from the roads. We expect to return to Alpine around 6:00-7:00 pm for both trips. There are limited gas stations around the park, so please fill up in Alpine before meeting in the morning.

F-05. Big Bend National Park Chisos Basin Hike

Alpine to Chisos Basin Visitor Center is 108 miles, 2 hours; Chisos Basin to Santa Elena Canyon is 47 miles, 1.25 hours; Santa Elena Canyon to Alpine is 121 miles, 2.25 hours. The hike typically takes 3 hours, but might take longer with the typical pace we take when looking at plants. After the hike we will visit Santa Elena Canyon and possibly other stops along the way.

The Chisos Mountains are the center of Big Bend, and have peaks that reach well above 7000 ft. The Chisos Mountain Basin is the start of many trails. We plan to hike the Windows Trail, but this might change depending on summer monsoons and where the plants will look best. Participants will be notified in the week prior to the conference if the location does change. The Windows Trail offers a mix of shady forest and open, foothills vegetation. This trail descends through Oak Creek Canyon to the Window pour-off which frames panoramic desert vistas. At the base of the Window is a pour-off where a seasonal waterfall plunges 220-ft. down the west side of the Chisos Mountains. Plants we might see include Agave havardiana, Opuntia and smaller cacti, white honeysuckle, Texas Mountain Laurel, Mexican buckeye, evergreen sumac, and several species of oaks. During wetter periods Oak Creek may be flowing, and must be crossed several times. The roundtrip distance from the Chisos Basin Trailhead is 5.5 miles. Note that the top of the Window pour-off is slickrock with no railings. Keep in mind that it is an easy downhill walk to the Window, but the return trip is a challenging climb of 900 feet. After the hike we can drive to Santa Elena Canyon, about 1.25 hours from the Basin, and take the short walk to the mouth of the canyon. Other quick stops along the way or on the way out of the park will depend on conditions of the plants and the participants. Leader: Carolyn Whiting, Big Bend National Park botanist, and others TBA. Difficulty: Moderate. Wheelchair/ADA accessible: No. Maximum number of attendees: 20. Fees: \$30 per vehicle or National Parks Pass.

F-06. Big Bend National Park Driving Tour

Alpine to Rio Grande Village is 120 miles, 2.25 hours; Rio Grande Village to Chisos Basin is 30 miles, 45 min; Chisos Basin to Santa Elena Canyon is 47 miles, 1.25 hours. Santa Elena Canyon to Alpine is 121 miles, 2.25 hours.

This field trip is a highlight reel of Big Bend National Park. We will start at the eastern side of the park at Rio Grande Village. There is a short nature trail that passes through a beaver pond and views of the Rio Grande. A short distance from here is the Boquillas Canyon Lookout. We will then head back west towards the Chisos Basin. We might stop along the way at Dugout Wells or the Panther Junction Visitor Center before starting the drive up into the basin. The Chihuahuan Desert flora of ocotillo and creosote begin to change into woodlands and grassy montane meadows. In the Basin is a visitor center and small store. There is a short Window View Trail that provides a beautiful view out to the west side of the basin. We will descend back out of the mountains and continue west, turning onto the Ross Maxwell Scenic Drive. We can see the Chisos Mountains from below, along with many desert vistas. There are several locations for quick stops as we follow the drive towards Santa Elena Canyon. There is a short walk to the mouth of the canyon, one of the most photographed parts of the park. From there we will start the return to Alpine, stopping as the scenery and vegetation dictates. Leader: TBA. Difficulty: Easy, mostly driving and short walks. Wheelchair/ADA accessible: No. Maximum number of attendees: 20. Fees: \$30 per vehicle or National Parks Pass.



Alpine is a city and the county seat of Brewster County, Texas, United States. The population was 5,905 at the 2010 census, growing slightly to 6,035 at the 2020 census. The town has an elevation of 4,475 feet (1,364 m), and the surrounding mountain peaks are over 1 mile (1.6 km) above sea level. The university, hospital, library, and retail make Alpine the center of the sprawling 12,000 square miles (3,108,000 ha) but wide open Big Bend area (combined population 12,500) including Brewster, Presidio, and Jeff Davis counties.

Source: https://en.wikipedia.org/wiki/Alpine,_Texas

Self-Guided Field Trips and Area Attractions

This is a collection of interesting stops and field trips you can take on your own while traveling to and from the conference, after a Saturday field trip, or if you are wanting something less strenuous than the scheduled field trips. No time during the conference? Keep this list and come back another time! No registration is required but please check the link for any site of interest to plan your visit with regard to directions, hours, tickets and registrations, accessibility, and possible changes due to weather, fire risk, road closures, or maintenance.

Alpine

Alpine Historic Walking Tour: <https://historicalpine.org/historic-walking-tour/>

Alpine Mural Walking Tour: https://visitalpinetx.com/wp-content/uploads/2020/06/Alpine-Mural-Walking-Tour-https://visitalpinetx.com/places_taxonomy/alpine-murals/

Museum of the Big Bend, Sul Ross University, 400 N Harrison St C-101, Alpine, TX 79832: <https://www.museumofthebigbend.com/>
The new Emmett and Miriam McCoy Building is opening June 23-24, expanding on their ability to tell the story of the Big Bend.

Twin Sisters Natives (Patio/Garden), 605 S Cactus St, Alpine, TX 79830-6909

Twin Sisters Natives grows and sells plants which are native to the Trans-Pecos/Northern Mexico region. Cash and checks only for plant sale, no debit or credit cards. Email twinsistersplants@gmail.com for plant lists, appointments and information. (432) 940-1124

West of Alpine

Paisano Pass & Paisano Pass Volcano, US 90 Between Alpine and Marfa: <https://www.tshaonline.org/handbook/entries/paisano-pass-https://youtu.be/JSmVHcnoakM>

Paisano Pass Rest Stop with Roadside Interpretive Exhibit, US 90, ~ 15 min west of Alpine: <https://goo.gl/maps/bzoFjfnV8G71MDWH9-https://visitbigbend.com/paisano-pass-volcano/>. The pass, at an elevation of 5,074 feet above sea level, rises 228 feet above the nearby prairie. The surrounding terrain is desert mountain canyonland of volcanic deposits and alluvial washes of sands and gravels. The local soils are light reddish-brown to brown sands and clay loams. Vegetation includes sparse grasses, cacti, and desert shrubs.

Marfa Lights Viewing Area, US 90, ~ 20 min west of Alpine: <https://goo.gl/maps/e8R63HyG7hSKJGmy7>

<https://texasmountaintrail.com/plan-your-adventure/historic-sites-and-cities/sites/marfa-lights-viewing-site>

Just east of Marfa lies another engaging attraction. The Marfa Lights have confounded thousands of people who have flocked to the site since 1883 for a chance to see the elusive ethereal orbs suspended in the air with no apparent source. There are many theories about the unexplained phenomenon, from Apache Indian folklore to UFO sightings; however, a scientific explanation has yet to emerge.

Chinati Foundation (Art Museum) 1 Cavalry Row, Marfa, TX 789843 ~ 30 min west of Alpine. <https://chinati.org/>

The Chinati Foundation/La Fundación Chinati is an art museum in Marfa, Texas based upon the ideas of its founder, Donald Judd. The emphasis is on works in which art and the surrounding land are inextricably linked.

North of Alpine

Fort Davis National Historic Site, 101 Lt. Flipper Dr. #1379, Fort Davis, TX ~ 30 min north of Alpine: <https://www.nps.gov/foda/index.htm>

Fort Davis is one of the best surviving examples of an Indian Wars' frontier military post in the Southwest. From 1854 to 1891, Fort Davis was strategically located to protect emigrants, mail coaches, and freight wagons on the Trans-Pecos portion of the San Antonio-El Paso Road and on the Chihuahuah Trail.

Davis Mountains State Park, TX-118 N., Park Rd 3, Fort Davis, TX 79734, ~ 30 min north of Alpine: <https://tpwd.texas.gov/state-parks/davis-mountains>

Davis Mountains State Park offers a unique and remote destination for all sorts of adventures. Here you can hike, backpack, mountain bike or ride your own horse, take a scenic drive through the mountains, go camping, stargaze, geocache and study nature.

McDonald Observatory, 3640 Dark Sky Dr, Fort Davis, TX 79734, ~ 45 min north of Alpine: <https://mcdonaldobservatory.org/visitors>

Observatory facilities are located atop Mount Locke and Mount Fowlkes in the Davis Mountains of West Texas, which offer some of the darkest night skies in the continental United States. Star parties sell out early. As of publishing the dates have not been opened to make reservations, but should be 9/22 and 9/23. Learn more at <https://mcdonaldobservatory.org/visitors/programs/evening-programs>

The Nature Conservancy's Madera Canyon Trail, Fort Davis, TX 79734, SH 118, ~1 hr north of Alpine: https://www.nature.org/content/dam/tnc/nature/en/documents/TX-DMP-Madera_Canyon_Visitor_Map.pdf and https://www.nature.org/en-us/get-involved/how-to-help/places-we-protect/davis-mountains-preserve/?tab_q=tab_container-tab_element

NOTE: Adjacent to the Davis Mountains Preserve; Davis Mountains Preserve will not be open during the conference

The Madera Canyon Trail offers a glimpse into The Nature Conservancy's Davis Mountains Preserve, a unique sky island with plants and animals found nowhere else in the world. The trail offers a moderate hike. Most of the trail is on sloping terrain. After crossing Madera Creek, the trail winds through pinyon-oak-juniper woodlands to a scenic view of 8,378 foot Mount Livermore. The cliff tops in front of you offer a beautiful overlook of Madera Canyon.

Balmorhea State Park, 9207 TX-17, Toyahvale, TX 79786, ~ 1 hr north of Alpine: <https://tpwd.texas.gov/state-parks/balmorhea>

The Civilian Conservation Corps built Balmorhea State Park in the 1930s. Nearly 80 years later, people are still cooling off at the park. Swim, scuba or skin dive, camp, geocache, study nature and bird watch. Explore the restored cienegas (desert wetlands), home to endangered fish and other wildlife.

South and East of Alpine

Gage Gardens, 106 1st St, Marathon, TX 79842, ~ 30 min east of Alpine: <https://www.marthontexas.com/post/gage-gardens>

Gage Gardens is a 27-acre garden in the heart of downtown Marathon. Native landscaping, a rose garden, a pond, a mini putting green, and a dedicated dog park are just a few of the perks of this beautiful outdoor park.

Big Bend National Park, TX 79834, ~1.25-1.5 hr south of Alpine: <https://www.nps.gov/bibe/index.htm>

Big Bend National Park is a geological marvel evidenced in sea fossils and dinosaur bones to volcanic dikes that mar the desert landscape. It's a world of species diversity from the meandering river corridor that sidles across the desert floor to the sky island ridge tops that reach for the stars. It's a place where you can still hear the whispers of pioneers, ranchers, miners, and Native Americans. And it's a land of borders—a place where countries and cultures meet.

Terlingua "Ghost Town", TX 79852, ~1.5 hr south of Alpine: <https://visitbigbend.com/terlingua/> and <https://visitbigbend.com/chisos-mine-terlingua/>

Perhaps the best-kept secret about the Big Bend is the view from the porch in Terlingua Ghost Town. Most afternoons you can see the Santa Fe de Los Pinos mountain range over 80 miles south in Mexico, and of course such local landmarks as the Chisos Mountains and Mule Ears

peaks. Visitors will also find a trading company/gift shop, art galleries, unique lodging options, restaurants, and bars.

Barton Warnock Visitor's Center/Big Bend Ranch State Park, 70 hc, Terlingua, TX 79852, ~1.5 hr south of Alpine: <https://tpwd.texas.gov/state-parks/barton-warnock> and <https://tpwd.texas.gov/state-parks/big-bend-ranch>

Big Bend Ranch State Park offers outdoor recreation for the truly adventurous. This remote park features rugged mountains, steep canyons, amazing views, unparalleled night skies, and solitude in a high desert setting. The park stretches along the Rio Grande in far west Texas, on the U.S.-Mexico border.

The Ten Far West Texas Wildlife Trails

<https://tpwd.texas.gov/huntwild/wildlife/wildlife-trails/fwtx>

Encompassing an area from El Paso to Midland-Odessa and down to the Rio Grande's border with Mexico, this map helps visitors discover a blend of natural and cultural resources such as historic structures, forts and ancient pictographs as well as a chance to trek through the rugged outdoors. Watch for Montezuma Quail, black-tailed jackrabbit and Cactus Wren to name a few.

Trails of interest include:

- **Marathon-Alpine Loop**, along SH 285, US 90, and SH 118, nearby east and southeast of Alpine

<https://tpwd.texas.gov/huntwild/wildlife/wildlife-trails/fwtx/marathon-alpine-loop>

- o Elephant Mountain Wildlife Management Area
- o Gage Gardens
- o Post Pena Colorado Park
- o Black Gap Wildlife Management Area

- **Davis Mountains Loop**, along US 20 & US 90, west & northwest of Alpine

<https://tpwd.texas.gov/huntwild/wildlife/wildlife-trails/fwtx/davis-mountains-loop>

- o Balmorhea State Park
- o Balmorhea Lake
- o Sandia Springs Wetlands
- o Chihuahuan Desert Nature Center
- o Mountain Trails Lodge & Outdoor Learning Center
- o Davis Mountains State Park and Indian Lodge



Above: Participants from the Texas Native Plant Society 2022 Annual Meeting search for plants during The Nature Conservancy's Marathon Grasslands Preserve Field Trip. Sign up for F-01 to explore the Marathon Grasslands this September.

Image: Kaylee French



Above: The Santa Elena Canyon is one of the beautiful landscapes that make up Big Bend National Park. Sign up for F-06 to drive to it and take a short walk to the mouth of the canyon. There's a possibility that those on F-05 will have time for the same short walk.

Image: NPS Photo/Ann Wildermuth



Right: This High Chisos Vista shows the wide range of vegetation you'll see in the Big Bend National Park. Sign up for F-05 to hike in the plants in the Chisos Basin or for F-06 to drive through even more of the area.

Image: NPS Photo/Ann Wildermuth

The Story of a Very Little Cactus

by Vicky Ramakka, Taos Chapter

Three things make Knowlton's Cactus (*Pediocactus knowltonii*) my favorite cactus. I tend to root for the underdog, it's just plain cute, and I love the bulldozer legend of how it was discovered. What's more, it's one of the most endangered cacti in the US and it only occurs in San Juan County where I live.

The legend, as I heard it, went something like this: there was a bulldozer driver working for PNM clearing a road. He noticed little cactus balls rolling off the blade. He thought they looked different and were something to check into. My assumption was the Knowlton's cactus was named for the bulldozer driver, which seemed a little far-fetched to me. As I dug deeper, I found a clue. I also found so many publications about Knowlton's cactus that they could probably blanket the hill this tiny cactus occupies.

Knowlton's cactus has been documented in only one location, a hill of approximately ten acres in San Juan County, close to the Colorado border. This extremely limited population inherently puts it into the endangered category, but announcement of a new cactus caused the species to be loved almost to extinction. The *Flora of the Four Corners Region* (Heil, et al. 2013) provided a succinct description: stems, solitary or rarely clustered, may grow up to 3.8 cm long, barely protruding above ground level, pink flowers. "Endemic to the San Juan River drainage; our rarest and most endangered plant. Heavily collected after its initial discovery and still a favorite in the cactus trade."

Benson (1982), a leading Cactaceae authority, gave a more elegant description. "This beautiful miniature cactus is long to be sought in the field and seldom to be found. Mature plants range from the size of a quarter to that of a fifty-cent piece, and they blend into the rock mosaic around them or into the debris under shrubs. The stem is studded with

tiny bumps, each bump crowned with a parasol of white spines." Don Hyder, retired San Juan College biology professor, enthuses about the little cactus, barely 1½" tall, "When they bloom, the bloom absolutely covers the top of the cactus" (personal communication 2023).

Benson (1960) first announced the discovery of Knowlton's cactus in one paragraph in the *Cactus and Succulent Journal*. In a *C&S Journal* issue the next year, he gave a more detailed description and revealed his source. "This cactus was sent to the writer in the spring of 1958 by

Three things make Knowlton's Cactus (Pediocactus knowltonii) my favorite cactus. I tend to root for the underdog, it's just plain cute, and I love the bulldozer legend of how it was discovered. What's more, it's one of the most endangered cacti in the US and it only occurs in San Juan County where I live.

the late Mr. Fred G. Knowlton of Bayfield, Colorado. ...In his notes Mr. Knowlton indicated that the plants had come up in disturbed soil, as follows: "...There were acres of coarse gravel that 'dozer has ramped around in. Found a few dead plants but 'dozer has cut everything down and little white spined balls were coming up all over the place... Am sending a couple. Didn't know there were any *Pedio* within miles."

Eilene Lyon, a Durango-based family historian, tracked down more information on Fred Knowlton. He was born 1880 in Minnesota, died in June of 1958, and is buried in Durango's Greenmount cemetery. This would make Knowlton 77 years old when he found the uprooted cactus. Lyon also found JSTOR references for a 1933 issue of *American Fern Journal* documenting fern samples sent by Fred G. Knowlton to the article's author, who determined this was the first report of the species recorded in Wisconsin where Knowlton lived at the time.

Knowlton was a retired electrician and lived in Colorado for ten years before a house fire caused his death. Neighbors described his mineral and cactus collections as invaluable (Durango Herald 1958). Clearly, Knowlton was an amateur naturalist, not a bulldozer driver, but the 'dozer part of the tale rings true. We owe Mr. Knowlton the honor of recognizing the miniature cactus as a likely new species.

Ken Heil, retired San Juan College professor and lead author of the *Flora of the Four Corners Region*, has visited the

site several times. He relates that in the early '60s, a local teacher took him "out to Knowlton's Hill. There were hundreds of them. You couldn't walk without stepping on them. Pretty incredible" (personal communication, 2023). In his Master's thesis, Heil (1972) described an alarming situation. "On a visit to this hill in 1966 many plants of this type cactus were found growing under sagebrush and other plants in the area, but in 1971 it was difficult to find a solitary specimen of this species. If collectors do not decimate the species a second danger still persists. The cactus grows so close to the Los Piños River that if the Navajo Dam begins holding more water than at present, the water will back up and flood this area, and there are also plans for more recreational facilities around Navajo Lake so traffic alone may endanger it. The future looks bleak for *P. Knowltonii* and in a few years it's doubtful if this cactus can be found in its natural habitat."

Continued next page

A Very Little Cactus, Continued from page 13



UNM Herbarium Specimen, UNM0116805. Collected by P. Prince (collection year not legible) in San Juan County. Collector's notes: On gravel hill. Flowers taken from garden 4/9/1962. Annotation label by Richard Spellenberg 3/1977: This specimen was the primary source for an illustration prepared for New Mexico's threatened and endangered species.

Image: Vicky Ramakka

What happened between the discovery of a new, rare cactus in 1958 and Heil's dire prediction in 1972? In addition to the usual hazards of high desert weather extremes and rodents' appetite for seeds, the little cactus faced major human impact. Collectors descended on the site like vultures on a ripe carcass to obtain plants for personal or commercial uses. A well-intentioned effort to "save" the cactus caused severe depletion. Word went out among the NM Cactus and Succulent Society members that Knowlton's hill was about to be inundated. Members from Albuquerque and surrounds traveled to the site and reportedly removed thousands of cacti (Sivinski, R. C. and C. McDonald, 2007, referring to a communication from Paul Knight). Their concern was understandable.

Construction of Navajo Dam began in 1958. Navajo Lake began to fill and by the dam's completion in 1963, Navajo Lake extended some 25 to 30 miles to the north and into Colorado. It flooded archaeological sites, four small, mainly Hispanic, communities, and displaced almost 200 families (Tharp 2019). In hindsight, these forays by the CSSNM members were unwarranted: the lake's waters reach nowhere near Knowlton's hill.

Concern for Knowlton's cactus grew to the point that, in 1976, it was proposed for federal listing as endangered. *P. knowltonii* was among three other *Pediocactus* species to be listed as endangered. In fact, 1,700 plant species were proposed at the same time (Department of Interior Fish and Wildlife Service).

The 1979 Federal Register (Department of Interior Fish and Wildlife Service) made it official: "The service determines *Pediocactus knowltonii* (Knowlton cactus), a native plant of New Mexico to be an Endangered species. The plants are in demand by cactus collectors, and removal by commercial suppliers and private col-

lectors has caused a decline in the natural populations. Much of the original habitat was destroyed by Navajo Reservoir. Off-road vehicle activity is also a threat to the species."

Among the comments received, the NM Natural Resources Department recommended the cactus be listed as Endangered, but without designated critical habitat. The NM Department of Agriculture recommended that, "specific areas for the species should not be designated" due to the possible inadequacy of laws and their implementation and that "listing might increase threats to the species."

The Fish and Wildlife Service identified five factors as the basis for determining that *P. knowltonii*, "is in danger of extinction throughout its limited range."

1. It was documented only from one small area. ... "Most of the original populations along the Los Piños River were flooded with the creation of Navajo Reservoir, and a portion has been destroyed by a parking lot..." [It is debatable whether this last statement can be supported. It is possible that the cactus occurred in the area flooded. However, no other natural occurrences have been documented other than Knowlton's hill.]
2. Taking by commercial and private collectors, "...despite the fact that it is readily propagated from seed and available in cultivation. In May 1979 only several hundred specimens could be found in the wild. Wild plants have been and still are offered for sale nationally and internationally."
3. Disease or predation, noting that cattle graze in the area. [Later monitoring showed that rabbits continue to have severe impact.]
4. Inadequate regulatory mechanisms.
5. Other natural or man-made factors, citing the way the cactus retracts underground during the dry season, possibly resulting in habitat disturbance in ignorance of its presence.

The Fish and Wildlife Service designated *P. knowltonii* as Endangered, but determined that it would "not to be prudent to designate Critical Habitat for this species at this time..."

The silver lining resulting from these dire threats is that serious conservation efforts got underway. The Public Service Company of New Mexico transferred ownership of the 10-acre site to the Nature Conservancy. The population was fenced to exclude livestock. A small slice of adjacent BLM land was also safely fenced.

The US Fish and Wildlife Service approved a recovery plan in 1985, leading to implementation of a monitoring process in 1986



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Pediocactus knowltonii in lower center of image. A US quarter at the top of the image and slightly to the right of the plant provides a sense of scale. As observed by Benson: "Mature plants range from the size of a quarter to that of a fifty-cent piece, and they blend into the rock mosaic around them or into the debris under shrubs." Image: Vicky Ramakka

and efforts to establish the species in alternate locations. These efforts to ensure viability of the species have included seeding and transplanting cuttings from established adult stems.

These relocation attempts have had variable success. Two small sites on BLM remain, with some natural reproduction observed. Monitoring data show the transplant plots have been stable or increasing since 2008 (Roth 2021).

The 2021 Fish and Wildlife Service Section 6 Summary Report recaps 35 years of monitoring data (Roth 2021). I consider this a tribute to all those individuals who have worked to protect one small, beautiful species.

Monitoring year after year documented ups and downs of survival and regeneration, generally related to annual precipitation. Regrettably, the 2021 report concludes that the species is in slow decline, attributed to prolonged drought associated with climate change, which affects pollinator availability and increased likelihood of rabbit and rodent damage. Except for the small transplant sites, the 2021 report states: "Additional surveys in suitable habitat to potentially document new natural populations were unsuccessful, supporting our current understanding that the total world population of *Pediocactus knowltonii* is restricted to one small hill, providing habitat for less than 3,500 plants."

Illegal collecting remains a threat. A serious hit occurred in 1996 when an entire monitoring plot was removed. A 2018 wildlife camera trap study revealed a trespass and possible theft (Roth 2021).

In a perverse way, the mass removal in 1960 by CSSNM members may have helped to mitigate Knowlton's cactus poaching. Many were cultivated so that starts and seeds became available from commercial sources. My Google search this spring indicates that commercial availability seems to be dwindling. Mesa Garden's website, a long-time NM cactus supplier, offers seeds, but with the note that they are out of stock.

Certainly not to be equated with the importance of a native, natural population, it appears that Knowlton's cactus is likely to



The flower of the *P. knowltonii* "absolutely covers the top of the cactus," as Don Hyder informed Vicky Ramakka. As described on SEINet, "outer tepals with brownish midstripes . . . ; inner tepals pink." Image: Vicky Ramakka

continue delighting cactus fans in private gardens. I enjoyed a recent *C&S Journal* article by Gorelick (2022) recounting that he is successfully growing Knowlton's cactus in Ontario. He describes fondness for this species because of its tolerance for extreme conditions. He has been growing *P. knowltonii* in southern Ontario for over a dozen years, noting that it survives low temperatures to -22 F and high temperatures around +80 F. It is surprising that such a specialized species found in one isolated spot in New Mexico seems to survive and thrive in Canada.

Continued page 18

Native Plant Sale

Saturday, August 12th

10:00 a.m. to 2:00 p.m.

Gough Park parking lot at 12th and Pope in Silver City

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Canyon Penstemon, *Penstemon pseudospectabilis* by Jackie Blurton

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Science Teacher Award

This award recognizes grade 6-12 science teachers who incorporate teaching about plants, plant science, or native plants in effective and inspiring ways. This is an award for teaching performed during the 2021 and 2022 school years. A one-time award of \$500 is granted to the teacher. In addition, teachers receive a free copy of a native plant guide book, and grade 8-12 teachers may also request a complimentary copy of *From Ponderosa to Prickly Pear*, the NM native plants curriculum developed by the Institute for Applied Ecology.

We are pleased to announce that Science Teacher Award has been given to Claire Noonan this year. Ms. Noonan is an environmental science teacher at Santa Fe High School.

The individuals writing letters of support for her nomination described multiple projects that are practical, hands-on, and connect students with the environment around them. Ms. Noonan engages the students in experimental data collection over multiple years to encourage the students to engage in a more nuanced understanding of change over time. One study, for example, has been investigating soil moisture and nutrient levels over multiple years. As one person wrote: "Students learned [about] the impact of changes in soil to native plants and the ripple effect those changes have throughout the ecosystem." This person went on to add: "This project has inspired many students to discuss plant life with their families." And: "As a campus, we've been inspired by her approach to make learning meaningful to students."

In another letter of support, the writer included a "personal note" expressing a similar response to Ms. Noonan's approach to teaching: "This teacher is seriously amazing and puts so much effort into creating authentic projects for her students that relate to their reality. She is an inspiration."

According to a 2018 article by Ivy St. Clair in the school's newspaper, *the Demon Tattler*, Ms. Noonan joined the high school staff in 2017. Presaging her engaging projects today, she said: "Ev-

eryone needs support in a slightly different way, so I try to make sure that everyone can be included in the lesson," adding, "It's a really big challenge... it tests me. I feel like I'm doing something that matters."

More recently, and during the period reviewed in making this award, teachers everywhere faced one of their greatest challenges ever — the wobbly on-again-off-again return to in-person teaching following a year of remote learning during Covid. In a 2022 interview in the *Santa Fe Reporter* she reiterated her earlier statement saying that she "wants to support kids getting to know each other ... using games in the classroom to help them start talking."

In May, she was one of 16 area teachers honored by the LANL Foundation for achieving their National Board Certification. This certification from the National Board for Professional Teaching Standards has been shown to increase student academic performance.

Ms. Noonan embodies the qualities of an excellent science teacher. We thank her for her work teaching the young people of New Mexico to engage with their environment. ❖

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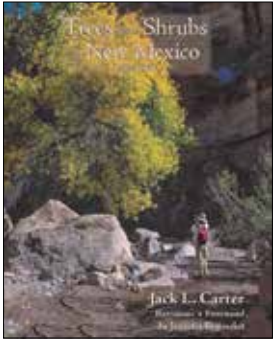
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The Gila Native Plant Society is committed to promoting the education, research, and appreciation of the native flora of the southwest; encouraging the preservation of rare and endangered plant species; and supporting the use of suitable native plants in landscaping.

Conservation Corner, *Continued from page 5*

Castner Range National monument will be managed by the Army, the first time a national monument will be managed by the military since national battlefields were transferred to the National Park Service in the 1930s. While Castner Range is currently off-limits to people, it provides habitat for an array of wildlife, including the American peregrine falcon, the golden eagle, the black-tailed prairie dog and the Texas horned lizard.

Preservationists have sought to protect Castner Range for years, but over the past decade the effort has focused on getting a presidential designation of a national monument. The White House announcement of 21 March said the Army, which in the past has resisted National Monument designation for Castner Range, “will commence a land management planning process with robust public engagement in the next 60 days”, and will work with tribes and the community to secure public access to the monument in phases, as it is safe and appropriate.

More information about this important designation below. ❖

Castner Range Becomes a National Monument

information provided by Julia Bailey and Kevin Floyd, El Paso Chapter

On March 21, 2023 El Pasoans were thrilled to learn that Castner Range in El Paso County, Texas, had been designated as a National Monument. Castner Range consists of 6,672 acres of high-desert mountains, making up the southern component of the Franklin Mountain range, near the heart of El Paso, Texas. The announcement to designate Castner Range as a National Monument comes after over 50 years of advocacy from the community including efforts by some El Paso chapter members.

From the White House Press Release:

"The local El Paso community cherishes the Franklin Mountains for their natural and ecological features. Castner Range remains an area of high biodiversity for desert species in America, including spring blooms of the Mexican Poppy. In addition to the poppies, this section of the Franklin Mountains also contains a high concentration of natural springs. Along with creosote brush vegetation, it provides important habitat to wildlife that call Castner Range home, including the American peregrine falcon, Golden eagle, mountain plover, Texas horned lizard, Black-tailed prairie dog, Baird's sparrow, and the Western burrowing owl. The endangered Sneed pincushion cactus and a host of other rare or endemic plants also inhabit the area. Protecting Castner Range ensures connectivity with other protected areas and migratory corridors for species to travel without the threat of human impacts."



Castner Range map. <https://castnerrange.org/reports-resources>

Read the full press release here: <https://www.whitehouse.gov/briefing-room/statements-releases/2023/03/21/fact-sheet-president-biden-designates-castner-range-national-monument/>

A non-profit organization, Castner Range (for the social media literate, #Castner4Ever) has also been, and will continue to be, an active advocate for the newly named National Monument. Their website (<https://castnerrange.org>) is loaded with information, resources, and reports on the Range and its history. A copy of their March press release began with the following:

"52 years! Over 137,000 letters of support! Countless hours of work from countless numbers of congresspeople, staff and volunteers. All that work has finally paid off: On March 21, 2023, President Joe Biden is expected to name Castner Range a National Monument at the White House Conservation in Action Summit in Washington D.C. He is expected to sign the designation at today's event.

... The decades-long effort, championed by Congresswoman Veronica Escobar, now protects 7,081 acres of the Franklin Mountains, beloved by the El Paso community and “the shining jewel of West Texas,” to quote the late Judy Ackerman, a long-time fervent supporter of conserving the land. Castner Range is one of El Paso's most iconic and intact Chihuahuan Desert landscapes and holds great significance to Frontera residents. The protection of the Castner Range will ensure that Fronterizos have the opportunity to find solace, comfort, and equitable access to the outdoors, right here in our community."

This is just one more reason to make the trek to El Paso, if not for the annual meeting this fall, then as soon as you can manage. ❖

Chapter Activities, Continued from page 6

More from Las Cruces

rainwater harvester. He brings his knowledge of the Chihuahuan Desert, its flora and fauna, to bear on all High Desert projects.

Sep 13 Meeting. Dr. Richard Spellenberg will present a hands-on mini-workshop on flowers of the Asteraceae. Participants should have a hand lens/loupe for both this workshop and the field trip described below. If you don't already have one, you can order one on the internet. Belomo makes a very good one – 10x magnification is recommended. The presentation will last approximately 1.5 hours. Spellenberg and Zucker's book: *The Sunflower Family: A Guide to the Family Asteraceae in the Contiguous United States* will be for sale at Chapter meetings and the workshop.

Sep 16 Field Trip. We will carpool towards Alamogordo up to High Rolls and down Karr Canyon Road with stops along the way, focusing on composites, variation, structure, tribes, names. Drive is approximately 1.5 hours each way.

Limited number of participants for this mini-workshop and field trip. Instructions for required reservations will be emailed two weeks before the events.



On Saturday morning, April 15, yellow mustard carpets (*Physaria* spp.) polka-dotted with purple locoweeds (*Astragalus* spp.) and golden poppies (*Eschscholzia californica* subsp. *mexicana*) lay like cheerful welcome mats while 26 members and guests of the Las Cruces Chapter travelled to Rockhound State Park for a field trip. Below the Florida Mountain's ridgeline arch to the southwest, we enjoyed a leisurely hike along a loop trail, cataloguing 63 species of native plants while marveling at their colors and shapes. After the trip, most of the group met for lunch at the historic Adobe Deli, once a Deming area schoolhouse. It's now a quirky, relic-filled restaurant complete with a dusty library and an eclectic mix of memorabilia. Image: Lyn Hoffmann.

More from Otero

Sep 21–23 Booth and plant/tree sale at the 84th Otero County Fair & Rodeo. We will have a booth at the Otero County Fair offering books for sale and information, and we will have lots of plants/trees for sale as well. The booth will be open from 11:00 am–9:00 pm from Thursday to Saturday. Volunteers welcome and encouraged!

A Very Little Cactus, Continued from page 15

On a hopeful note, John Kendall, BLM Farmington Field Office Endangered Species Specialist, reports his monitoring visit to Knowlton's hill this past spring showed robust flowering, reflecting the above-normal precipitation this past winter. (personal communication). ❖

My appreciation goes to Margaret Ménache, NPSNM newsletter editor; Judith Bernstein, Cactus and Succulent Society of New Mexico Librarian; and Peter Breslin, *Cactus and Succulent Journal* Managing Editor, for providing several of these references.

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Presidents' Letter, Continued from page 3

Conservation Specialist for the Xerces Society for Invertebrate Conservation. In addition to an amazing website full of resources that will be useful to chapters working on plant/pollinator projects (think native plant sales), Kaitlin is available to present special pollinator programs to our chapters. She is also eager to work with chapters to develop Pollinator Kits to engage our communities in native plant/pollinator interactions and protection.

A second opportunity, specifically for the El Paso, Gila and Las Cruces chapters involves collaboration with Bat Conservation International (BCI) in programs that support the lesser long-nosed bat (*Leptonycteris yerbabuenae*). This nectivorous bat species' major food source is nectar from native agave flowers. Efforts to plant agave corridors are important to address both changes in bat distribution resulting from climate change and declines in native agave numbers, which also impact the tequila industry in Mexico.

Members of these three chapters may engage in a citizen-science project utilizing eDNA kits to help detect the presence of these nectar-feeding bats. In order to detect this bat species, volunteers can swab blooming agave flowers (long sticks necessary) and hummingbird feeders, which these bats are known to drain overnight.

For a fun kids' coloring activity, check out the bat mask that Gila Chapter member Les Brandt drew for the BCI website: <https://www.batcon.org/wp-content/uploads/2022/08/Lesser-long-nosed-bat.pdf>.

Bat Conservation International is also interested in supporting native plant growers in an initiative to increase the number of agaves available for planting programs that support the lesser long-nosed bat. We have notified native plant growers in El Paso, Las Cruces and Silver City to alert them to the possibility of contracts with BCI to grow agave. Please let us know if we missed a grower in your area.

Potential Stink

In early May we were alerted to a possible infestation of *Oncosiphon piluliferum* (commonly called stinknet or globe chamomile) by Ian Murray, a resource



Oncosiphon piluliferum (L. f.) Kallersjö
Photographer: Max Licher, Manager
ASU Vascular Plant Herbarium. <https://swbio diversity.org/seinet/imagelib/imgdetails.php?imgid=19826>

manager from Arizona, who had noticed it as he drove the I-10 corridor. The location was just slightly east of Lordsburg, which put it close to the Gila Chapter. Between hearing of the possible stinknet infestation

and visiting the site, we learned a lot about this noxious plant, which had not been on our radar previously (see "A Weed is Swallowing the Sonoran Desert," High Country News: <https://www.hcn.org/articles/south-non-native-species-a-weed-is-swallowing-the-sonoran-desert>). The spread of this South African native, as well as control techniques, have been documented by the Southwest Vegetation Management Association (<https://www.swvma.org/invasive-non-native-plants/stinknet-globe-chamomile/>). It seems that it will only be a matter of time before the noxious alien invades New Mexico, either along the I-10 corridor, or a more northerly corridor.

We shared our very desiccated samples from east of Lordsburg with Dr. Richard Spellenberg, a retired botanist at NMSU, co-author with Naida Zucker of *The Sunflower Family, A Guide to the Family Asteraceae in the Congruous United States*. We were relieved to learn that our sample, while a member of the Asteraceae, is not the dreaded *Oncosiphon piluliferum*, but rather, *Helenium amarum* var. *amarum* (bitter sneezeweed), a highly prolific annual weed making an attack from the east, where it is native to Texas rangelands and points east. We will visit the site again next year to gather fresh samples.

Getting Together

We look forward to seeing you at the annual NPSNM Conference September 22–23 in Alpine, TX! There are still spots for the conference, banquet, and field trips so register soon. This is the first year that conference registration is online only. If you need assistance registering, please contact Lindsey at [npsnmmembership \[at\] gmail.com](mailto:npsnmmembership[at]gmail.com): she is happy to help! ❖

Contribute to the Jack & Martha Carter Conservation Fund

The generous financial support from so many NPSNM members and friends of the flora of New Mexico makes it possible for the Board to approve funding for workshops throughout the state, basic research on a variety of critical plant taxa, continued support for the state's major herbaria, and for the development and support of more early education programs from K–12 in New Mexico schools.

Contributing is easy! Scan this QR code to be directed to our website or go there the old-fashioned way from your browser: www.npsnm.org. You may also snail mail your contact information with a check payable to NPSNM—Carter Conservation Fund to our main address (NPSNM, PO Box 35388, Albuquerque NM 87176).



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Well worth the wait (for cooler weather)! You will not want to miss the Annual Conference in September. Hosted by the El Paso Chapter in the town of Alpine and environs, there will be fewer talks and longer

field trips to explore the wide-open spaces of Texas. The conference agenda and field trip descriptions begin on page 8.



On May 4, sixteen members of the Las Cruces Chapter worked for about two hours in the gardens at the Dripping Springs Visitors' Center at Organ Mountains Desert Peaks National Monument. Tasks included weeding and trimming trees and shrubs. Because the inner garden had been without drip irrigation for the past year, we inventoried plants, taking photos and noting changes since the previous inventory four years earlier. We made repairs in the drip irrigation and also discovered problems with the fountain pump, which will be reinstalled. The Chapter is planning additional garden work events throughout the growing season.
Image: Lyn Hoffmann.



Scenic view of the Nature Conservancy's Marathon Grasslands Preserve, located in west Texas in the northern portion of the Marathon Basin region. It is a 2,701-acre area comprised of diverse Chihuahuan Desert grassland habitat. This region supports an array of wildlife, including migratory raptors, grassland birds, pronghorn, kit foxes, burrowing owls, golden eagles, and the federally endangered northern aplomado falcon.

Image: Jarod Foster.