

NEW MEXICO'S VOICE FOR NATIVE PLANTS



NEWSLETTER

of the

NATIVE PLANT SOCIETY
OF NEW MEXICO

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Nylon (Brown-flowered) Hedgehog Cactus (*Echinocereus viridiflorus* Engelm. var. *chloranthus* (Engelm.) Backeb.).
Image: Jim Von Loh (Las Cruces).

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The Newsletter of the Native Plant Society of New Mexico

July–September 2021, Vol. 46 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 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 August 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*.

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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



For those who have had a “wait and see” approach to our annual conference/meeting this August, now is the time to thank the Otero chapter for all their work by registering to safely and sociably gather again in our decades-old tradition. This issue of our newsletter is filled with articles and images related to the conference. If you missed out on winning one of Jane Huisingsh’s beautiful quilts last year, don’t despair. She has donated a new one for this year. Jen’s update on the conference is filled with thoughtful and practical information. Online registration and payment are available from the homepage of our website, or you can print out a registration form and send it with a check.

“Plants and People: A Journey through Time” will recount the relations New Mexicans have had with plants from earliest times to the present. A new concept in saving the world and ourselves from our excesses is by turning to “nature-based solutions.” The original New Mexicans had that figured out long ago, as they knew that all good things started with nature. Respect for nature’s ways plus the human ingenuity to work with it rather than against it was how they made it through good and bad millennia and presented European newcomers with an incredibly bountiful land. What about our own millenium?

In 2007, Virgin Galactic entrepreneur Richard Branson announced the Virgin Earth Challenge, offering a twenty-five million dollar prize for an invention to trap greenhouse gases. It went unclaimed. This year (2021), Elon Musk of Tesla fame has upped the ante to fifty million, with another fifty distributed as seed money. And, Jeff Bezos has pledged up to 10 billion with similar aims. Good luck. These billionaires are thinking about the wrong seeds.

The ideal carbon dioxide absorption and storage devices have already been invented: natural forests, grasslands, and wetlands. But our civilization has used its ingenuity to consume those miraculous systems rather than to use them sustainably. Tree farms are not the answer; natural forests with their ancient genetics, their forbs, wildlife, soil fungi, insects and occasional fires are what work.

These days, many of us live in sprawling suburbs that have replaced ecologically functional habitats with pavement, cosmetic lawns, and Old World trees and plants that don’t even support native pollinators or caterpillars. Do not despair! Many of us have available our own nature-based solution. You can join the growing number of those giving space to small xeric areas, meadows and groves of native plants, helping to integrate nature back into the human environment. It is not too little and it is not too late! ❖

Asombro Institute Makes Excellent Use of Their Conservation Fund Grant

by Kelly Steinberg

At the Asombro Institute for Science Education, we are always looking for ways to help students connect what they learn in the classroom to what they can experience among the natural wonders of New Mexico. During a visit from Asombro’s educators, students might explore sounds waves by listening to animal calls or investigate how natural selection led to a population of blanched lizards at White Sands National Park.

In 2020, Asombro received a grant from the Native Plant Society of New Mexico’s Jack and Martha Carter Conservation

Fund to help create a new lesson for middle school students to promote New Mexico’s native plants. We partnered with Dr. Sara Fuentes-Soriano and Professor Zachary Rogers of the NMSU Herbarium to lead students through a hands-on investigation to discover that a creosote bush’s size is the result of its environment and genetics.

Creosote bush (*Larrea tridentata*) is one of the most common shrub species throughout the Chihuahuan, Sonoran, and Mojave Deserts. However, the appearance of this one species varies widely between the deserts. While the Chihuahuan Desert creosote bushes we see here in New Mexico are often short and squat, the Mojave Desert’s creosote in California can be tall and gangly.

What causes such big differences in a single plant species? Researchers are still exploring this phenomenon, but the plant’s genetics play a large role. In the Chihuahuan Desert, creosote bushes have two sets of chromosomes (one set from the “mom” plant, and one set from the “dad” plant). But if you drive west to Arizona, you’ll find creosote bushes with four sets of chromosomes (2 sets from “mom,” 2 from “dad”). Keep driv-

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Conservation Corner

by Rachel Jankowitz, NPSNM Conservation Committee Chair

Valles Caldera National Preserve Comments

NPSNM submitted comments to the National Park Service, responding to a draft management plan posted online (<https://parkplanning.nps.gov/documentsList.cfm?projectID=101308>) and presented at two virtual public meetings in April.

The VCNP Management Zoning Plan will guide future planning for specific resource areas so as to balance visitor services and recreational opportunities with stewardship of the Preserve's natural and cultural values. The proposal is to establish and define three management zones – Visitor Engagement (VEZ), Self-Guided (SGZ) and Backcountry/Self-Reliance (BSRZ) – and map which parts of the Preserve to designate for each zone. The three zones differ along a spectrum of development compared to preservation.

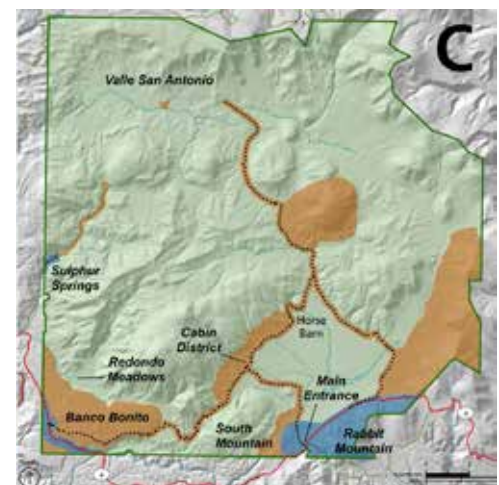
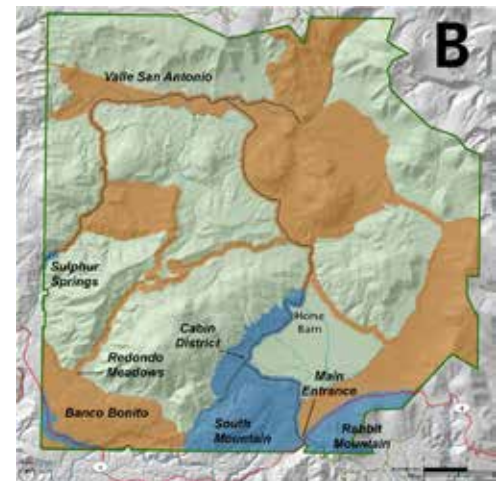
In terms of values directly related to native plants, VCNP includes the History Grove of old growth trees, the vast wet meadows forming the headwaters of the Jemez River, and a great interpretive opportunity as an epicenter for the use of tree rings to advance fire science. But the Preserve's ultimate value is the landscape-scale juxtaposition, in one mostly intact property, with geologic, cultural/historic, wildlife, and recreational potential. Threats to landscape integrity include climate change and large, high-intensity fire, neither of which is likely to be affected by the management zoning.

One major threat which will be affected by the zone maps is fragmentation, especially by the mechanisms of roads and motor vehicle traffic. NPSNM agrees in concept with the zone planning approach. Of the three potential zone maps shown in the newsletter, we prefer Option C, in combination with some elements from each of the other Options. Option C would minimize habitat fragmentation by eliminating motor vehicle loop routes throughout most of the Preserve.

Option C as presented by the Park Service states that all public access beyond the VEZ would require the use of shuttle vehicles. However, in order to optimize visitor access, we believe that a limited number of vehicles besides the shuttles could be allowed on existing roads in the SGZ, such as hunters, fishers and their guides, and individuals with camping permits. It could also be beneficial to designate the Cabin District as VEZ, as in Option A, so that administrative offices, education facilities, and possibly overnight rental facilities could be placed where easily accessible but not visible from Route 4.

Depending on the specific uses, expanded areas of SGZ away from the roads, as in Option B, might be accommodated without contributing excessively to fragmentation of the landscape. Our membership also feels strongly that when designating off-road trails for various forms of recreational use, the Park Service should strive to minimize conflict between pedestrians, equestrians and bicycle riders.

The existing gravel roads that would be closed to public traffic under Option C could be maintained to a lesser degree for use by managers, researchers and emergency service vehicles, and by visitors on foot, bicycle, ski or horseback who might choose to enjoy the scenery without venturing onto single-track trails. Drainage improvement work should continue on all roads, open or closed, to increase hydrological connectivity. Removal of unnecessary fencing should continue, to allow for improved wildlife mobility.



Ten Golden Rules of Reforestation

You may have heard something about the 1 Trillion Trees project, launched by the World Economic Forum last year. The idea behind that and similar proposals is to sequester carbon and limit global warming. Ethiopia and Pakistan have planted hundreds of millions of trees. China had a mass forestation program long prior to the current trend.

Seems like a good idea. Everyone likes trees. Even Donald Trump promoted reforestation. But planting programs, especially those based on large numerical targets, can wreck natural ecosystems, dry up water supplies, damage agriculture, and push people off their land. Non-native eucalyptus and pine species are commonly used in tree planting projects worldwide because they grow fast in a range of climates.

In January, scientists affiliated with the Royal Botanic Gardens at Kew in Britain published their “10 Golden Rules for Restoring Forests”. In my humble opinion, the first rule is more important than all the others combined, although #4 is also critical. Here is what they recommend:

1. Protect existing forest first. Millions of hectares of forest are destroyed every year, leading to huge carbon dioxide emissions that are not easily offset by reforestation. It can take over 100 years for these forests to recover, so it is crucial that we protect what we already have before planting more.

2. Work with local people. Local communities need to be at the heart of reforestation projects. Failing to include them is one of the most common causes of an unsuccessful reforestation project.

3. Maximize biodiversity recovery to meet multiple goals. These may be reducing carbon emissions, conserving species, providing economic benefits to local communities, or delivering ecosystem services like stable water systems.

4. Select the right area for reforestation. The best place to plant trees is on land which was previously forested. Non-forested lands like grasslands or wetlands already contribute to capturing carbon, mostly in the soil, so should be avoided. Selecting an area that is already in use for agriculture could result in further deforestation elsewhere. Connect or expand reforested sites to an existing forest. A reforestation site could also be selected based on the ecosystem services it provides, such as recreational spaces, wildlife habitats, clean air, and shade.

5. Use natural forest restoration where possible. Natural forest regrowth after land is abandoned, or within a degraded forest – can be cheaper and more effective than tree planting. Carbon capture can be 40 times greater in naturally regenerated areas than in plantations.

6. Select tree species that maximize biodiversity. Planting should be done using a mix of species, including as many

natives as possible, as well as rare and endangered species where feasible. Invasive species should be avoided.

7. Use resilient tree species that can adapt to a changing climate. It is important to use tree seeds or seedlings with appropriate levels of genetic diversity to match the region they are planted in and make them suitable for the local or projected climate. This can increase the resilience of the restored forest to pests, diseases and long-term environmental change.

8. Plan ahead. Decisions on where seeds or trees will be sourced from and what facilities and protocols will be required for seed banking and propagation should be made well in advance. It is important to provide training for seed collecting, cleaning and storage equipment and activities, and work with local people.

9. Learn by doing. Perform small-scale trials prior to applying new techniques on a large scale. Success indicators, like the recovery of an endangered species, should be monitored regularly, to see how well an ecosystem is recovering and allow project managers to adapt accordingly.

10. Make it pay. To ensure the sustainability of reforestation projects, diverse income streams must be generated which benefit different people. These may include: Carbon credits, sustainably produced forest products, and/or ecotourism.

Citation: Much of the information presented above was obtained from the article “Are Huge Tree Planting Projects More Hype than Solution?” by Adam Welz, published April 8, 2021 on Yale Environment 360. <https://e360.yale.edu/features/are-huge-tree-planting-projects-more-hype-than-solution>

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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 follow CDC, state, and local guidelines. 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 or check the Albuquerque Chapter page of NPSNM.org. No public field trips are scheduled at this time. Plant lists are available for hikes on your own on the website.

Jul 7 Meeting. "A Beginner's Guide to the Mosses and Liverworts of New Mexico" Russ Kleinman and Karen Blisard of Silver City will present on bryophytes, a group of non-flowering plants that consists of mosses, liverworts and hornworts. These plants may be small, but there are over 400 bryophytes known from our state, with several new state records found every year. We will discuss the general characteristics of bryophytes and demonstrate these with examples of common New Mexico mosses and liverworts. We hope to give you a basic understanding of this fascinating group and to encourage you to get to know them better.

Aug 4 No Meeting. State conference in Otero Aug. 20-22.

Sep 1 Meeting. Bill Norris, Professor of Biology at NM Western University will introduce us to the plant population of City of Rocks State Park through photography and by describing his work to take a complete botanical inventory of the park. City of Rocks, between Silver City and Deming, known for unusual rock formations, is also a diverse Chihuahuan desert habitat at 5000 feet. The meeting will be held on Zoom.

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)

Monthly evening programs will resume in October. Meanwhile, videos of our spring programs are available online at the chapter website, gilanps.org/events/programs/, including presentations on liverworts and the night-blooming cactus *Peniocereus greggii*. We hope to organize field trips this summer

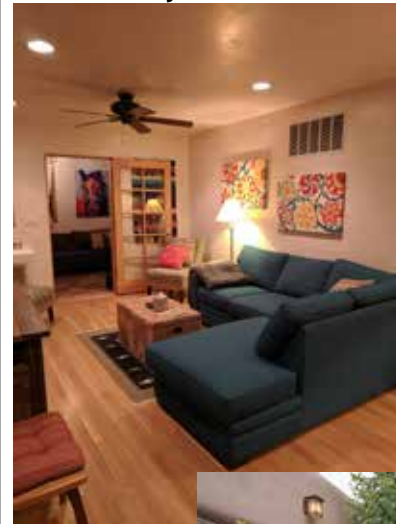
when Covid-19 restrictions are lifted.

Sep 18 Native Plant Sale at the parking lot on the corner of Pope and 12th Streets, across from Gough Park. The Gila chapter has lined up five southwestern native plant vendors to sell their plants directly to the public.

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. Zoom link will be announced a few days before the presentation. Field Trips are usually on the Sunday following the Wednesday meeting; most last into the afternoon. No in-person meetings or field trips are currently

Annual conference silent auction item: "Plaza Treehouse" and "Plaza Rojas" in historic downtown Santa Fe. One week



vacation rental, good for four people. Two bedroom, two bath home 400 yard walk from Santa Fe Plaza directly across from the Scottish Rite Center on Bishops Lodge Road. A \$1,750 - \$2,000 value depending on season. Generously donated by Adobe Destinations.



scheduled. Contact: Carolyn Gressitt, 575/523-8413. Leave a message so we can get back to you.

Sep 8 Meeting. “Effects of the drought on water resources in southern New Mexico.” John Verploegh, Senior Water Resource Specialist at the New Mexico Office of the State Engineer.

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. More information will be available by the beginning of each month.

Jul 20 Presentation at White Sands National Park. “Ancient footprints near Lake Otero.” Park biologist David Bustos will compare plants that might have served as food sources for those ancient humans, camels, and mammoths with the plants in the area today.

Aug 20-22 NPSNM 2021 Annual Conference in Otero County, People and Native Plants, a Journey Through Time.

Sep 22-26 Otero County Fair Days. The Otero County chapter has a booth at the fair offering books for sale and information. Volunteers welcome! Please contact Jennifer to sign up to help by taking a shift at the booth.

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> ❖



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Larry Littlefield Remembrance

by George Miller, Albuquerque Chapter

Most of us in the Albuquerque Chapter knew Larry Littlefield one way or another, either through his magnificent wildflower guide book to the central and northern mountains of New Mexico which he co-authored with Pearl Burns, or through the knowledgeable programs he presented at the monthly meetings.

I was fortunate to spend relaxed time with him at the book table the chapter sponsored at community events, such as Earth Day. His soft-spoken, gentle nature, concern for human and environmental issues, and broad knowledge of natural history elevated conversation far beyond small talk.

We missed his friendship and contributions when he and his wife Julie moved to Seattle in 2019 to be close to their daughter. Julie notified us that after abdominal surgery, he died peacefully surrounded by family and memories on April 19.

His book, *Wildflowers of the Northern and Central Mountains of New Mexico*, is a fitting legacy to the years of service both he and Pearl spent leading USFS-sponsored wildflower walks in the Sandias and compiling their informative and beautifully illustrated book. ❖

Celebration of Jack Carter's Life

by Diane Carter on behalf of the Carter Family

We will be hosting a celebration of my dad's life and his legacy on:

September 18, 2021 at 1:00 pm MT.

This service will be hosted on Zoom because so many of his family members and friends live all across the country. We hope that this will enable more of his family and friends to attend.

Our family and a number of my parents' friends will be sharing memories of his life and commitment to plant sciences education.

Please reply to me at [dianecarterlrcn \[at\] gmail.com](mailto:dianecarterlrcn@gmail.com) if you are interested in attending the celebration. With your email, I will be able to send the Zoom link for the celebration as the day draws near.

Also, please feel free to provide this information to others who knew my father to be sure that they are aware of this celebration and can plan to attend.

I cannot thank you enough for all the cards and notes we received at the time of his death. These were, and still are, a great comfort to our family.

Thank you in advance for your assistance in getting the word out. I sincerely hope you'll be able to attend. ❖

Native Plant Society of New Mexico
2021 Annual Conference

People and Native Plants: A Journey Through Time

Friday,
August 20
 to
 Sunday,
August 22



Alamogordo
 Tularosa
 Otero
 County

Conference Updates and Announcements

Haven't registered yet? Get your registration submitted by July 26, 2021 to take advantage of the early-bird discount.

Online registration is available at: npsnm.org. For those who prefer paper, there is a link there to download a paper form and send it in by snail mail.

Schedule change: WS6 on Saturday morning will now be:

Pit Fired Pottery Leader: Hank Hangsleben

See beautiful examples of pit fired pottery. Learn the basics of how traditional pottery was made and used. Each participant will make their own pot using food safe clay and given instructions on how to fire their pot at home using a variety of techniques including a BBQ grill.

Location: Clay Time, 700 East First Street, Suite 756. Limit: 20 participants Materials fee: \$10

Check the website (npsnm.org) for the most current schedule of talks, field trips, and workshops.

The silent auction allows us to issue grants to students in botany and ecology at New Mexico State University and New Mexico Institute of Mining and Technology. Your attendance and silent auction purchases help us raise the funds for these grants. Scattered throughout the newsletter are some of the fine offerings we have for this year's silent auction so you can start planning your bids now. We need more items to make this auction a success for our students. Please consider donating.

We will raffle one of Jane Huisingh's beautiful quilts (photo on back cover) during the Saturday banquet. Tickets may be purchased in advance or at the conference. Contact Jen Gruger for details.

A silent auction has become a traditional highlight of each year's NPSNM state conference.

The Otero chapter invites you to donate items that might be of interest to other members.

We would like to give a huge thank you to our new chapter member who has volunteered as the Silent Auction Committee Chair - Thank You, Kathy!

To offer an item, please contact
 Kathy Fuller — [kfuller5520 \[at\] gmail.com](mailto:kfuller5520@gmail.com)

The Making of a Conference: Resilience

by Jen Gruger, Conference Chair, Otero Chapter

For many this past year has been a lesson in resiliency. We don't always know what to do or when to do it or how to do it but we are working it out. In almost every way, we have had to rethink how to get things done.

I think about the calls I made to presenters in the spring and early summer of 2020, asking if they would be willing to convert their presentations to a webinar format in order to keep the conference on schedule and how some explained they just didn't have that skill or maybe didn't feel like their presentation would have as much value in that format.

Fast forward to this year, when I reached out to announce we were getting back on track with new dates in August 2021 but wanted to have a virtual option. Not one said, "No, I can't do that." They worked it out. Some of the field trip and workshop leaders even expressed willingness to do their more interactive programs with webcams and such! These are all people who have had to figure out how to keep doing what they do in new ways. I believe that even the uptick in the Otero chapter membership this spring (11 new members just in April and May!) is evidence that folks are rethinking what they do and how they do it.

So, here we are with adjustments where needed and new hope and resiliency we didn't know we had. I am more excited than ever for this conference—and I was pretty darn excited this time last year.

I am also proud of the breadth and depth of the experience and diversity of the speakers and field trip leaders. Your presenters include experts employed at the state and federal levels of land use and management, authors and artists, archaeologists and ethnobotanists, potters and a medicine man. And don't forget that special guest at the banquet. See you in August one way or another!

Here are a few frequently asked questions so far.

Are in-person registrations limited?

We do not know today what the limitations will be in late August, therefore, we are again numbering every registration so that we can honor the first come, first served strategy if we have to limit attendees in the Civic Center. Refunds will be issued to those who can't attend in person if we have to cut off registration AND they don't want to attend virtually instead.

Will masks and social distancing be required? What about vaccines?

We will firmly enforce the state guidelines in place at the time and we will do our best to accommodate the desires of attendees who may wish to follow a more stringent protocol.

You are not required to have a vaccine, nor will you be asked to disclose your vaccine status despite an earlier announcement (page 8 of the April/May/June 2021 newsletter). Instead, we will provide ample space for individuals who desire that as well as allow seating (and carpooling on field trips) in small groups for those that are comfortable doing so.

How will virtual participation work?

We are still coordinating the details here but anyone who registers this way will receive ample instruction on how to participate. As of mid-May, all of the registrants have requested to attend in-person or undecided, indicating a strong possibility that we won't need to do the virtual version. We will plan to be flexible.

The two-fold theme of the conference "People and Native Plants, A Journey Through Time" allowed us to expand the typical native plant conversation to the people using those plants and to lay out the order of the presentations in a logical, chronological fashion. As inspiring as all that was, we also noticed a subtheme emerging.

Through the process of arranging the topics in temporal order and reviewing the proposed content of each presentation, we noticed a shift from plant use to plant status to plant restoration. It caused us to reflect on the incredible impact humans have on our environment. Committee member LeAnne Roberts brought a light to the subtheme of **conservation** when she read a quote from educator, philosopher, ecologist and wilderness advocate, Aldo Leopold.

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect."

Aldo Leopold

This quote led me to a long-overdue personal discovery cycle: I feel better connected to the land today because of it. I am proud to have allowed myself to be moved by Mr. Leopold's message.

Jen Gruger,
Conference Chair

Continued page 12

An Uncommonly Beautiful Locally Common Cactus

by Jim Von Loh, Las Cruces Chapter



04192021: NHC buds and flowers are nearly evenly distributed around this small, single-stemmed individual. Most plants have multiple stems.

Despite its intimidatingly long name, Nylon (Brown-flowered) Hedgehog Cactus (*Echinocereus viridiflorus* Engelm. var. *chloranthus* (Engelm.) Backeb.), the nylon hedgehog cactus (NHC) is an attractive, locally common, typically multiple-stemmed succulent. Its known distribution is entirely within southern NM and western TX. Against backgrounds of dried grasses and rocks, the long and bright, white, brown, and red spines often give a mild impression of a mini-rainbow shining in the sun. It is an early-flowering species with buds typically forming in February/March and the medium-to-dark brown, mostly cup-shaped flowers opening during March/April; fruits form during April/May. The dark brown-to-plum-colored tepals form the smallest flowers among the associated local hedgehog cactus species distributed on gravel, cobble, boulder, and volcanic and limestone rock habitats. To date, I have been unable to adequately document NHC flower-visiting/foraging



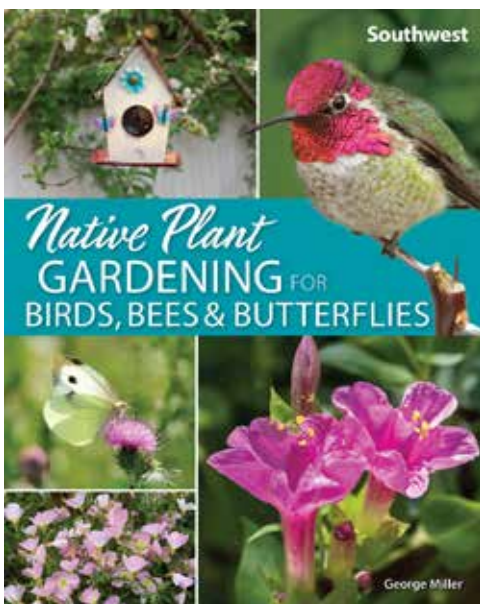
wildlife, particularly insect species serving as potential pollinators; it will be a future pursuit! ❖



04282019: An assassin bug perches on the NHC to await the arrival of flower-foraging insects.

Above right: 040620: NHC, slightly more expanded tepals covered with pollen grains from adjacent anthers.

Right: 04062021: NHC fully opened flower of greenish to purple-brown tepals; fully-opened flowers are rarely observed.



Hot Off the Press: the Latest Book from George Miller

by Margaret Ménache, Albuquerque Chapter

George Miller has been intimately involved with plants, particularly native plants, for a long time. In fact, he was born on a farm nursery in the southwest that was established by his grandparents in the late 1800s. So it comes as no surprise that he has been thinking about plants and how we humans can work effectively with them in our continually changing world. Not content to remain on the farm, George has traveled far and wide, especially throughout the western United States. And he has the books to prove it!

His most recent effort came out in April this year - *Native Plant Gardening for Birds, Bees and Butterflies: Southwest*. As is only right, the bulk of the book is dedicated to two-page spreads on 107 native plants. There is a full-page-plus-a-bit photograph of the plant in question and an inset image with a flower detail, often with a pollinator included. The rest of the spread is devoted to the “specs” of the plant - what

Continued page 13

Tree Stories

by Margaret Ménache, Albuquerque Chapter



Otero Chapter members pose in front of a sycamore, reputed to be the oldest in New Mexico, during a February 2021 field trip. Image: Elva Osterreich

If you did a word cloud, sometimes called a wordle, on my conversation with Elva Osterreich, the word that would outshine all the others would be STORIES. We spoke about the field trip she'll be leading during the NPSNM Annual Meeting in August on the historical trees of Tularosa.

"The trees are all about stories," Elva informed me. "Trees have their own stories." The stories of street trees, and the parks and neighborhoods where they were planted, are deeply entwined with the history of a town. She spoke about a public park on one of the stops on this field trip. A small park in a small town. Some of the park's trees have been planted since the late 1800s or early 1900s. It's the heart of the village. As you stand there, you can see that it's the heart of that place. You can see the trees fan out from there, in the yards, as you stand in that park. "They aren't all old, hundred-year old cottonwoods (or elms), but that's interesting, too, because you can see the cycles and changes in the trees over time." And that's matched by the changes in the architecture and use of the structures surrounding the park.

The orchards Elva will show the field trip participants are an example of the extreme of an introduced tree that is here specifically to serve a human need: in this case, pistachios and pecans (yum!). Without intensive management and care these trees would not survive: if humans disappeared, arguably these trees would, too. So, in this case, the plant-people interaction is necessary for the survival of the trees, and possibly, for the survival of the people.

Elva remarked that this is a perfect trip not only for those who love trees and their stories but also for those seeking a field trip that is light on hiking ("we'll drive to places and look at nearby trees," she promised) but deep on stories, history, and

Focus on the Jornada Mogollon

by Jen Gruger, Conference Chair, Otero Chapter

Put an asterisk by David Greenwald's presentation on Friday at 10:45 am and another one by his field trip "E" to the Creekside Village on Sunday at 8:00 am. Here is why.

Following Pam McBride's keynote presentation on evidence for plant use spanning close to 10,000 years, Greenwald will narrow our focus to the Jornada Mogollon period between AD 600 – 850 during his presentation "Prehistoric evidence of native plant utilization and landscape modification in Tularosa Canyon". He will lead a companion field trip on Sunday to see the archeological site he will be referencing in his presentation.

Greenwald has been an archaeologist for over 45 years and has spent most of his career conducting cultural resource management projects in Arizona, Colorado, New Mexico and west Texas. He has worked on Anasazi, Mogollon and Hohokam excavation projects.

In 2001 he settled in the area of Tularosa, where he founded the Jornada Research Institute, a non-profit organization dedicated to continued research of cultural and natural resources while developing public programs and engaging the public. To learn more about the projects, staff, and opportunities to get involved, visit www.jornadaresearchinstitute.com.

The Jornada Mogollon people are well known for exploiting a wide range of native plants for subsistence needs, shelter, clothing and tools. In arid environments, agriculture is risky without supplemental water.

Greenwald's research on Creekside Village has demonstrated a change in vegetation patterns and erosion associated with land-use practices over the last 1,400 years. He emphasizes that he and his team of mostly volunteer archeologists look at this project from a landscape perspective. "Creekside Village," he said, "was made up of five different residential sites and two irrigation canals. This is unusual for NM and unexpected in the Jornada Mogollon area. It creates 'irrigation communities' because, if you have a canal bringing water from the river to the fields, everybody along the canal has to cooperate to maintain the system."

As the people developed water retention strategies, they were able to establish large villages whose residents exploited the immediate surrounding landscape but focused on agricul-

Continued page 14

the interlocking relationships of plants and people throughout time.

"It's going to be a fabulous conference. And fascinating. Especially for those who are interested in the connections between humans and their progression through history and in conjunction with the plants of the area, of New Mexico," Elva concluded. I have to agree with her assessment and I'm sure you will, too. ❖

Conservation Corner, Continued from page 5

New Endangered Plant Status Reports

The 2020 status reports on several state endangered species are now available for your reading pleasure at <http://www.emnrd.state.nm.us/SFD/ForestMgt/Endangered.html>.

Swale Paintbrush (<i>Castilleja ornata</i>)	Grows in flat, seasonally wet areas in arid grasslands in southwestern Hidalgo County.
Mesa Verde cactus (<i>Sclerocactus mesae-verdae</i>)	Eroded badlands between 4,800 and 6,560 ft. primarily on Navajo Nation lands.
Knowlton's cactus (<i>Pediocactus knowltonii</i>)	A small hill in San Juan County just south of the Colorado/New Mexico border above Navajo Lake.
Holy Ghost ipomopsis (<i>Ipomopsis sancti-spiritus</i>)	Holy Ghost Canyon in the Sangre de Cristo Mountains. Openings in ponderosa pine-Douglas fir forest and appears to prefer disturbed areas.
Wright's Marsh Thistle (<i>Cirsium wrightii</i>)	Wet meadows associated with alkaline springs and seeps (ciénegas) primarily in New Mexico, and a few historic locations in Arizona and northern Mexico.
Pecos sunflower (<i>Helianthus paradoxus</i>)	Wet, alkaline soils in spring seeps, wet meadows (ciénegas), and along stream courses and pond margins. Seven populations in west-central and eastern New Mexico, and adjacent Trans-Pecos Texas.
Goodding's onion (<i>Allium gooddingii</i>)	Endemic to New Mexico and Arizona. Under mature mixed conifer and spruce forests, and along drainage bottoms associated with perennial and intermittent stream courses.

Making of a Conference, Continued from page 9

I registered last year and requested that my registration carry over to 2021. What do I need to do?

Email or call Jen Gruger and she will confirm the choices you made last year are still the ones you want for this year. She will help you make any adjustments necessary.

Can I change my mind about how I want to attend?

Yes, but food may be a factor. You won't be refunded if you reserve a banquet seat and then flip to virtual. Conversely, if the Civic Center capacity has not topped out, you can switch from virtual to in-person but, depending on the timing of that decision, we may not be able to accommodate your meals.

In 2020, there was to be an effort to reduce plastic use during the conference. With non-contact strategies in place, is that still feasible?

We will work with the caterer as best we can to stick to this plan. Biodegradable and reusable containers will be used where possible and safety will be the first priority.

Can I still get a free conference logo sticker if I bring my own water bottle?

Yes! It is possible however that you will not be able to refill the bottle at the Civic Center, so just plan ahead for that.

I want to make a donation to the silent auction. What should I do?

Items that have done well in the past include wall art, sculptures, housewares, hiking gear and gift certificates (such as to restaurants, spas, resorts etc. Items do not need to be new but should be 'like new' if used. We will ask you to identify a starting bid (generally reflective of the value of the item) as well as a suggested increment for bidding for your item. The Silent Auction Room will be well-manned and secured throughout the event to ensure the safety of all donated items. To donate items, please contact Kathy Fuller at (575) 430-0432 or via email at [kfuller5520 \[at\] gmail.com](mailto:kfuller5520@gmail.com). She will arrange for the item to be delivered prior to the event whenever possible or by Thursday evening, August 19th.

I hope this helps but if you have questions that are unanswered, please call or email me! Jen Gruger: [jengruger \[at\] gmail.com](mailto:jengruger@gmail.com) ❖

Asombro Institute, *Continued from page 3*

ing to the Mojave, and you'll find creosote bushes with six sets of chromosomes.

In the new lesson, we ask students to examine digitized herbarium specimens from all three deserts, measure the difference in size and hypothesize what could cause it. To determine if the environment is a factor, they use a precipitation map to answer the question, do the larger plants received more water? Students then get a feel for genetics research techniques by making a model of a gel electrophoresis experiment, looking for differences in the genetic make-up of bushes from each of the deserts.

When school buildings closed in March 2020, Asombro educators designed the activities for students to do at home using online tools and a take-home kit. An army of volunteers helped us assemble nearly 2000 kits, which were distributed to 7th graders throughout Las Cruces. The new, online learning environment has allowed Asombro to engage students in new ways. With authentic scientific specimens from across the southwest, digitized and available online, students learn about 21st century data collection tools. Through online lessons, Asombro has also connected with more schools and students throughout New Mexico.

We look forward to the 2021-2022 school year, when we plan to bring the lesson into middle school classrooms. In-person, students will continue to investigate the relationships between plant size, genetics, and precipitation. They'll get to work with digitized and physical herbarium specimens and to examine creosote cells under a microscope to see the differences for themselves.

Thanks to the Native Plant Society of New Mexico and the Jack and Martha Carter Conservation Fund for supporting the Asombro Institute and hands-on learning about plant science in New Mexico's schools! ❖



A 7th grade student measures a digitized herbarium specimen of creosote using the online scientific database SEINet.

Miller's New Book, *Continued from page 10*

you need to know to be sure it's going to grow where you plan to put it - and a description from an artist's, naturalist's, and pollinator's point of view. This can best be described by quoting directly from the text.

Take the fleabane daisy (*Erigeron* spp.), a well-known weed. "Oh, that thing," someone will scoff and rip it out unceremoniously, while you stand by gaping in horror. Not George. He sees the daisy with kinder (and wiser) eyes: "As delicate single plants or spreading groundcovers, they add a dash of color to cacti gardens and desert accents, and they mix well with other small, fill-in color accents..." (p. 151) He concludes that "[a]ll fleabanes are pollinator magnets, so plant any species available that's suitable for your zone."

The book is worth the price of admission, so to speak, for the descriptions of the 107 plants alone, but George offers you much more. In a densely packed twenty (plus or minus) pages, he introduces the reader to the concepts of designing a pollinator garden from design basics to understanding the pollinators you're seeking to attract and the plants they need.

While the gardener might start with the wish to create a pollinator garden, the cycle of life is far more complex than that. A case in point. When we spoke, George told me that nearly all song birds eat caterpillars. You know, those things we do battle with because they're eating the leaves off our plants... So, perhaps some of us (that would be me) need to learn to be a bit more forgiving, to see a bit more of the bigger picture. George's perspectives on the bigger picture, informed by his deep respect for the natural world, are gently laid out in this book.

It could be an overwhelming amount of information if George hadn't skillfully packaged it all together by concluding with some specific plant suggestions for different pollinators and different habitat needs. He has a list, for example, of larval host plants so those caterpillars can safely munch away in your garden. He said, "We need native trees with native caterpillars so native birds can breed."

With this series (two more books covering Texas and California respectively, are forthcoming), George hopes to raise awareness of the importance of native plants and to encourage people to take the next step in creating gardens, yards, and landscapes that understand and work with the biological heritage of the area. He quoted Lady Bird Johnson who famously said, "Florida should look like Florida and Texas look like Texas."

George commented that it's gratifying to walk through a neighborhood and see native plants. As he said to me, "We can save wildlife one yard at a time, particularly in the southwest where such small oases simulate what the pollinators would find naturally."

This book is a great next step for you to join in with those who are creating the small habitat oases for our native flora and fauna. ❖

Jornada Mogollon, Continued from page 11



Jornada Research Institute staff at work at the Creekside Village site. David Greenwald will lead a field trip there on Sunday August 22 to supplement his conference talk with some onsite discussion.

ture as their primary subsistence strategy. Along with the shift to an agricultural-intensive strategy came ritual practices at the village level and use of great kivas.

Greenwald said, “Some of the things we’re discovering are quite significant like the archaeoastronomy connection to the kivas, which has now become a real focal point and is drawing more interest in what we’re doing than any of the other parts we’ve published.”

He concluded, “There are so many firsts at this site.” The first great kiva found in this area and the first irrigation systems documented in this area. There are likely some in the Mimbres area but the advantage here, is that most of those other areas have been lived in and farmed over, however in Tularosa Canyon, most of the homestead attempts failed so the area remains intact.”

Greenwald’s Sunday tour to the Village will demonstrate the effects of both prehistoric and historic land-use activities on the landscape; he will discuss what native plants were exploited by the Jornada Mogollon people who occupied the canyon.


You won’t want to miss this unique opportunity to learn more about these fascinating people and their work to shape a harsh environment to their needs. ❖

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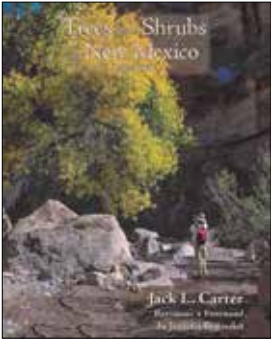
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The generous financial support from so many NPSNM members and friends of the flora of New Mexico will make it possible for the Board to approve more funding for workshops throughout the state, additional basic research on a variety of critical plant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

Use the form provided below, or contribute through PayPal on the website, www.npsnm.org. Every contributed dollar is being used to protect the flora of New Mexico well into the future.

~Jack & Martha Carter

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Countdown to the annual conference: Otero Chapter hosts us on a Journey Through Time.

Events, silent auction, and a raffle, Oh my!



Otero chapter member Jane Huisingh has sadly moved away but as a parting gift, she donated another beautiful quilt, as she did in 2020. Her creation will be raffled off during the banquet on Saturday night. We will be selling tickets in advance as well as at the conference.



Cholla (*Cylindropuntia imbricata*) against the backdrop of the sand dune vegetation. Image: Nancy Gregory.

White Sands is far more complex than the famous pure white sand dunes. To get an insider's view of this fascinating landscape, you'll want to attend the conference field trip on Sunday morning. Although these images of claret-cup cactus, yellow Hartweg's sundrop, and purple sand verbena were taken earlier this year by Otero chapter member, Nancy Gregory, you can be sure the sights will be amazing.

Right: Claret-cup cactus (*Echinocereus coccineus*) Image: Nancy Gregory.



Above: Hartweg's sundrops (*Calylophus hartegi*) Image: Nancy Gregory.

Below: Purple sand verbena (*Abronia angustifolia*) Image: Nancy Gregory.



Asombro created videos to accompany the online lesson. This video explains the difference in creosote shrub size between the Chihuahuan, Sonoran, and Mojave Deserts. Read story on page 3.