New Mexico's Voice for Native Plants

Newsletter

of the

Native Plant Society of New Mexico

July, August, September 2015 Vol. XXXX No. 3

What's up with New Mexico's native bees? *See "Pollinators Under Pressure," page 6.* Photo: Christina Silby

Inside This Issue

From the President

by Barbara Fix

As time goes by, we get to see patterns and changes. Not all that comes with climate change and climate "weirding" is bad for us or other species. Most of the region the Native Plant Society of New Mexico covers has benefitted from the unusual spring rains that lifted many areas from the severe drought we have been experiencing. Truisms come to mind, like "The only constant is change," and the one flood victims in drought-stricken areas might be muttering: "Be careful what you wish for."

Changes we should wish for are in some attitudes toward native plants. Most of the newspaper comments on the 40th anniversary of the Endangered Species Act concerned only endangered wildlife, not rare native plants. Only 5% of federal monies spent on recovery or conservation of endangered species is spent on endangered native plants. A recent posting on the NPSNM discussion group had an article on the drastic drop in university botany courses and on the continuing defunding of herbaria. For no stated reason, the New Mexico Department of Game and Fish recently refused to allow NPSNM's Santa Fe chapter to plant the endangered Santa Fe cholla on state land.

Through its chapters and on the state level, NPSNM continues to be "the voice for native plants." Through education, outreach, and collaboration with others who share our goals, we can make good change happen. By helping others see what William Blake called "heaven in a wildflower," we enrich ourselves and our world. Let's savor the beauty the San Juan chapter is offering us at the annual meeting in Durango this July. Then, let's walk our talk. ❖

Legacy:

What we leave behind,
we give to the future.

NPSNM encourages members
to consider including
NPSNM in their wills.

For further information,
call Barbara Fix at 505/989-8654.

Membership Dues for 2016

by Bettie Hines and Pam McBride, Albuquerque Chapter

Because of a recurring deficit in the operating expenses, the NPSNM Board, meeting in February 2015, voted that an increase in membership dues is necessary. It was also determined that the present dues are low compared to those of many other nonprofits. Therefore, effective January 2016, new memberships and renewal dues will be:

Individual	$ 30, an increase from $25
Family	$ 45, an increase from $30
Friends of the Society	$ 60, an increase from $50
Sponsor	$125, an increase from $100

Patron at $250 and **Life Member** at $1,000 remain the same.

Students, Teachers, Seniors, and Limited Income $ 15
(Note that this category has added teachers and remains at the previous level.)

NPSNM DOLLARS AT WORK

2014 NPSNM Grant Report

April 22, 2015

Dear Barbara and the Native Plant Society of New Mexico,

I can't thank you enough for your continued support of the NMSU Department of Biology Herbarium. Your generosity and support mean the world to us.

Over the last year we have been fortunate to have Dr. Lillis Urban employed half-time in the collection. She has achieved amazing things in the collection. Following the end of funding for her position (two weeks ago), we were able to get approval for a similar permanent full-time position that would be starting in July. I mention this both because we are excited about the possibility that this could happen in the future and because contributions like yours were a major factor in the university's decision to try to fund a full-time staff member for the collection. The university does notice and reply to community support for resources.

The unfortunate news is the state budget for education. Due to even very recent substantial budget concerns, all hiring on campus has since been put on hold—so we can only hope that the position will become available again in the future. Regardless, your support is appreciated by us and noticed by the higher administration.

Regarding a brief report on how we managed the contribution from last year—we primarily used the funds to partially support a student intern in the herbarium, Ms. Libby Davis from Cloudcroft, NM. She is a recent convert to botany who shows incredible promise as a botanist. Her career aspirations relate to land management in New Mexico. As a result, you have helped to support the herbarium while also shaping the career of a young scientist.

Again, thank you so much.

Donovan Bailey

Conservation Corner

by Rachel Jankowitz, NPSNM Conservation Committee Chair

Annual Meeting of the NM Rare Plant Technical Council

A dazzling concentration of the best botanical talent in the state, plus a few interested bystanders, was contained in one room at the Albuquerque BioPark on March 13. The Rare Plant Technical Council mission is to maintain a current and accurate list of rare plants in New Mexico, using criteria related to their rarity, endangerment, and distribution, and to provide the best available information on their distributions, ecology, and conservation status. The list can be viewed on the NM Rare Plants website at http://nmrareplants.unm.edu/index.html. The heart of the annual RPTC meeting is a technical discussion of taxa to be added or dropped. Twenty-three taxa were on the table for discussion in 2015.

A new format was introduced for this year's edition of the annual meeting. Prior to the technical session, a less formal roundtable conversation took place. Each attendee was given the chance to discuss agency activities, volunteer programs, educational projects, job opportunities, focal species, or whatever he or she had to say. Among the roundtable topics were changes to technical aspects of the website, a proposal for a NM Rare Plant Conservation Strategy, upcoming range-wide surveys for two species affected by oil and gas development in the San Juan Basin, the promise and pitfalls of citizen science, updates to the Navajo Nation threatened and endangered list, activities of the Southwest Carex Working Group, and comparison of notes on various recent survey results. Afterward, the consensus of the group was in favor of keeping the new meeting format. RPTC meetings are open to all interested persons.

State Conservation Planning

State Wildlife Action Plan In a world of increasing ecological threats and decreasing resources to deal with them, it is critically important that conservation efforts be prioritized where they are needed most. The NM Department of Game & Fish has a framework to identify actions that will promote the recovery of listed animal species and prevent the need to list common species that may be at risk of decline in the near future. NMDGF developed the NM Comprehensive

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The Newsletter of the NPSNM

July–September 2015. Vol. 40 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.

Next deadline is September 1, 2015. Articles and high-resolution artwork supporting the NPSNM's mission are welcomed and can be sent to the editor, Sarah Johnson, at ***sarita@gilanet.com***, or PO Box 53, Gila, NM 88038.

Native Plant Society of New Mexico

If you received this newsletter via email, and would prefer a hard-copy, please notify Deb Farson at nativeplantsNM@gmail.com.

Board of Directors

OFFICERS

President **Barbara Fix** baafix@earthlink.net 505/989-8654
Vice-President **Open**
Recording Secretary **Linda Barker** lindamarie@newmexico.com 575/439-5458
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Treasurer **John White** jmwhite@utep.edu 575/522-6763

CHAPTER REPRESENTATIVES

Albuquerque **Bettie Hines** hines.bettie@gmail.com 505/298-8408
El Paso **Kathryn Barton** agustusmc@sbcglobal.net 915/592-1705
Gila **Keller Suberkropp** keller65@signalpeak.net 575/313-1518
Las Cruces **Joan Woodward** jhirschman@csupomona.edu 575/527-4640
Otero **Judy Allen** kjallen1@beyondbb.com 575/430-9521
San Juan **Bob Powell** RobertLPowell@durango.net
Santa Fe **Carol Johnson** gcjohnson@comcast.net 505/466-1303
Taos **Jan Martenson** jsm449@mac.com 575/751-0511

Chapter Presidents

Albuquerque **George Miller** goxfordm1844@yahoo.com 505/352-9019
El Paso **Jim Hastings** jimhastings@elp.rr.com 915/249-7414
Gila **Ron Groves** orangegroves42@gmail.com
Las Cruces **Carolyn Gressitt** canton49@hotmail.com 575/523-8413
Otero **Helgi Osterreich** hkasak@netmdc.com 575/585-3315
San Juan **Al Schneider** coloradowildflowers@yahoo.com 970/882-4647
Santa Fe **Tom Antonio** tom@thomasantonio.org 505/690-5105
Taos **Jan Martenson** jsm449@mac.com 575/751-0511

Committee Chairs

Conservation **Rachel Jankowitz** NPSNMconservation@gmail.com
Finance & Investment **Pam McBride** ebotpam@msn.com 505/343-9472
NMDOT **Jennifer Mullins** Jennifer.mullins@state.nm.us 505/827-9684
Newsletter Editor **Sarah Johnson** sarita@gilanet.com
Poster Sales **Gary Runyan** abqnps.gjrshadow@dfgh.net 505/205-9953
Workshop Coordinator/Discussion Group Moderator **Bob Sivinski** bsivinski@cybermesa.com 505/577-0287

Staff

Membership Coordinator **Lindsey Kirchhevel** lindseyluna@gmail.com 505/286-2385
Administrative Coordinator & Website Editor **Deb Farson** nativeplantsNM@gmail.com 505/424-3019

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.

Wildlife Conservation Strategy (www.wildlife.state.nm.us/conservation/comprehensive-wildlife-conservation-strategy/) in 2005, as required by Congress in order to qualify for State Wildlife Grant funding. The heart of the CWCS is a list of Species of Greatest Conservation Need, accompanied by a list of Key Habitats that are most significant for biodiversity conservation. Needs for conservation research, surveys, and monitoring, in terrestrial and aquatic habitats, respectively, are identified under Appendices O and P. (Appendix O is reprinted on page 16 of this newsletter.) For example, five of the terrestrial Key Habitat types are in need of "consistent landscape health and condition descriptions or protocols, and monitoring standards."

NMDGF is currently working on a revision of the CWCS, which will be renamed the State Wildlife Action Plan. According to Chuck Hayes, Assistant Chief of the Ecological and Environmental Planning Division, public involvement will be solicited in July and August. The format has not been determined, but will likely include a web-based comment interface, and presentations at one or more public forums. The Key Habitats format will be revised. Instead of the dichotomous scheme of the current CWCS, where a habitat type not deemed "key" is not addressed at all, the SWAP will attempt to prioritize, or tier, all NM habitats.

Rare Plant Conservation Strategy In the state of New Mexico, approximately 300 plant species are considered rare, which may cause them to be considered for federal listing. Many are threatened by human activities and climate change. Although the majority of federally listed species are plants, only a small percentage of available funding for recovery is directed toward plants, and even less is directed toward the management of non-listed rare plants. We have very little information on the status, abundance, and distribution of the majority of these plants. In addition, botanical expertise and knowledge within land management agencies on how to manage these species is largely missing.

A partnership of state and federal agencies has initiated development of a botanical counterpart to the SWAP, to be called the NM Rare Plant Conservation Strategy. The RPCS will be similar to the Colorado Plant Conservation Strategy (www.cnhp.colostate.edu/download/documents/2009/CO_Plant_Conservation_Strategy_Report-links.pdf). It is intended to promote the stewardship of New Mexico's rare and endangered plants and provide proactive management tools and actions to address population declines and habitat loss. NMDGF's Chuck Hayes considers the RPCS to be a "great idea!" He hopes that, together, the SWAP and RPCS will "direct funding and attention to conservation where it's needed in the state."

Valles Caldera Update

The National Park Service will take over management of the Valles Caldera National Preserve (the name will not change) on October 1, 2015. They have kicked off management planning by holding a series of community "listening sessions." The session in Los Alamos on May 13 started with an orientation to the new fee system and expanded public access opportunities that the Valles Caldera Trust, the current managers, will implement for the summer of 2015. See the website (www.vallescaldera.gov) for details and special events. By statute, NPS will continue to allow hunting, fishing, and grazing, and will also continue the science program.

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The Valles Caldera National Preserve includes a high-altitude complex of wet and dry meadows, as well as ponderosa pine and mixed conifer forest. The National Park Service will continue to permit traditional land uses such as grazing, hunting, and fishing. Photo: Rachel Jankowitz

Conservation Corner *(continued from p. 5)*

According to public meeting facilitator Lucy Moore, these were the major issues raised at the three meetings, held in Jemez Springs, Los Alamos, and Albuquerque:

(1) continue communication and collaboration with public and user groups; many eager volunteers willing to work on trails, etc., (2) increase access v. maintain Preserve pristine (divided at every meeting), (3) user groups promoting their causes (grazing, equestrian, fishing, hunting, cross country skiing, hiking, camping, etc.), wanting access for themselves and some protection from others, (4) continue to support the science and education programs of the Trust, (5) collaborate with local, state and federal agencies for more efficient, effective operations, as in fire-fighting, emergency response, law enforcement, education, linked trails, etc., (6) desire for more economic development v. fear of impacts of more visitors (divided at every meeting), (7) concern for impacts from increase of visitors—traffic, emergency services, law enforcement, (8) need to protect certain archaeological and sacred sites. ❖

Pollinators Under Pressure

by Christina Selby, Santa Fe Chapter

On the first warm day in March, the apricot tree in my backyard burst into bloom. Hundreds of European honeybees, identifiable by their familiar bright orange abdomens and three black stripes, fly about drinking nectar and collecting pollen. I climb on my picnic table to take a closer look. I watch as a honeybee lands on the lowest blossom on the branch and makes her way one blossom at a time to the top. One branch over, a solitary grey-and-black-striped bee lands on a blossom and languidly sips nectar. I don't recognize this one.

I ask Karen Wright, a PhD candidate at UNM studying native New Mexico bees, for help identifying this solitary bee. She explains that it's difficult from a description or even a photo, as there are about 20,000 known species worldwide, 4,000 species of bees in the U.S., and 1,200 species native to New Mexico. Honeybees, as remarkable and ubiquitous as they are, are not native to the New World.

Honeybees play an essential role in our agricultural system, but when it comes to native plants, native bees still do the lion's share of pollinating. Native bees are more efficient and effective at pollinating native plants due to their coevolution with those flowers. Plants in the Solanaceae family—tomatoes and silverleaf nightshade, for example—require "buzz pollination." Native bumble bees land on these flowers and rapidly vibrate their flight muscles, loosening the pollen and causing it to flow out of an opening in the anther. Honeybees have not learned to buzz-pollinate.

Scientists describe around 20 new bee species a year, as compared to one or two new mammal species. At that rate, Wright expects the number of known bees to at least double. Wright cautions that with bee populations in distress worldwide, we may not get the chance to identify all of them before they disappear.

The decline of honeybees in the U.S. gets a lot of press these days, and deservedly so. A Cornell University study estimated the service honeybees provide in pollinating agricultural crops at over $14.6 billion. Around 75% of the food we eat requires the work of pollinators.

After suffering major losses to bee populations in the early 1990s due to exotic mites and parasites, beekeepers in the U.S. sounded the alarm on honeybee losses again in 2006 when seemingly healthy bees were abandoning their hives en masse. The cause of their decline, now referred to as Colony Collapse Disorder (CCD), is complex, and scientists' understanding of it is slowly developing. What is clear is that CCD doesn't result from a single cause that can be easily fixed. At least four factors contribute to CCD:

Habitat loss is the major contributor to declining bee populations across the world. Urban and agricultural development, the increasing practice of growing monocrops without leaving habitat for pollinators, and lawns or gardens without pollinator-friendly flowers all play a role.

Climate change: A study by David Inoye of the University of Maryland conducted in Crested Butte, Colorado, showed that warming climate causes flowers to bloom earlier or later than usual. When bees come out of hibernation, flowers that provide the food they need to start the season are not available. This mismatch between phenology of pollinators and plants is expected to increase.

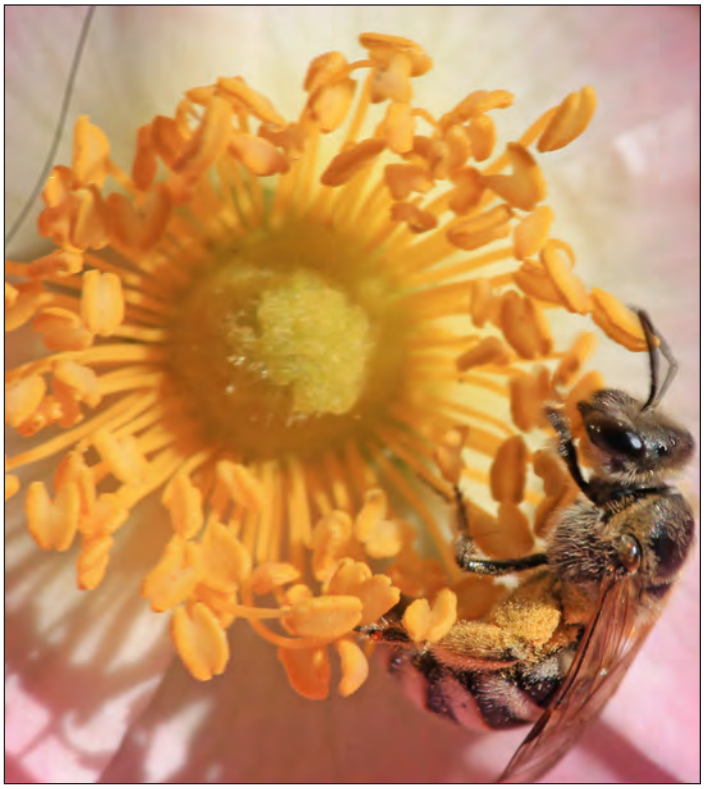
Invasive species directly and indirectly affect bees. Invasive nonnative plants crowd out native plants and destroy the habitat of the coevolved pollinators. Exotic parasites and pathogens directly infect bees. The dreaded Varroa mite caused major declines in the early 1990s and continues to cause problems today.

Some **pesticides** meant to kill pests on farms are also

harmful to bees. The most controversial of these are the neonicotinoids. Unlike contact pesticides that remain on the surface of plants, neonics are systemic pesticides. They are taken up by the plant and transported to all the tissues, including the flower's pollen and nectar. They persist in the environment for long periods, accumulate, and are transmitted into untreated plants through the soil. Seeds treated with neonicotinoids grow into plants containing the pesticide.

A recent scientific study indicated that neonicotinoids will kill honeybees outright but only at levels significantly higher than commonly found in the environment. However, another study shows that the contribution of these pesticides to CCD is not a single high dose but their persistence in the environment and accumulation in beehives. High levels of neonicotinoids have been found in hives of managed honeybees, carried there by the bees themselves as they collect pollen and nectar. In the hives the presence of neonics has been found to kill bee larvae and severely damage the colony.

These four factors—loss and fragmentation of habitat, pesticide poisoning, spread of disease and parasites, and climate change—also account for declines in native bees and other pollinators. In addition, some scientific research points to competition for nectar sources from honeybees as a problem for native bee populations. While these factors have complex social, political, and economic origins and implications that are not easily addressed, there are simple actions we can take right now to help these pollinators.



Three Simple Things You Can Do to Help Pollinators

1. Plant a variety of native wildflowers and other flowering plants so your yard blooms all season, providing sources of nectar and pollen for foraging bees.
2. Reduce or eliminate the use of pesticides, herbicides, and fungicides in your yard. Don't purchase plants from nurseries that use neonicotinoids.
3. Native bees live in the ground, fallen trees, branches, rock piles, and other debris. Build bee boxes for native bees or leave untilled spaces with rocks and logs as homes for many kinds of bees.

To learn more about what you can do to help conserve pollinators, visit the Xerces Society for Insect Conservation at www.xerces.org. ❖

Solitary bees at work in the flowers of *(left)* sweetbriar rose, a popular cultivar; and *(right)* native prickly pear cactus. Photos by Christina Selby.

Bouteloua hirsuta, Illustrated: A Tribute

by Vanessa Quinones, Albuquerque Chapter

I moved to New Mexico from Tennessee 13 years ago. In Tennessee, I fell in love with native wild things and knew all the wildflowers, trees, ferns, and fungi that grew on or near my two-acre woodland home. I came here and everything was new and different!

Grasses had never registered much with me because the eastern grasses were just not that interesting. I first got a good look at blue grama on a visit to the Pie Town Pie Festival. I was so clueless, I worried that the tiny start I dug up to take home might be introducing a dangerous invasive to Magdalena! I soon learned better and even found several nice bunches growing in my otherwise weedy yard.

Sometime later, I found Robert DeWitt Ivey's book *The Flowering Plants of New Mexico* in a used bookstore. I snatched it up and discovered that what I had thought was blue grama in my yard was actually the slightly different—and somewhat more lovely—hairy grama.

Most of my preferred field guides use photos rather than drawings. I find it more helpful to see exactly what something looks like than to look at idealized drawings or paintings. Mr. Ivey's book is a rare exception. All his drawings are done from actual collected specimens, so, even though they are black-and-white line drawings, they are incredibly detailed and true to life. It became my go-to resource to identify any blooming thing I found, and it's never failed me.

Several years later, I was up high on the Magdalena Ridge for a star party at the observatory. The star party was cancelled due to a violent thunderstorm but not before my husband and I enjoyed the picnic dinner I had brought. We put our blanket down on a grassy slope right next to a tiny, sticky, pink-flowered plant I had never seen before. I had my husband take a couple of photos so I could look it up later. I went through my book several times but couldn't spot that plant. Of course, it was there and I had just missed it. *Silene scouleri*, a catchfly, probably ssp. *hallii,* with its prominent cup.

But I couldn't find it for a while. I wondered who I could ask and my thoughts went quickly to my expert source, Mr. Ivey. I googled his name for contact information, figuring he was now retired, but the first thing that came up was his obituary from barely two months before. I had never met the man but I found myself surprisingly devastated. I had hoped not only for an answer to my immediate question but also for an opportunity to tell him what his book had meant to me. I was never going to be able to do that.

Forward again a few months and I am looking at my 50th birthday approaching. One should do something special for such a landmark birthday, I think. I decided I wanted a tattoo. I had only one other small one, which I had bought myself for my 34th birthday. I am an artist and very particular about what I am willing to put permanently on my body. I would never have thought I would want anyone else's artwork on me, but tattoo went quickly to tattoo of native flora to Robert Dewitt Ivey to that *Silene* to his drawing of the first beautiful thing I identified from his book—*Bouteloua hirsuta*, hairy grama.

I sought the help of the Native Plant Society of NM to get me in touch with his widow, Vivian. She very graciously gave me permission to use the drawing and even wanted to see it herself.

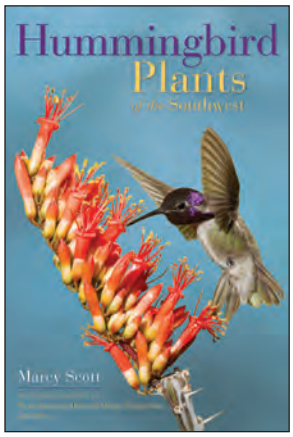
It took a while to find someone I trusted to render his drawing the way I wanted it, but I ended up with a local artist, J.J. Lesperance, whose work I had seen more times than I'd realized. She was delicate and faithful to the book and I could not be more pleased. I will be walking in blooming grama grass for the rest of my life.

Thank you, Mr. Ivey. ❖

New and Recent Books

Hummingbird Plants of the Southwest
By Marcy Scott
Rio Nuevo Publishers, Tucson, 2015. 344 pages.

Review by Renée West



I'm a nut for reading about connections between native plants and native wildlife. To me, that mix of nature in your yard is like getting to have your cake and scarf it down too: enjoying the native plants while creating habitat all over the place. So when a new book like Marcy Scott's *Hummingbird Plants of the Southwest* appears, I can't wait to devour it. This one did not disappoint.

With a title like that, the book could have been a series of prescriptions of which plants to plant and where, with photos of perfect yards with perfect flowers and birds. I love most of those books, too, but this one is different from the step-by-step instruction manuals. *Hummingbird Plants* is decorated with many gorgeous pictures of flowers and of hummingbirds. But this offering is decidedly more contemplative, more in the inspirational mode. It offers lots of information and tidbits that you might not have considered before (physiological, chemical, environmental) and challenges you to make your own choices. I was fascinated to learn that hummingbirds prefer sucrose-based nectars over glucose and fructose. And many nonnative plants produce fructose nectars—what a great selling point for planting native plants.

The discussion on the importance of attracting aphids to the yard made me laugh out loud. How often do you see *that* in a gardening book! Yet aphids are another important part of the ecosystem—tiny bugs for tiny birds. I love the whole discussion on the importance of insects as a component of their food, and about them visiting atypical flowers such as sunflowers to glean insects from them, which is especially important for feeding their babies. I've seen them do that a lot.

One chapter contains an overview of each of the hummingbird species that occur in the Southwest, complete with absolutely gorgeous photos of the spectacular birds. Of course, chapter 3 is my favorite: creating habitat. Here Scott talks about not just pretty red flowers and breeding habitat, but the variety of hummingbirds' needs in different seasons. She takes the whole neighborhood into account, too. You don't have to try to meet all their needs all year long, but look to fill in habitat gaps that can complement your neighbors' landscapes.

The biggest chapter is on the plants themselves, and is loaded with technical information and enticing photos of each species. Not all of these plants are native to any one area in the Southwest and not all would be suitable choices for your specific climate. But they are thought provoking, and certainly will guide your choices for your area.

"As fellow inhabitants of the Southwest, we bear the responsibility to learn about its treasures," she says. This overview of hummingbirds and their habitat challenges recognizes that it's not all about cuteness in their world. "For hummingbirds, humans have been a decidedly mixed blessing."

Scott uses skill, humor, and information to help us recognize the loss of habitat that can be attributed to our kind, and gently urges us to do our own little part to reverse some of the bad. ❖

Chapter Activities & Events

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

Albuquerque

All scheduled monthly meetings are normally the first Wednesday of the month at 7 p.m. in the NM Museum of Natural History, 1801 Mountain Rd. NW. For more info on programs contact Jim McGrath at 505/286-8745 or sedges@swcp.com. For field trips contact Carol Conoboy, carolconoboy@gmail.com, 505/897-3530. For meeting places indicated A through H see website.

Jul 1 Meeting. Growing the Southwest Garden: Changing Rules for an Extreme Sport. Judith Phillips, landscape designer and author.

Jul 3 Field Trip. East Fork of the Jemez River, Jemez Mountains. Pam McBride (343-9472) and Carolyn Dodson (268-7889), leaders. Meet 8:30 a.m. at G.

August No monthly meeting.

Aug 1 Field Trip. San Lorenzo Canyon. George Miller, leader. Meet 8 a.m. at G.

Aug 15 Field Trip. Late Season High Elevation, San Gregorio Lake. Don Heinze, leader. Meet 8 a.m. at D, or 11 a.m. in Cuba at south end of town (take I-25 N from Albq to exit 242, Hwy 550 to Cuba). Bring rain gear, hiking boots (preferably lugged), water, and lunch.

Aug 22 Field Trip, 9–11 a.m. A Visit to El Oso Grande Pollinator Habitat. Judith Phillips, leader. Park is at 10600 Osuna Rd NE. Meet at shade structure to W of pollinator garden; park on Osuna.

Sep 2 Meeting. BEMP Studies of the Changing Middle Rio Grande Bosque. Dr. Kim Eichhorst, codirector of the Bosque Ecosystem Monitoring Program (BEMP).

Sep 12 Field Trip. Rio Grande Bosque. Don Heinze, leader. Meet 9 a.m. at G or 10 a.m. at H.

El Paso

All programs are second Thursdays at 7 p.m. (coffee social at 6:30) at El Paso Garden Center, 3105 Grant Ave. unless otherwise noted. All events free unless a fee is specified. Nonmembers always welcome. Info: Jim Hastings, 915/240-7414.

Jul 9 Meeting. From Sandhill to Sublime. Sarah Wood.

Aug 13 Meeting. Composition for Wildflower Photography. Lisa Mandelkern, Las Cruces hiker and photographer.

Sep 10 Meeting. Botanizing in South Africa. Virginia and Rex Morris.

Gila (Silver City)

All programs are free and open to the public. Meetings are third Fridays at 7 p.m. at WNMU's Harlan Hall, with refreshments following the program. Updates posted on www.gilanps.org. Hikers meet at 8 a.m. in south parking lot of WNMU Fine Arts Theatre the morning of the hike to arrange carpooling. Participants must sign a release-of-liability form at that time, and will receive a list of native plants in the hiking area. For more info, call Kevin Keith, 575/535-4064. Destinations may be changed due to weather.

July No monthly meeting.

Jul 19 Field Trip. Gila River Middle Box.

August No monthly meeting.

Aug 16 Field Trip. Lower Gallinas Canyon, Black Range.

Sep 18 Meeting. Gila National Forest Planning Process. Matt Schultz, Forest Planner, and Mitchel White, Forest Ecologist.

Sep 20 Field Trip. Sacaton Creek, Mogollon Mountains.

Las Cruces

Meetings and workshops are second Wednesdays (unless otherwise noted) at 7 p.m. in the conference room of the Social Center at the University Terrace Good SamaritanVillage, 3011 Buena Vida Circle, Las Cruces. Field trips are Saturdays; most last into the afternoon. Participants must sign a release-of-liability form. Children must be accompanied by their parents. Programs and field trips are free; nonmembers always welcome. Contacts: Carolyn Gressitt, 575/523-8413; Tom Packard, 575/202-3708.

Jul 8 Meeting. Words for Nerds. Dr. Kelly Allred.
Jul 11 Field Trip. Hay Canyon in the Sacramentos. Lisa Mandelkern, leader. Meet 8 a.m. at east end of K-Mart parking lot. *Deadline for sign-up for WSMR trip in September.*
Aug 12 Meeting. 2016 Planning Meeting and Election.
Aug 15 Field Trip. Rio Bosque Wetlands Park in Socorro, TX. Meet 7 a.m. at First National Rio Grande, corner Telshor and University.

Otero (Alamogordo)

For field trip information, contact William Herndon, laluzlobo@gmail.com, 575/437-2555; or Elva Osterreich, echoofthedesert@yahoo.com, 575/443-4408; or Helgi Osterreich, hkasak@netmdc.com, 575/585-3315 or 443-3928. More info should be available by the beginning of each month.
Jul 25 Field Trip (*note:* date subject to change). Bailey Canyon. Meet 8:30 a.m., SW corner of N. Florida and Hwy 82.
Aug 12–15 Otero County Fair. We will have a booth as usual. Please contact Jennifer Gruger (or any of the above) if you can help. We will send out a schedule ahead of the event.
Aug 22 Field Trip (*note:* date subject to change). Holcomb Ranch (near Timberon). Meet 9 a.m., SW corner of N. Florida and Hwy 82.
Sep 26 Field Trip. Atkinson Canyon and Bluff Springs. Meet 8:30 a.m., SW corner of N. Florida and Hwy 82.

San Juan (Northwest NM & Southwest CO)

Information about all the chapter's activities can be found at www.swcoloradowildflowers.com/San Juan Four Corners Native Plant Society.htm. You may also contact Al Schneider: coloradowildflowers@yahoo.com, 970/882-4647.
Jul 8 Field Trip. Wildflowers of Hermosa Fens & Wetlands. Bob Powell and Al Schneider, leaders.
Jul 16–19 NPSNM Annual Conference. For details, see http://www.npsnm.org/events/2015-annual-conference/ To find out if any more registrations are being accepted, see http://www.sjma.org/CB/trips.htm
Aug 22 Field Trip. Wild Mushroom Hunting—and Eating! John Sir Jesse, leader.

Santa Fe

Meetings are third Wednesdays at 6:30 p.m. at Christ Lutheran Church, 1701 Arroyo Chamiso (in the triangle of Old Pecos Trail, St Michael's Dr., and Arroyo Chamiso; across street from fire station). For more information, contact Tom Antonio, tom@thomasantonio.org, 505/690-5105. Meetings and talks are free and open to all.
July–September Events TBA

Taos

Meetings are third Wednesdays at 7 p.m. in conference room, Kit Carson Electric Cooperative, 118 Cruz Alta Rd. Check NPSNM website for updates and additional information on activities, or contact Jan at TaosNPS@gmail.com or 575/751-0511.
July–August No monthly meeting.
Jul 11 Field Trip. Italianos Trail Morning Hike. John Ubelaker, leader. Meet 8 a.m. KTAO parking lot to carpool.
Aug 8 Field Trip. Upper Taos Ski Valley, to search for a rare wildflower. Daniela Roth, John Ubelaker, and David Witt, leaders. Hike begins promptly at 8:15 a.m. from upper parking lot at ski valley main entrance. All-day trip, hiking moderate to strenuous, elev. 10,000–11,000 ft. Reservation required; contact ubelaker@mail.smu.edu, 214/726-5014.
Aug 22 Field Trip. Tres Piedras: Leopold House, Stewart Meadow with Bonnie Woods. Meet 8:30 a.m. KTAO parking lot to carpool. All-day trip. Reservation required; contact Richard Rubin, rlrubin46@gmail.com, 575/200-4044.
Sep 16 Meeting/Talk. Flowers of San Pedro Parks Wilderness: The Place the Warming Forgot. Charles "Chick" Keller of Los Alamos. 7 p.m., location TBD.

Reflections on a Plant Inventory: The Flora of City of Rocks State Park (Grant Co., NM)

by William (Bill) R. Norris (with Tim Geddes), Gila Chapter

One of the Seven Wonders of the Natural World, er, of New Mexico, has to be City of Rocks State Park, located about 30 miles south of Silver City. One can drive for miles and miles across open rangeland in the southwest corner of our state, past cholla and mesquite and tall soaptree yuccas and low creosote flats and water tanks and brown grass and hungry cattle and, if one pays attention, occasional nervous pronghorn antelope all on the other side of taut barbed wire as the mile markers zip by. This distinctive landscape has been the backdrop for countless Westerns and, while never boring and always worthy of one's attention, can lead to daydreaming. When one is in this latter state of mind, the shock of suddenly seeing the cluster of tall palisades at City of Rocks State Park through one's windshield for the first time is akin to being splashed in the face with ice water.

City of Rocks State Park, viewed from afar.
Photo by Tim Geddes.

My wife Denise and I experienced this very astonishment when visiting City of Rocks (CRSP) about 14 years ago, upon moving to southwestern New Mexico. A number of friends and acquaintances of ours who have travelled through the area seem always to remember CRSP while recalling no other landmark or natural area. Unlike its English counterpart (yes, Stonehenge), the origin of this geologic formation is well understood. These pinnacles are of volcanic origin, being remnants of ash deposits of the Kneeling Nun formation dating back approximately 35 million years to the late Paleogene Period (or the early Oligocene Epoch, as those of us of a certain age learned it years ago). As explained by the ultimate source of all information worth knowing (you guessed it, Wikipedia), "erosion sculpted the rock formations seen today." Not if but *when* you find time to visit CRSP, plan to stop by the Visitor's Center to study the very well executed wall mural that explains the above processes in such a way that even I, a non-geologist, can understand.

The flora of this state park (originally 680 acres, which is about one square mile) is also of interest, especially to a card-carrying botanist (ahem). The plants I encountered in the landscape surrounding the palisade cluster were my first real introduction to shrubs, forbs, and grasses characteristic of desert shrublands and desert grasslands. Unfamiliar plant names entered my botanical lexicon: mariola (*Parthenium incanum*), yerba de pasmo (*Baccharis pteronioides*), crucifixion thorn (*Koeberlinia spinosa*), melon loco (*Apodanthera undulata*), spiny blue bowls (*Giliastrum acerosum*), tobosa (*Pleuraphis mutica*), vine mesquite (*Hopia obtusa*), and others. Furthermore, standing at high points in the park, I was impressed that CRSP is situated in a shallow basin surrounded by open grassland largely free of tall trees. Desert grassland, I have since learned, is a vegetation type that likely occupied much of southern New Mexico prior to its settlement by Europeans.

Shortly after my first few visits to CRSP, I decided to conduct an inventory of the park flora. For all of you budding field botanists out there, plant inventories are a great way to begin learning a regional flora. By embarking on such a project, you have committed to documenting the occurrence of the majority of vascular plant species that occur within the boundaries of some fixed target area. Even though many botanists have expertise in the identification of plants in particular families or groups (e.g., ferns, cacti, euphorbs, mustards, grasses, woody plants, etc.), not many of us are experts in the identification of plants in all plant families. An ancillary benefit to conducting a plant inventory is that, after repeated visits to the area being inventoried, one becomes familiar with the biology of many plant species. Specifically, one learns in which microhabitat(s) a given plant species typically occurs; which other plant species it associates with; the timing of its emergence from the soil/bud break, flowering, fruiting, and senescence; and what (if one pays very close attention) pollinates it. Also, by conducting a thorough plant inventory in an area such as CRSP, ideally over several to many years, one obtains valuable information of use to land managers, including the occurrence of plant species of conservation concern (i.e., state or federally listed), potential threats by nonnative plant spe-

cies, and so on. Finally, the completion of a plant inventory provides the basis for compilation of a plant list, which, as I have observed and have been informed by park managers, is frequently requested by park visitors.

I have been working on this particular floristic inventory off and on for about ten years. I have enjoyed the collaboration of two individuals who have made significant contributions to this project. The first is Mr. Javier Kirker, now an employee with a natural resource management agency, who in the late 2000s conducted a mini-inventory of the park's flora as a special project while completing a B.S. in botany at Western New Mexico University (WNMU). Javier documented the occurrence of well over 100 plant species, several of which I have yet to see personally except on his plant collections, which have been mounted on herbarium sheets and accessioned into the Dale A. Zimmerman Herbarium. The second collaborator is Mr. Tim Geddes, a man of many talents who upon his recent retirement moved from Mississippi to the Silver City area. I met Tim during the summer of 2012 while helping Dr. Jack Carter put on a woody plant workshop on the WNMU campus. Somehow the topic of the CRSP floristic inventory came up, Tim offered to help with the project, and, ever since, we have spent many enjoyable hours, usually on Sunday mornings, exploring all corners of the park while looking for the next elusive plant species. Tim has broad interests in natural history, with special interest in herpetology, and while looking for plants I have learned much about the snakes and lizards of this region from him. Tim is also an excellent nature photographer, and has taken on primary responsibility for photographing hard-to-collect plants, especially cacti, yuccas, and agaves, to document their occurrence in the park.

And so, after ten years of exploring this fabulous park, what are our findings? To date, we have documented the occurrence of 274 vascular plant taxa, of which 256 (93%) are native to New Mexico (yea!). None of these taxa are listed as endangered or threatened at the state or federal level. This latter result does not detract from my fascination with the flora, because, as stated earlier, it contains so many examples of plants characteristic of desert grasslands and desert shrublands. The top three most diverse plant families represented in the park are (you guessed it) Asteraceae (57 vascular plant taxa), Poaceae (51), and Fabaceae (21). The most diverse plant genera in the park flora are *Aristida* and *Eragrostis*, each represented by seven taxa.

I have very recently discovered that a great friend to New Mexico botany, Mr. Gene Jercinovic, conducted an informal inventory of the CRSP flora with help from several other botanists, about 11 years ago. Gene graciously provided me with the plant list that resulted from his field work, conducted over four or five days. Gene reported 244 vascular plant taxa, *only 30 plants less than I have documented over 10 years!* Curiously, he reported 76 taxa that I have not yet encountered in the park. Conversely, the list I have generated with much help from Javier and Tim includes 106 taxa that Gene did not report. How can this be? How can two experienced botanists apparently overlook so many plant species? Part of the answer may derive from our different interpretations of very similar taxa. For example, Gene reported *Chamaesaracha sordida* (hairy five-eyes) and I report *C. conoides* (gray five-eyes). Also, he reported *Condalia warnockii* (Warnock's snakewood) and I report *C.correllii* (Correll's snakewood). Who's right? Do both species of these two genera, as reported by Gene and my team, occur in the park flora? The answer to the above question can only be answered definitively by reexamination of the plants, either in the field or as mounted plant specimens.

Having spent so much time exploring CRSP, visiting some areas on multiple occasions and seeing the same plant species again and again, I find myself categorizing and ranking some of them in ways that don't lend themselves to inclusion in the typical plant-inventory list. Let me share some of these with you.

Signature Plant What plant would I recommend be chosen as the park emblem, perhaps to appear on a park T-shirt or cap? Obvious choices would be soaptree yucca, barrel cactus, or some other southwestern arborescent desert succulent. It would also be easy to settle on a plant with big, gaudy flowers like jimsonweed (*Datura wrightii*). However, my choice is Arizona bluecurls (*Trichostema arizonicum*), with its delicate blossoms and overarching stamens and pistil. This plant, which in my experience is nowhere common

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Arizona bluecurls (*Trichostema arizonicum*), a delicate, moderately common plant found at the base of rocks at City of Rocks State Park. Photo by Russ Kleinman.

Reflections on a Plant Inventory *(continued from p. 13)*

in southwestern New Mexico, is quite easily found at the base of pillars at CRSP.

Most Conspicuous Exotic Forb African rue (*Peganum harmala*), which to my eye is quite attractive, with its showy white blossoms, can become a nuisance along roadsides. I encountered this plant during my very first visit to the park, along the gravel overlook road near the park boundary. Then, mysteriously, it disappeared for the next nine or so years! Extirpated? Nyet! I found a small group of three African rue plants in late spring 2014. My pry-bar took care of that.

Most Conspicuous Exotic Grass Lehmann's lovegrass (*Eragrostis lehmanniana*). This grass is seemingly everywhere on the margins of Highways 180 and 61, which provide access to the park, and from there it has marched right past the entrance into the park. Lehmann's lovegrass is here for good, I'm afraid.

Most Shy Plant Heyder's nipple cactus (*Mammillaria heyderi*). Forming a low, dark green dome almost flush with the soil, the plant Tim and I discovered last fall is doubly concealed by virtue of occurring at the base of a much more conspicuous pancake prickly pear (*Opuntia chlorotica*), which surely draws one's eye away from the ground to usually preserve this little cactus's anonymity.

Heyder's nipple cactus (*Mammillaria heyderi*), hiding beneath a pancake prickly pear at City of Rocks State Park. Photo by Tim Geddes.

Most Elusive Plant For some reason, I became obsessed with adding tarbush (*Flourensia cernua*), with its sticky, often nodding yellow flower heads, to the park's flora. I had seen it in the foothills of the nearby Florida Mountains, and in slightly lower-elevation rangeland to the south, along with many associated plant species that I had already encountered in CRSP. It should be here, right? Well, it was not until early 2014 that Tim and I, walking on a trail in the northern region of the park, stumbled upon a small population (< 10 shrubs) of tarbush in the park. We were both so excited, we shook hands!

Most Tasty Plant Depends on who you ask. If you are a cow, I suppose that you would choose one of the grama grasses: blue grama (*Bouteloua gracilis*), sideoats grama (*Bouteloua curtipendula*), or black grama (*Bouteloua eriopoda*). However, some other critter of unknown origin prefers the fibrous shoots of soaptree yucca (*Yucca elata*), as evidenced by their occasionally browsed condition in the park.

Desert artichoke? No! Soaptree yucca (*Yucca elata*) browsed by an unknown culprit at City of Rocks State Park. Photo by Tim Geddes.

Most Fragrant Plant If you catch them at the right time of year, desert grasslands and desert shrublands can offer a colorful display of flowers, which always captivates, especially after a dry spring and early summer when the same landscape has been parched and brown. White jimsonweed and blue vervains (*Glandularia* spp.) and orange globe mallows (*Sphaeralcea* spp.) and pink four o'clocks (*Mirabilis* spp.) and yellow [pick your favorite DYC (euphemistically, "darned" yellow composite)]: these all saturate the eyes. Now, think about the last time you have been struck by the fragrance of some of these flowers. Keep thinking. When Tim and I gave a presentation about this project at the meeting of the Gila Chapter of the NPSNM earlier this year, we posed this same question to the audience. Pause. Eventually, several people suggested that the next time we are out in the desert, we should lean over to smell the moderately fragrant flowers of honey mesquite (*Proposis glandulosa*). I plan to do this; so should you.

Most Toxic Plant I wouldn't know how to go about

comparing the toxicity of one plant to another's. I do know that many, many desert shrubs and forbs, particularly members of the Asteraceae and Fabaceae, are toxic to livestock. However, if I modify this category to Most *Attractive* Toxic Plant, it would be hard to argue against woolly locoweed (*Astragalus mollissimus*). At least twice this spring, while Tim and I were eating lunch in the shade provided at the Visitor's Center, we overheard visitors asking park personnel to identify "that lovely plant with purple flowers" growing just around the corner. In both cases, it was woolly locoweed, and thank goodness that at least one member of the genus *Astragalus* in New Mexico lends itself to easy identification.

Most Foul-Smelling Plant Hands down, buffalo gourd (*Cucurbita foetidissima*), which Tim and I finally found for the first time at CRSP last fall, draped over some low mesquite trees. Want to know what it smells like? An alternate, unpublished, but widely used name for this sprawling vine, Armpit Plant, should answer this question.

Most Annoying Plant When I stupidly wear tennis shoes while exploring CRSP (and even sometimes when I wear an old pair of boots), I will invariably feel mild foot discomfort that I will initially dismiss but that will eventually cause me to grimace and force me to stop. I will sit down, take off my shoe, and look for the offending spine that has lodged in my shoe and is attempting to penetrate my foot. The culprit? Sprawling honey mesquite plants, maintained at short heights by freezing and/or drought events, as mesquite expert Richard Felger explained to me. Of course the solution to this problem is: Don't wear tennis shoes while conducting field work in the desert!

Most Painful Plant Certainly, no pain would compare to being thrown face-first into a sprawling prickly pear or agave or mesquite tree or crucifixion thorn. Let's assume that we will go out of our way to avoid the above circumstances. Then, my answer to this question, hands down, is the little noseburn (*Tragia ramosa*) plants that grow in disturbed areas. I remember my first encounter with this plant, when I bent down to grasp it with my bare fingers, only to recoil, uttering obscenities, while experiencing the bite of its stinging hairs, like the first time I stupidly grasped a live electric fence wire. I won't do it again!

Plant Most Likely to Make You Shudder in Fear Again, when (not if) you visit CRSP, pay close attention to the roadside vegetation at the intersection of the overlook road and the main entrance road, to your right just after you enter the park. It is impossible to miss a bright green tangle of thick, menacing green stems and thorns that defy anyone to brush up against them. Crucifixion thorn. Aptly named.

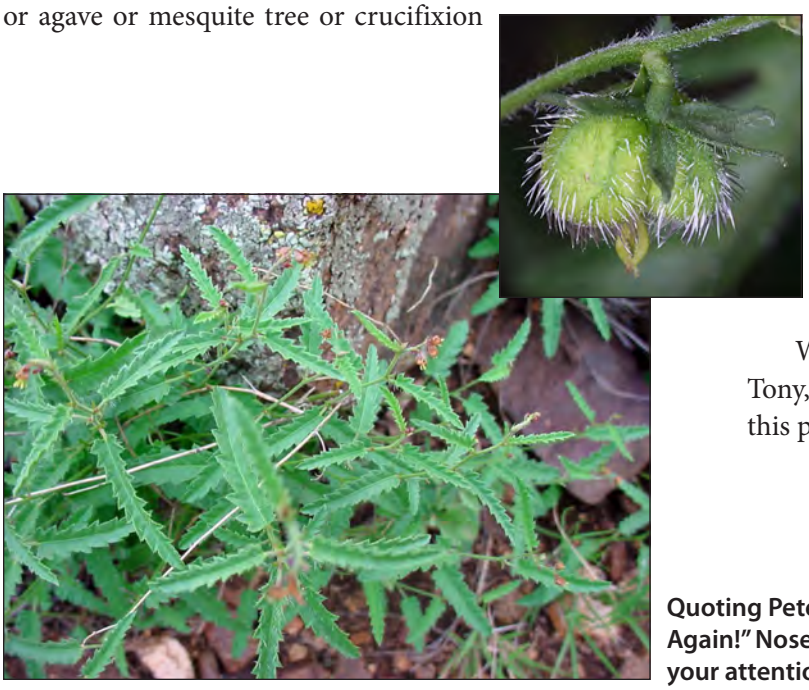
This wraps up this summary of ten years of plant-inventory work that colleagues and I have joyfully conducted at CRSP within the original park boundary. But, quoting the late Paul Harvey, here's "the rest of the story," as researched by Tim Geddes:

CRSP was founded in May 1952 and the original park covered an area of 680 acres. In a continual program of upgrading and expansion, additional land has been obtained. In 2005, 1,538 acres were purchased from Gene Simon. The acreage is divided into two sections. The north division includes the eastern part of Table Mountain. The southern tract is termed the south windmill area because of the working windmill on that parcel. Until recently, the land was cattle range; the grassland is now being allowed to recover.

A total of 714 acres were donated by Freeport-McMoRan in 2012. This tract includes 310 acres on the western part of Table Mountain. In the southern tract along Highway 61 is another 404 acres that includes a cienaga. The CRSP has the goal of upgrading this area by providing park visitors with trails and observation blinds.

These additional parcels have almost quintupled the total land area of CRSP. Tim and I have begun and will continue our botanical explorations of this expanded version of the park. We have our work cut out for us!

We thank park manager Gabe Medrano and park staff Tony, Gloria, and Sheila for their assistance to us throughout this project. ❖



Quoting Pete Townshend of The Who, "I Won't Be Fooled Again!" Noseburn (*Tragia ramosa*), which will always grab your attention if you dare touch it. Photos by Russ Kleinman.

Appendix O: Summarized Terrestrial Research Needs

Research, survey, and monitoring needs that would enhance conservation efforts for key terrestrial habitats and associated SGCN [Species of Greatest Conservation Need] in New Mexico.
Detailed research, survey, and monitoring needs are located in the Assessments and Strategies for Species of Greatest Conservation Need and Key Habitats Chapter [of *Comprehensive Wildlife Conservation Strategy*].

Habitat Associations
CG—Chihuahuan Semi-Desert Grassland
ME—Madrean Encinal
MF—Madrean Pine-Oak Conifer-Oak Forest and Woodland
MC—Rocky Mountain Montane Mixed Conifer Forest and Woodland
SP—Western Great Plains Shortgrass Prairie
SS—Western Great Plains Sandhill Sagebrush Shrubland
IB—Intermountain Basins Big Sagebrush Shrubland
AM—Rocky Mountain Alpine-Montane Wet Meadow
RP—Riparian

Research, Survey, and Monitoring Needs	CG	ME	MF	MC	SP	SS	IB	AM	RP
Assess the impacts of livestock grazing on habitat composition and structure and determine how the timing, intensity, and duration of grazing affect SGCN	X	X	X	X	X	X	X	X	X
Assess the impacts of logging and fuelwood harvesting on the structure of habitat types and their affect SGCN		X	X	X					
Conduct research to enhance knowledge of the natural history, population biology, and community ecology of SGCN within key habitats, including SGCN distribution, abundance, habitat use, and population trend information	X	X	X	X	X	X	X		X
Consistent landscape health and condition descriptions or protocols, and monitoring standards need to be identified or developed	X				X	X	X		X
Determine conditions that limit populations of SGCN and SGCN response to human disturbances	X	X	X	X	X	X			X
Determine how climate change or drought will affect vegetation patterns and community and ecosystem-level dynamics	X	X	X	X	X	X			X
Develop collaborative survey and monitoring protocols for invertebrate SGCN that are not currently being monitored	X	X	X	X					X
Examine type, extent, and structural characteristics of habitat fragmentation and how such habitat alterations influence patch size, edge effect, and use by SGCN	X	X	X	X	X	X	X		X
Identify wildlife travel corridors, and determine habitat connectivity for SGCN		X	X	X	X				
Investigate early detection methods that indicate when habitats are shifting to another habitat type and indicators of biological integrity	X								X

Research, Survey, and Monitoring Needs	CG	ME	MF	MC	SP	SS	IB	AM	RP
Investigate hydrologic relationships in key habitats	X	X	X	X				X	X
Investigate invasive species early detection protocols and estimate vectors and pathways of potential invasive species. Determine invasive species affects to key habitats and SGCN	X			X	X	X	X		X
Investigate the extent to which Military or Borderland Security Activities affect SGCN	X								
Investigate the extent to which off-road vehicle use affects SGCN	X					X			X
Investigate the impacts, benefits or detrimental effects of habitat restoration practices, such as tree and shrub removal, reseeding, fire, etc, and determine effective restoration methods					X	X	X		X
Investigate the role of natural fire and the effectiveness of prescribed fire in reducing the potential for catastrophic stand-replacing fires and maintaining habitats		X	X	X					X
Quantify the effects of energy exploration and development on habitats and SGCN	X				X	X	X		

Source: New Mexico Department of Game and Fish. 2006. *Comprehensive Wildlife Conservation Strategy for New Mexico.* New Mexico Department of Game and Fish. Santa Fe, New Mexico. 526 pp + appendices.
Available: http://www.wildlife.state.nm.us/conservation/comprehensive-wildlife-conservation-strategy/

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Calling All Writers and Photographers!

Are you attending the 2015 Annual Conference? Photograph it! Write about it! Share your enthusiasm and new-found knowledge. Submit an article and/or high-resolution photos to the newsletter editor, Sarah Johnson, at sarita@gilanet.com. The deadline for the next issue is September 1.

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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.

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A new frontier to be explored in City of Rocks State Park: Table Mountain in winter. Photo by Tim Geddes.

Membership in the NPSNM is open to anyone supporting our goals of promoting a greater appreciation of native plants and their environment and the preservation of endangered species. We encourage the use of suitable native plants in landscaping to preserve our state's unique character and as a water conservation measure. Members benefit from chapter meetings, field trips, publications, plant and seed exchanges, and educational forums. Members also qualify for membership in New Mexico Educators Federal Credit Union. The Society has also produced two New Mexico wildflower posters by artist Niki Threlkeld and a cactus poster designed by Lisa Mandelkern. These can be ordered from our poster chair (contact information listed on page 4).

New Mexico wildflower posters: $8 (nonmembers, $10)
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VOLUNTEERS NEEDED

for Holy Ghost Ipomopsis Surveys in the Santa Fe National Forest!

August & September 2015

The extremely rare and endangered Holy Ghost Ipomopsis of the Santa Fe National Forest is thought to be a disturbance-adapted species, becoming rare in response to fire-suppression actions over the past century. The 2013 Tres Lagunas Fire burned in the immediate vicinity of the only known population of this rare plant, in Holy Ghost Canyon. The New Mexico State Botanist, Daniela Roth, will be conducting surveys to potentially locate this species in the burn scars of the 2013 fire, with high hopes of finding additional populations. Daniela is looking for volunteers to help in this effort during the months of August and September (exact dates are to be determined).

If you are interested in joining this effort, please contact Daniela for additional information (daniela.roth@state.nm.us).