



NEWSLETTER

of the

NATIVE PLANT SOCIETY OF NEW MEXICO

JANUARY, FEBRUARY, MARCH 2021

VOL. XXXXVI No. 1



Join Bill Norris of the Gila Chapter as he takes us on a walk through the Gila Cliff Dwellings National Monument on page 10.

Above: Swamp Sedge (*Carex senta*). Image: Max Licher.

Left: Green Gentian (*Frasera speciosa*). Image: Russ Kleinman

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The Newsletter of the Native Plant Society of New Mexico

January–March 2021, Vol. 46 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.

The next submission deadline is February 25, 2021. Articles and high-resolution artwork supporting NPSNM's mission are welcomed and can be sent to the editor, Margaret Ménache, [npsnmnewsletter \[at\] gmail.com](mailto:npsnmnewsletter[at]gmail.com).

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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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From the President

by Tom Stewart



I recently came across a copy of *New Scientist*, a British periodical. The cover story, titled “Unscientific America,” wasn’t a dig at its kindred American publication, but rather was about the sad fact that a great portion of Americans have less faith in scientific facts than they do in loudly voiced opinions and posts on social media.

The Native Plant Society has never oriented politically and I hope it never does. But I have just been reelected unanimously, as have all the other candidates, so I will take some liberty at the risk of sounding political. (I invoke the standard disclaimer about authors’ opinions being their own, et cetera.)

It is alarming that around half of U.S. citizens do not believe in evolution or that climate changes are being driven by a greenhouse effect. I won’t even go into the myths and attitudes about COVID-19. We are near the bottom of the list among developed countries in these matters.

It is not simply a failure of the education system, although many teachers are under-prepared to effectively teach science. Other powerful forces have actively shaped or confused public opinion for mercenary reasons. The millions of dollars fossil fuel companies have spent to lobby politicians and to pooh-pooh the facts about global warming have been effective investments for them.

Conservation and a clean environment have traditionally enjoyed political consensus. The Clean Water Act (CWA), the National Environmental Policy Act, the Wilderness Act, and the Endangered Species Act were passed under Republican administrations. The National Park Service, the Clean Air Act, the Superfund program, and the National Forest Roadless Rule came under Democrats. Bipartisan breakthroughs still surface. That was the case in 2020 with the permanent funding of the Land and Water Conservation Fund through the Great American Outdoors Act, championed by New Mexico’s entire Congressional delegation.

But the executive branch has lately ignored science and the bulk of public input in essentially nullifying key environmental protections, pulling out of the Paris Agreement and of the Migratory Bird Treaty, dispensing with the methane emissions rule, opening the Arctic Wildlife Refuge to oil drilling, the Tongass National Forest to clearcutting, and redefining the waters of the United States under the CWA to exclude most of New Mexico’s water from regulation. The list goes on. Political appointees have replaced scores of government scientists, sacked for fear they might be a bad influence.

The BLM (Bureau of Land Management) seems intent on making its initials stand for Bureau of Leasing and Mining, hastily unloading hundreds of square miles of sensitive plant and animal habitat in New Mexico like there is no tomorrow.

As contentious and divisive as the 2020 national election was, the incoming administration provides a good prospect for the return of science to public policy and the management of our resources. Let’s insist on it. America may believe it is exceptional, but there is no exception to the laws of nature. And no nation can prosper in a pretend reality, separate from science. ❖

Congratulations to Our 2021 NPSNM Officers!

President:

Tom Stewart, Albuquerque Chapter

Background in cell and microbiology; worked as environmental scientist at Sandia National Laboratories.

Vice President:

Vic Crane, Las Cruces Chapter

Las Cruces NPSNM Treasurer and Chair of the Committee to Maintain and Restore the Native Plant Garden at the Organ Mountain Desert National Monument Visitors Center; former President of Friends of Mesilla Valley Bosque State Park (6 yrs); volunteer with the Friends of Organ Mountain Desert Peaks National Monument.

Membership Secretary/

Barbara Fix, Santa Fe Chapter

Archivist:

NPSNM President 2014–2016. Landscape manager after retiring from the practice of law (JD, 1971, Stanford Law School).

Recording Secretary:

Jane Kruse, Gila Chapter

Retired clinical pharmacist, mother of three adult children.

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Anne Curley, Santa Fe Chapter

Bookkeeper, horticultural therapist, nonprofit business manager, retired to NM after a lifetime in Chicago. Now a plant geek, composter, and beekeeper; excited and challenged by climate, soil, and plants of NM.

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Conservation Corner

by Rachel Jankowitz, NPSNM Conservation Committee Chair

The Las Cruces Chapter Takes Action

The Las Cruces chapter of NPSNM, along with the Mesilla Valley Audubon Society and the Southwest Environmental Center, raised the alarm about a recent event that posed a threat to the Rio Grande. The 4th Annual River Run was advertised online to take place on October 17, 2020. The River Run is a rally at which jeeps, trucks, and off-road vehicles race up and down approximately 7 miles of the bed and banks of the Rio Grande, performing “donuts” and splashing through pools of water.

The lower Rio Grande is mostly dry at that time of year, after Elephant Butte and Caballo dams have been closed for the season to save water for interstate compact fulfillment. Thousands of participants, many from out of state, were expected to converge on the river, the banks, and the levees, which are controlled and managed by the International Boundary and Water Commission (IBWC) and are officially off limits to motor vehicles without a special license.

The Doña Ana County Sheriff's Office has been granted authority since 2018 to enforce trespassing violations. Many areas along the river have been posted with No Trespassing signs, but the signs get vandalized and torn down.

The first three annual River Run events were held without special use permits. The organizers claimed to be unaware of the requirement for permitting, and the IBWC claimed to be unaware of the events taking place. According to news reports, the organizers also claimed to be unaware of the need for liability insurance for this event where entire families careen about at high speeds in open vehicles.

The three conservation groups sent a letter to the IBWC, highlighting the adverse effects such activities could have on the river corridor. They pointed out that the event could be expected to impact riparian vegetation directly, as well as by causing streambank erosion and generation of airborne dust. Oil and other vehicle fluids would contaminate the riverbed. There is noise. There is risk of disturbance, direct and indirect mortality to the fish, migratory birds, and larval insects who

inhabit the ecosystem, and—not least—the physical and virus-related public safety concerns.

The rally could damage two IBWC restoration projects, located between the river and the levees in the reach where the event would take place. The agency and its partners invested significant time and money in these projects to raise the height of the levees. The projects were undertaken to comply with mitigation requirements for the \$200 million 2009 Canalization Project. The restoration areas, and the levee itself, have been damaged by past River Run events as well as by other unauthorized off-road vehicle traffic. (NPSNM Las Cruces chapter has participated in similar restoration projects, outside the levees).

The event was cancelled at the last minute, after IBWC and the Dona Ana County Sheriff's Office contacted the organizers to inform them that they would be trespassing illegally. The Sheriff's office stepped up with extra patrols to catch any participants who might show up despite the cancellation. But the organizers are planning to apply for a permit in 2021. With COVID-19 (hopefully) less of an issue by then, the Las Cruces chapter and partners will need to keep up the pressure on IBWC to deny permits on the basis of environmental and other concerns. They would welcome input and assistance from other chapters, groups, or individuals.

Nobody is against folks having fun with their off-road motor vehicles. But the Rio Grande is not an appropriate place for that type of play.

Wright's Marsh Thistle Threatened Listing and Critical Habitat

The U.S. Fish and Wildlife Service has announced a proposal to list the Wright's marsh thistle (*Cirsium wrightii*) as threatened under the Endangered Species Act (ESA). A public comment period was held from September 29 through November 30, 2020. A final decision to list or withdraw the proposal is typically made within a year after the proposal.

The Asteraceae-family plant was historically known to occur in wetland habitats across Arizona and New Mexico in the United States and Chihuahua and Sonora in Mexico. As its name implies, it is a wetland species that needs marshy habitats



Wright's marsh thistle with butterflies.
Image: Daniela Roth

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with year-round water-saturated soils to thrive. This striking plant can grow up to eight feet tall and is found in only eight localities in New Mexico.

After a review of the best available scientific and commercial information, the Service determined the Wright's marsh thistle is at risk of extinction in the foreseeable future due to the scarcity, small size, and isolation of its remaining populations. Additional threats to the species include decreased water availability, competition with native and non-native plants, cattle grazing, and effects from oil and gas development.

The ESA listing of the Wright's marsh thistle will generate greater public and stakeholder awareness about threats to the plant and inspire diverse conservation activities on its behalf. The special "4(d)" rule that is part of the listing proposal tailors protections to those needed to recover the thistle, such as prohibiting the damage, destruction, or removal of the plant on federal lands, while streamlining regulatory processes for minor impacts.

Proposed critical habitat will benefit the Wright's marsh thistle by identifying areas essential to its recovery that may require special management or protection. The Service is proposing eight units of critical habitat in New Mexico, totaling 159 acres in Chaves, Eddy, Guadalupe, Otero and Socorro counties. The majority of the proposed units overlap with existing critical habitat for ten other listed species. The Service does not anticipate direct impacts from the proposed rule to stakeholders or industry. Designation of critical habitat does not affect land ownership, establish a refuge or preserve, and has no impact on private landowners taking actions that do not require federal funding or permits on their land.

Lincoln National Forest Weed Plan

In November, NPSNM commented on a Draft Environmental Impact Statement for Non-native Invasive Plants on the Lincoln NF. We wrote in support of the proposed alternative, which recognizes the need for cross-boundary coordination and includes adequate Resource Protection Measures and an explicit adaptive management strategy. We suggested some mechanisms for ensuring that the plan is implemented as an integral part of management operations, by leveraging the participation of Forest staff, partners and users. NPSNM letters to agencies are posted on our website at <https://www.npsnm.org/conservation/npsnm-actions/>.

It is crucial for Forest staff and their partners in weed control to know how to distinguish between invasive thistle species and the federally endangered Sacramento Mountains thistle (*Cirsium vinaceum*) and the proposed threatened Wright's marsh thistle (*C. wrightii*). Our letter recommended that they utilize the NPSNM guide to thistle identification, available online at <https://www.npsnm.org/plant-id-collection/>.

Southern New Mexico Volunteers Needed

New Mexico Wild is partnering with Friends of the Organ Mountains-Desert Peaks to launch a new docent program at

the Dripping Springs Natural Area in the Organ Mountains-Desert Peaks National Monument! Docents will begin working in summer 2021 and will provide visitors with knowledge of the history, wildlife, plant life and geology of a truly one-of-a-kind area. Contact will@nmwild.org for more information. ❖

Erratum

In the summer issue of this newsletter, we reported that NPSNM had submitted comments under the National Environmental Policy Act to the Bureau of Land Management and the Bureau of Indian Affairs, regarding a proposed Resource Management Plan Amendment. That announcement was premature. After the column was completed, the agencies extended their comment deadline to late September, because of pandemic impacts on public participation. We sent our comments on September 9, amended to discuss the state endangered listing of Clover's cactus (*Sclerocactus cloverae*), which happened during the summer. NPSNM letters to agencies are posted on our website at <https://www.npsnm.org/conservation/npsnm-actions/>. ❖

Long Time Otero Member Beth Anne Gorden Passes Away

It is with sad hearts that the Otero Chapter announces the sudden, unexpected passing of Beth Anne Gorden, a chapter member since 2001.

Beth Anne and her husband John hosted our Annual Chapter Meeting eleven times, beginning in 2005. These meetings took place at their beautiful home in Laborcita Canyon, where the garden was full of native plants. She provided much assistance with the 2012 State Conference held in Alamogordo. Beth Anne also assisted at other state conferences where Otero Chapter had a table.

She and her husband John manned our booth at Otero County Fair for several years, from 2004 to 2019. At the end of our annual plant sales, Beth Anne would often come buy up the left over plants to make sure all of them were purchased.

The photograph includes Beth Anne's first and foremost love, one of her greyhounds. ❖



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Chapter Activities & Events

For further information on upcoming events, notify the contact person listed, or visit the chapter's web page: First go to www.npsnm.org; click on 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. As we go to press, **COVID-19 restrictions** remain in place and many in-person events have migrated online. Remember if you do meet with your fellow society members that you should wear a mask and observe social distancing. On the positive side, many chapters are now using online meeting platforms and recording sessions, which they are making accessible to the general public. The home page of the NPSNM website has a number of interesting talks you can “attend.” ❖

Albuquerque

Monthly meetings are normally the first Wednesday of the month at 7:00 pm, currently online via Zoom. Meeting links are distributed to chapter members via e-mail prior to the meeting. For more information on programs and/or registration for an upcoming Zoom meeting, contact Sara Keeney at [skeeney\[at\]swcp.com](mailto:skeeney[at]swcp.com) or 505-379-3392.

No 2021 field trips are scheduled due to the pandemic until further notice. Plant lists are available for hikes on your own on the Albuquerque Chapter page of NPSNM.org.

Jan 6 Meeting. “An Introduction to the Moths of the Gila.” Retired Rice University Biochemist Ron Parry, the “moth man”, summarizes the characteristics of moths in each of eight moth families.

Feb 3 Meeting. “Natural Heritage New Mexico (NHNM) – an Overview.” Richard Norwood, NHNM Information manager

Mar 3 Meeting. “Build it and They Will come: Attracting Wildlife to the Garden.” Wes Brittenham, Farm and Landscape Manager at Los Poblanos Historic Inn and Organic Farm, describes how native plants can be utilized to create a functioning habitat and pollinator garden.

El Paso

Meetings are usually at St. Alban's Episcopal Church, 1810 Elm Street (Elm at Wheeling, off Piedras). Programs are second Thursdays at 7:00 pm. Coffee social at 6:30 unless otherwise noted. All events free unless a fee is specified. Nonmembers welcome. Info: John White, 575/640-7555; [jmwhite\[at\]utep.edu](mailto:jmwhite[at]utep.edu).

Gila (Silver City)

Virtual meetings will be held via Zoom on third Fridays at 7:00 pm. Chapter members will receive a Zoom link by email. Any others interested may request a link from [gilanative\[at\]gmail.com](mailto:gilanative[at]gmail.com). All are welcome. For more information, check our website at www.gilanps.org/events/programs/.

Jan 15 Meeting. “What in the World Was I Thinking? Or, The Making of *Flora Neomexicana*” – presenter Kelly Allred.

Flora Neomexicana, the definitive guide to the vascular plants of New Mexico by Kelly Allred and Eugene Jercinovic, with illustrations by Robert DeWitt Ivey, is now out in revised editions of four and one-half volumes. Kelly will explain how he got caught up in such a monumental task.

Feb 19 Meeting. “Mycorrhizae” – presenter Keller Suberkropp. Mycorrhiza literally means fungus-root. A variety of fungi colonize plant roots to form mycorrhizae and, in natural environments, most vascular plants are mycorrhizal. Suberkropp will introduce the major types of mycorrhizae and discuss the interactions between plant and fungus. Most interactions are mutualistic in which both the plant and the fungus benefit although in some cases the plant may parasitize the fungus or vice versa. Overall, the mycorrhizal association appears to be important in natural plant communities.

Mar 19 Meeting. “Management of New Mexico Rare Plants” – presenter James McGrath. Botanist McGrath will discuss the evolution of the New Mexico Rare Plant list into the New Mexico Rare Plant Conservation Strategy rare plant list. Numerous sensitive plant lists maintained by different government agencies and the New Mexico Rare Plant Technical Council (NMRPTC) have now been merged into a single list of rare plants on the New Mexico Rare Plant website (<https://nmrareplants.unm.edu/> <<https://nmrareplants.unm.edu/>>), authored by NMRPTC. The database for the website is maintained by Natural Heritage New Mexico. A New Mexico Rare Plant Conservation Strategy website is currently under development.

Las Cruces

Meetings are usually the second or third Wednesdays (unless otherwise noted) at 7:00 pm in the NMSU Herbarium, Biology Annex on NMSU campus. Field Trips are usually on the Sunday following the Wednesday meeting; most last into the afternoon. None are scheduled for the next three months at this time. Contact: Carolyn Gressitt, 575/523-8413. Leave a

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Feb 10 Meeting. “Caught between the devil and the deep blue sky: plant responses to drought, disturbance, and natural enemies across environmental gradients.” Dr. Scott Ferrenberg, Director of the Global Change Ecology Lab of the NMSU Biology Department. Zoom link will be announced a few days before the presentation.

Mar 10 Meeting. An open discussion by members and guests about their favorite books, websites, and places for learning about New Mexico's native plants, to include gardening with native plants. Zoom link will be announced a few days before the presentation.

Otero (Alamogordo)

For workshop and field trip details, contact Elva Osterreich, echoofthedesert [at] gmail.com, 575/443-4408, or Jennifer Gruger, npsnmotero [at] gmail.com, 505/710-2924.

Jan 23 Annual meeting and potluck at noon at the home of member LeAnne Roberts. Contact Elva or Jennifer for location information and updates. We will move this meeting to Zoom if needed. LeAnne has spent the cooler months working diligently on her beautiful desert meditation garden and will provide a tour/explanation of the garden following the meeting.

Feb 20 Meeting. 11 am. Learn about the trees of Otero County, including types and historical tidbits about certain area trees. Presenter and location to be announced.

Mar 27 Field trip. Indian Wells Trail. Check out what spring is offering and what all those cacti are doing. Parking at New Mexico Museum of Space History (in Alamogordo) Trail begins behind the Astronaut Memorial Garden. We will meet at the museum parking lot at 9 am.

Santa Fe

Meetings are third Wednesdays at 6:30 pm at Christ Lutheran Church, 1701 Arroyo Chamiso (in the triangle of Old Pecos Trail, St Michael's Dr., and Arroyo Chamiso). For more information, check the NPSNM website. Meetings and talks are free and open to all.

Taos

Meetings are usually third Wednesdays at 6:00 pm in Kit Carson Electric Cooperative boardroom, 118 Cruz Alta Rd. However, those meetings remain suspended. We will be scheduling

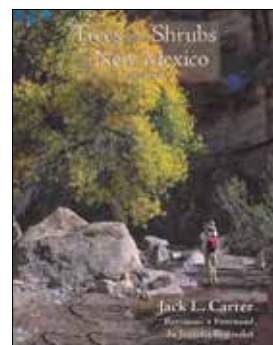
webinars (which will be recorded and posted on our YouTube channel) and hope to host small group outdoor events which we will announce by email to members and post on social media. Check the NPSNM website or our Facebook page (search for “Native Plant Society New Mexico Taos Chapter”) for updates. Contact: TaosNPS (at) gmail.com, or phone Jan Martenson at 575-751-0511. Videos of past meetings can be found at <https://tinyurl.com/TaosNPSvideos> ❖

Brand-New 2020 Edition

Trees and Shrubs of New Mexico

by Jack L. Carter

Fully updated nomenclature



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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.

New Edition of *Trees and Shrubs of New Mexico*

The Gila Native Plant Society (GNPS) is pleased to introduce the third edition of Jack L. Carter's *Trees and Shrubs of New Mexico*. GNPS had begun to work with the Carters on a new edition prior to Jack's sudden passing and we are grateful for their support and trust in publishing this new edition. We are also grateful to have had an extraordinary cadre of dedicated professionals working on revisions, editing and layout. Special thanks go to Jenifer Bousset, Sarah Johnson, Bill Norris, Russ Kleinmann and Bob Sivinski for making this edition possible. As always, Elroy Limmer's cover photo really captures the essence of our native flora. The Gila Native Plant Society would also like to thank the Colorado Native Plant Society for their support. ❖



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Memories of Richard Felger

by William ("Bill") Norris, Professor of Botany, Department of Natural Sciences, Western New Mexico University.

Whenever Richard Felger was asked to introduce himself he invariably replied "I'm just a botanist" which does no justice to his long, distinguished career as a plant scientist, enthusiast and champion.

Richard, an acknowledged expert on the ethnobotany and taxonomy of the desert flora of southern Arizona and northern Sonora, and his wife, Silke Schneider, moved to Silver City from Tucson more than ten years ago. Upon moving here Richard immediately set about to learn everything he could about the flora of the "Gila Region," with which he was less familiar at the time.

He took every opportunity to accompany other botanists, especially Russ Kleinman, on field trips into the Gila to observe and learn about new plant species. I fondly remember one excursion when Richard, well into his 70's, hiked with us to the top of Hillsboro Peak (ca. 10,000 ft. elevation) in the Black Range.

As Elroy Limmer used to say, Richard was a real plantsman—he loved to grow plants as well as identify them. Richard loved living in Silver City, and was an active member of the community. He was a regular at the Saturday morning Farmer's Market and on excursions with local hiking groups. He never considered himself retired, but continued to explore, research, and write.

Always eager to share his enthusiasm for botany, Richard was active in the Gila Native Plant Society, giving presentations, co-presenting plant identification workshops, and participating on field trips. He was also a frequent contributor to the Natural History of the Gila Symposium and the Gila River Festival.

He collaborated with me, Kelly Kindscher, Russ Kleinman and Patrice Mutchnick on a comprehensive plant inventory of the Gila Cliff Dwellings National Monument (2013-present). During one memorable field trip for this project, I'll never forget Richard's sharp eyes picking up Little Red-Stemmed Monkeyflower (*Eryanthe rubella*) growing on thin soil over

Continued next page

Felger: More than a Botanist, He was an Ethnobotanist and Ethnobiologist

by Kelly Kindscher, Professor, University of Kansas

When one visited about plants with Richard Felger, the conversation was rich and diverse, moving from taxonomy to cultural uses of plants and animals. Richard was one of my ethnobotany research mentors. I first met him in Arizona over 30 years ago at an Ethnobotany conference, as he worked with the Seri in Sonora and published a monumental study of their ethnobotany which was important, substantial and deep. And his work was not just plants: he played a major role as an ethnobiologist in sea turtle conservation.

When Richard moved to Silver City, I started interacting with him again, but this time we became collaborators as he was hell-bent on getting things done, always asking for help, and determined to move his writing projects forward. I recognized a great opportunity to facilitate some fascinating

work, and also collaborate. I also recognized that he was not always easy to work with. As my colleague, Ben Wilder, who published *Plant Life of a Desert Archipelago* with Richard in 2012 recently commented: Richard had "a ridiculous work ethic. He was also eccentric. Depending on his mood or who he was talking to, he could be crusty or kind, gentle or impatient, serious or completely irreverent."

I found Richard's impatience amusing. More than once when I turned on my computer at 6 am, I already had two or three Felger emails about details of something that we were working on, and I knew that he was wondering how long it would be until I at least responded to the first of them.

His work was truly amazing, and I would encourage you to check some of it out. As one of his last works, James Verrier, Xavier Khera and I will be publishing the *Trees of the Gila* with Richard as lead author. It will be a University of New Mexico Press book next spring. But this book is small compared to his monumental 270-species and ethnobotany-rich *Trees of Sonora*, published by Oxford University Press in 2001.

Continued next page



Richard Felger (and Rita Herbst) harvesting some Giant Sacaton at the Commons, Fall 2016

Memories of Felger, *continued from previous page*

rock adjacent to the main dwellings, a population which I would certainly have overlooked. While continuing to submit articles to scientific journals, Richard was more than willing to contribute articles to more modest publications, like the newsletters of the New Mexico Native Plant Society and the Friends of the City of Rocks State Park.

One of Richard's passions was to identify native plants well adapted to arid conditions that could serve as future food crops. He worked with young people here to grow, harvest, and process Giant Sacaton, Honey Mesquite, and Apache Red Grass in order to show that their seeds and grains could be turned into food. Members of the Gila Native Plant Society were fortunate to hear Richard's numerous programs about this collaborative work at monthly meetings.

Richard's work as senior author of *Trees of the Gila* was almost complete at the time of his passing, and the job will be finished by his co-authors, Jim Verrier, Kelly Kindscher and Xavier Khera for publication by the University of New Mexico Press.

In summary, most of us would do well to rise to Richard's standard of "just a botanist." ❖

Felger: *More than a Botanist, continued from previous page*

Richard struggled at times to convince editors of his way of doing things, but he generally succeeded. He also welcomed and championed open access publications. Because of that, you can still easily explore his work in all of its richness of detail and color.

One recent work is eye candy for this upcoming winter of COVID-19 time. With it, you can take yourself down near Guaymas in Sonora and feast your eyes on all the photos of the semi-tropical plants of Nacapule Canyon—and go visit in person some time when it is safe again. Some of these plants, or related ones, have ranges which extend clear up to New Mexico. This 200-plus page document can be downloaded from:

https://tumamoc.arizona.edu/sites/tumamoc/files/felger_et_al_2017_nacapule_proceedings_of_desert_lab_1.pdf.

Or how about Chapter 20 (or any other chapter) of his 2016 *Flora of Southwestern Arizona* (Solanaceae to Zygophyllaceae): <http://www.phytoneuron.net/2016Phytoneuron/52PhytoN-SWArizPt20.pdf>

Finally, many of his works of botany and ethnobotany are available as links or for purchase on his web site, which I am sure will be up for quite a long time. See: <https://www.desert-foodplants.org/>

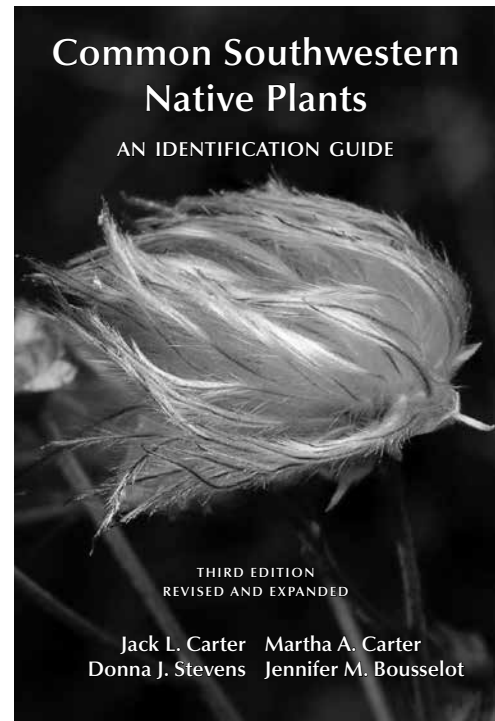
Felger's botany doings and workings will be missed, but his work will live on. ❖

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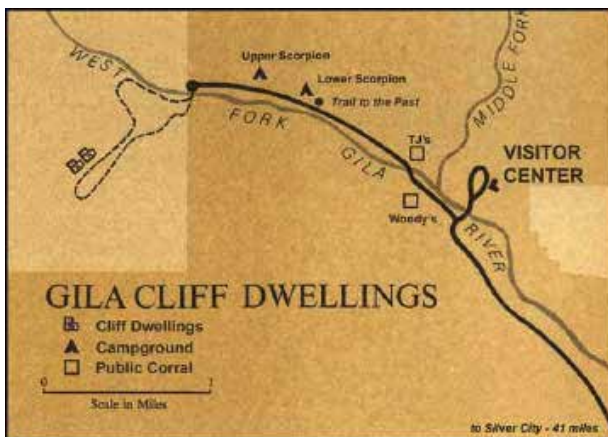
Reflections on a Plant Inventory of Gila Cliff Dwellings National Monument (2013-2020)

by William ("Bill") R. Norris, Gila Chapter



Mogollon Culture Ruins and Gila Cliff Dwellings National Monument. https://en.wikipedia.org/wiki/Gila_Cliff_Dwellings_National_Monument#/media/File:Gila_Cliff_Dwellings_2014.jpg Image: John Fowler

Thousands of people visit the Gila Cliff Dwellings National Monument (Catron Co., NM) each year, most to see the spectacular Mogollon Culture ruins dating from the late 1200s. I suspect that few people travel to the monument specifically to observe and enjoy its diverse flora. This is perhaps not surprising given that the majority of the monument area, divided into two separate parcels, is off-limits to foot traffic. Gila Cliff Dwellings visitors must stay on one of two trails, both located in the larger (and westernmost) of the two parcels. Nonetheless, an observant hiker will see many colorful wildflowers while hiking towards the featured monument ruins or along the first part of the trail along the West Fork of the Gila River.



<http://sangres.com/newmexico/national-parks/gila-cliff-dwellings-nm.htm#X9LePi2ZM8Y>

The first of these footpaths, a loop trail nestled within Cliff Dweller Canyon (and identified by dotted lines in the map above), is slightly more than one mile long. For about a third of this distance, the trail meanders southwest along the canyon bottom in the shade of Gambel's Oak (*Quercus gambelii*), Box-

elder (*Acer negundo*), Arizona Walnut (*Juglans major*), Ponderosa Pine (*Pinus ponderosa*), and Douglas Fir (*Pseudotsuga menziesii*) trees.

Here, hikers may notice Golden Columbine (*Aquilegia chrysantha*) growing in the narrow creek bottom, while Arizona Valerian (*Valeriana arizonica*) and Solomon's Seal (*Polygonatum biflorum*) emerge from leaf litter at the base of a steep, shaded slope overlooking the creek. Suddenly, monument visitors will encounter a hairpin turn and be forced to climb up a series of steep switchbacks while traversing open, rocky terrain.



Arizona Valerian (*Valeriana arizonica*).
Image: Russ Kleinman

Along this challenging stretch of trail, one can enjoy glorious violet bouquets of Wild Four-O'Clocks (*Mirabilis multiflora*) which will hopefully justify the sweat and exertion.



Solomon's Seal (*Polygonatum biflorum*).
Image: Russ Kleinman

High above the creek at last, a hiker will be able to catch his or her breath and look for Fringed Puccoon (*Lithospermum incisum*) while walking at a leisurely pace along a straight stretch of level trail leading to the dwellings proper. In the vicinity of this abandoned domicile, an observant hiker might spot diminutive Red Stemmed Monkey-Flower (*Eryanthe rubella*) growing intermixed with bedstraw (*Galium* sp.) on some rocky ledge, as did Richard Felger in 2013.



Wild Four O'Clock (*Mirabilis multiflora*).
Image: Russ Kleinman

From here, the trail descends very rapidly across

a steep slope scarred by the recent Miller fire. In the fall, one can look up to see conspicuous, isolated, clumps of Mountain Tail-Leaf (*Pericome caudata*) growing in the open where, formerly, there was moderate tree cover. The last, short, stretch of this trail tracks the edge of extensive floodplain forest before bringing a traveler back to the trailhead where the hike began.

So many habitats, so many plant species, and all in one 1.1 mile trail!

The second trail, which provides access to the Gila Wilderness Area (one of three wilderness area in the Gila National Forest), parallels and occasionally crosses the West Fork of the Gila River in a northwesterly direction until exiting the monument. Here, a hiker will walk through low, young floodplain forest dominated by blue-stemmed willow (*Salix irrorata*), Goodding's Willow (*Salix gooddingii*), narrow-leaved cottonwood (*Populus angustifolia*), and New Mexico Alder (*Alnus oblongifolia*).



Fringed Puccoon (*Lithospermum incisum*).
Image: Russ Kleinman



White Water Crowfoot (*Ranunculus aquatilis*).
Image: Russ Kleinman

At river crossings, riparian forest vegetation opens to reveal sandbars, mudflats and backwater pools, each with a host of wetland plant species, especially smartweeds, grasses, sedges, and rushes which like to keep their roots soaked. I have to admit that this is my favorite region of the monument to explore. Here, I delight to find Swamp Sedge (*Carex senta*), which forms large tussocks alongside or in the middle of the river, and White Water Crowfoot (*Ranunculus aquatilis*) and Water Starwort (*Callitriche heterophylla*) which both grow in still backwater pools associated with back channels of the river.



Greater Water Starwort (*Callitriche heterophylla*).
Image: Russ Kleinman

The above description, meant to whet your botanical appetite, merely scratches the surface of the diverse flora which occurs within the 533 acres of the Gila Cliff Dwellings National Monument. Since 2013, I have been fortunate to be working with Kelly Kindscher, Russ Kleinman, Richard Felger, and, recently, Patrice Mutchnick on a comprehensive plant inventory of the monument. To document all (well, most) of the vascular plant species within its boundaries, we have been given permission to travel off trail and thus explore regions of the monu-

ment that are seldom visited by anyone. Thus, over the past eight years of our field work, we have been able to investigate canyons, rocky slopes and mesas that are typically off-limits to monument visitors.

Here, we have found a treasure-trove of plant species not seen on the Cliff Dweller Canyon and West Fork Trails. These include green gentian (*Frasera speciosa*) at the mouth of the remote North Canyon in the northwest quadrant of the monument, Male Fern (*Dryopteris filix-mas*) occurring within the recesses of a shaded alcove on a remote region of Cliff Dweller Canyon, and Fendler's cloak fern (*Argyrochosma fendleri*) which appeared in a crevice on a



Male Fern (*Dryopteris filix-mas*).
Image: Russ Kleinman

vertical rock face. We found Stansbury Cliffrose (*Purshia stansburyana*) growing on a grassy, semi-open flat ridgetop high above, and overlooking, the canyon and surrounded by black grama (*Bouteloua eriopoda*). These



Fendler's Cloak Fern (*Argyrochosma fendleri*).
Image: Russ Kleinman



Black Grama (*Bouteloua eriopoda*).
Image: Russ Kleinman

few descriptions hint at the desert affinities of the flora, and of the many additional plant species occurring in one or more of the diverse habitats in the monument.

So what have we learned after eight years of plant inventory work in all corners and most interior regions of the Gila Cliff Dwellings National Monument?

First, the vascular flora is diverse. In July 2020, Kelly Kindscher found the 500th vascular plant species of our study (since 2013): Antelope Horns (*Asclepias asperula*). Since then, we have documented an additional 12 vascular plant species for the first time in the monument, bringing our total to date to 512 taxa. Think about this: slightly more than 1/10th of the entire New Mexico flora (i.e., 4,180 vascular plant species according to *Flora Neomexicana*, 2nd edition (2020) by Kelly Allred, Gene Jercinovic and Rob-

Continued page 14

A Year in the Life of a Greenhouse: Taos Chapter's partnership with Taos Land Trust at Rio Fernando Park

By Jan Martenson, *President of Taos Chapter/NPSNM*

For years the Taos chapter of NPSNM has propagated native plants from seed to sell to the public in order to promote using natives in home gardening and local landscaping. In the fall of 2019, we stepped up our efforts by entering into an exciting partnership with the Taos Land Trust (TLT) to relocate and share the chapter's greenhouse for growing native plants. (More about TLT on the next page.)

The TLT was in need of a greenhouse to grow natives for ongoing restoration work at their Rio Fernando Park location and to start seedlings for the TLT vegetable gardens, where student interns learn how to produce food for local families. Our chapter was looking for better access to water and a more centralized location that would make it easier to connect our efforts with the general public (the greenhouse had been located at the south-side Taos County Agricultural Extension Complex). After some discussions with TLT's Education and Projects Manager Ben Wright, a mutually beneficial partnership was formed by which TLT would provide the land, we would provide the greenhouse, and both organizations would share the space for propagation, workshops, and gardens.

In November 2019, under the supervision of Ben and Taos Chapter Vice-President and Greenhouse Manager Kathryn Mayer, an Americorps young adult crew disassembled the 18'x36' greenhouse and reassembled it in Rio Fernando Park in the center of town. Ben then applied for, and received, a \$1500 grant from the NPSNM Carter Conservation Fund to support their Native Plant Propagation Program.



Kathryn Mayer (center, pointing) and greenhouse volunteers preparing for summer plant sale. Image: Jim O'Donnell

Moving to this more centralized location allows for easier access for our greenhouse volunteers and provides us with exterior space for hardening off and creat-

ing a demonstration garden, as well as shaded sites for workshops, plant sales, and socially-distanced greenhouse committee meetings in the time of COVID. It also gives us more public visibility since a well-used walking path, frequented by walkers and birders, circles the property. Many people peek into the greenhouse and ask questions.

In February Kathryn taught the TLT interns and our own

volunteers how to manage the greenhouse, choose seeds, move the shade cloth, protect against rodents, monitor the temperature inside the greenhouse, and nail down frost dates to get things organized and seeds started.

Early in the spring Ben brought a water line to the greenhouse and installed an overhead automatic sprinkling system that greatly reduced the amount of time required by volunteers to keep the seedlings watered. After months of germin-

ating, nurturing, and potting-up of seedlings, 17 species of flowering plants and five species of native grasses were thriving by mid-summer.

We planned three plant sales, setting up widespread tables outside the greenhouse under nearby trees. In mid-July, as a "beta-test" of social distancing, we invited our masked members to shop for the largest seedlings ready to plant.

After that was deemed a success (with about 12 visitors and 5 greenhouse volunteers), we emailed invitations to members of both our chapter and the Los Jardineros Garden Club of Taos to shop on August 14. We were pleased to welcome about 30 members and their friends who spent over \$1000 on plants and books. The next day we invited non-members whose names we obtained from email lists of organizations with which we had relationships. Between 25 and 30 people came, browsed and bought.

Overall, our three days of sales grossed over \$1800, which more than covered expenses of the relocation and set-up of the greenhouse, and we gained at least three new members!

Over the fall our always-reliable greenhouse committee mulched a 4-ft. perimeter around the exterior of the building, created a mulched walkway to the greenhouse from the public walking path, and winterized the greenhouse. There are still plants inside that will overwinter and sprout again in the spring. We have collected seeds from natives in our surroundings and will spend the winter months cleaning these for germinating. We all look forward to a new year, hopefully free of pandemic restrictions, celebrating with a truly grand opening of our new location for sharing native plants with the public. ❖



Kathryn and Ben overseeing reassembly November 2019.
Image: Jim O'Donnell



Kathryn Mayer at winterized greenhouse, November 2020.
Image: Jan Martenson

More about TLT and Rio Fernando Park

By Jim O'Donnell, Communications and Policy Coordinator,
Taos Land Trust

In 2015 Taos Land Trust's mission of protecting land and traditions of northern New Mexico led to the purchase a 20-acre parcel of abandoned farmland adjacent to Fred Baca Park. Seven of those acres are wetlands along the Rio Fernando, one of the most important waterways in our region. At the time of purchase, the wetlands were in pretty bad shape. TLT jumped right to getting the river back to its natural channel, removing trash, invasive species, and improving habitat for birds, beaver, bats and all the other critters that should find home along a healthy mountain river. From 2016 to 2019 a tremendous amount of work jump-started this restoration, which was described by Ben Wright at a Taos Chapter meeting in 2019 and can be seen on their YouTube channel: <https://tinyurl.com/TLTMar2019>.

Most of the Russian olive trees were removed from the southwestern half of the riparian area in the winter of 2020. The beaver that moved in two years ago have done quite a job taking down many of the remaining olives but there is still a lot to do. TLT decided to leave a few olives in place for habitat while the native species they've planted gain a foothold and take off. They have fenced most of the large native trees that remain so that the beaver won't take them, but won't be fencing any of the olives. If the beaver family wants those, they can have them.

In the meantime, other restoration work has kept pace. TLT's Youth Conservation Corps crew planted trees along the river corridor. Two-hundred and thirty trees in fact: Serviceberry (*Amelanchier alnifolia*), Thinleaf Alder (*Alnus tenuifolia*), Mountain Snowberry (*Symphoricarpos oreophilus*), Arizona Ash (*Fraxinus velutina*), Peachleaf Willow (*Salix amygdaloides*), Bluestem Willow (*Salix irrorata*), Water Birch (*Betula occidentalis*) and Box Elder (*Acer negundo*). We'll know next year how many of these baby trees made it. The goal is a healthy and vibrant riparian forest dominated by native species. ❖

Potential Projects for NM Forests

By Sue Small, Albuquerque Chapter

Early in September 2020, Ian Fox, the US Forest Service (USFS) CFRP Program Manager, sent me and nine others notice that the Technical Advisory Panel was approved to evaluate the 2019 & 2020 applications to the New Mexico Collaborative Forest Restoration Program. We met via Zoom to learn the process of evaluating applications. We spent six days over two weeks listening to the nine 2019 and six 2020 applicants' Zoom presentations, asking questions, and scoring the applications. Nine projects were for the Carson, three for the Santa Fe, two for the Cibola, and one for the Gila. Funding of up to \$360,000 is available per recommended project. Projects can be up to four years in length and can be located on any combination of Federal, Tribal, State, County, or Municipal forest land. Projects must address the following objectives:

- Wildfire threat reduction
- Ecosystem restoration, including non-native species reduction
- Reestablishment of historic fires regimes
- Reforestation
- Preservation of old and large trees
- Small diameter tree utilization
- Creation of forest-related local employment
- Stakeholder diversity

Of particular interest to our NPSNM is the opportunity to be a stakeholder involved in these forest projects. The more diverse the stakeholders per project, the higher the score. Involvement can be in the form of endorsement of projects, or actual work on the project. Some of the stakeholders involved in these two years of applications include The Nature Conservancy, Wild Turkey Foundation, Forest Stewards Guild, Trout Unlimited, Rivers & Birds, Mule Deer Foundation, Amigos Bravos, and others.

For more info on this CFRP TAP: <https://www.fs.usda.gov/main/r3/workingtogether/grants>.

For some history of the CFRP: <https://www.hcn.org/issues/333/16654> ❖



Reflections on a Plant Inventory, *continued from page 11*

ert DeWitt Ivey) can be found in an area less than one square mile. That said, we still haven't found ca. 90 additional vascular plant species collected in the monument prior to our study and documented on specimens housed in herbaria at the University of Arizona and University of Texas at El Paso. We'll keep looking for them.

Second, thorough documentation of the flora depends on extensive field work conducted over multiple time periods and all available habitats. Of the 512 vascular plant species we identified during the eight years of this study, we encountered at least 30 of them for the first time during the 2019 or 2020 field seasons. Our field work needed to consider both horizontal and vertical dimensions of the topography contained within the boundaries of this small (again, less than 1 square mile) monument. See Scott Zager's photos of the monument landscape (below and back cover) to get a sense of the topographic diversity we were challenged to explore during this study.



View across Cliff Dweller Canyon.
Image: Scott Zager

Third, the flora is composed of mostly (>90%) native plant species. To put this in perspective, one is lucky to find a flora in the Midwestern United States (where I spent the first 40 years of my life) that is composed of at least 80% native plant species. Richard Felger told me that some areas in California have floras that are composed of less than 50% native species. Managers and interpreters of the Gila Cliff Dwellings can now boast of the integrity of its flora in terms of the Monument's high proportion of native species. That said, one particular non-native plant species, White Sweet Clover (*Melilotus albus*), has taken over large regions of the West Fork floodplain within the monument. Patrice Mutchnick and a team of interns funded by a non-profit organization (Heart of the Gila, <http://heartofthegila.org>) have invested many hours to remove this and other invasive plant species at the Gila Cliff Dwellings.

I (and my four colleagues on this project) hope that you are encouraged by this article to visit the Gila Cliff Dwellings National Monument to hike the trails (which remain open during the pandemic) and see the dwellings, spectacular geology,



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the flowing West Fork, and all sorts of living things (wildlife, plants, fungi, etc.) that occur here. Perhaps this article will inspire some of you to embark on a plant inventory of some natural area near you. Take it from us, it is worth the effort. ❖

I thank Kelly Kindscher for reviewing an early draft of this article, and Russ Kleinman, Max Licher and Scott Zager for permission to use their excellent photographs that accompany this article. I also thank Angela Flanders, Jane Spinti, Betsy Kaido and Karen Nakakihara for the many hours they have volunteered in the Dale A. Zimmerman Herbarium (SNM) at Western New Mexico University to process the ca. 1,000 plant specimens we have collected during this study to document the flora of the Gila Cliff Dwellings National Monument. I thank the Gila Cliff Dwellings National Monument staff and volunteers for all of the help and encouragement they have extended to us during this long study. Finally, I thank the Western National Park Association, the NPSNM Carter Conservation Fund, Western New Mexico University and Heart of the Gila for funding major aspects of this project.

Collaborators on this project are sad to report the passing of Dr. Richard Felger on October 31 of this year. He will be missed. ❖



Wildflower poster: 22"×34", \$8 (nonmembers, \$10)
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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 and as a water conservation measure. Members benefit from chapter meetings, field trips, publications, plant and seed exchanges, and educational forums. The Society has also produced a New Mexico wildflower poster by artist Niki Threlkeld and a cactus poster designed by Lisa Mandelkern. These can be ordered from our poster chair—check out <http://www.npsnm.org/posters/>

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~Jack & Martha Carter

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Stansbury Cliffrose (*Purshia stansburyana*).
Image: Russ Kleinman.



Golden Columbine (*Aquilegia chrysantha*).
Image: Max Licher.

Putting Carter Conservation Fund Grants to Work!



In a new collaboration with the Taos Land Trust, the Taos Chapter is increasing the impact of their greenhouse in the community. Image: Janet Adams
Read about this project on page 12.

Bill Norris describes an 8-year project documenting the flora of the Gila Cliff Dwellings National Monument. In addition to a floristic walk along two trails, Bill provides some thoughtful "lessons learned." Read about this work on page 10.



Mountain Tail-Leaf (*Pericome caudata*).
Image: Russ Kleinman.



Red-Stem Monkey-Flower (*Eryanthe rubella*).
Image: Max Licher.

Left: View up Cliff Dweller Canyon upstream beyond trail.
Image: Scott Zager.