New Mexico's Voice for Native Plants

Newsletter of the Native Plant Society of New Mexico

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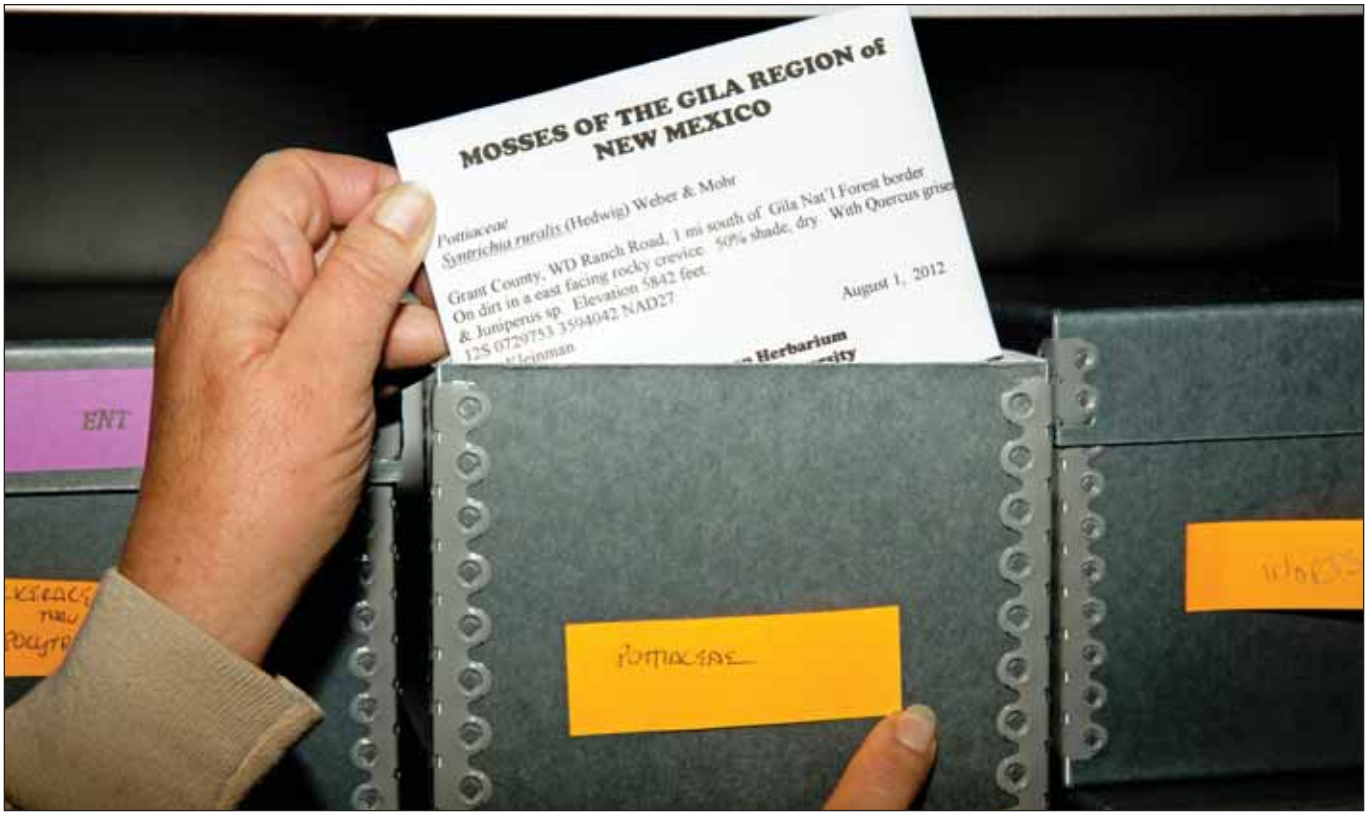

Every year at NPSNM's winter board meeting, donations are allocated for the state's five major herbaria. The improved cataloging system shown here was enabled by NPSNM funds. *Read more, page 5*. Photo by Russ Kleinman

Inside This Issue

From the President

by Renée West

Eight years ago, when I was a fairly new member of this Society, I saw a notice in this space that changed my life. President Wynn Anderson was inviting all NPSNM members to attend the upcoming board meeting at Sevilleta National Wildlife Refuge. It was a chance to observe the mechanics of the Society's operations, meet the people devoting time and energy to it, and attend a half-day leadership training he had organized.

Well, I decided to check it out, and now I'm the one writing the president's column and inviting members to attend the upcoming board meeting at Sevilleta. How time flies when you're having fun!

The board meeting (we have only two each year) is a great way to catch up with our far-flung chapters. It's a very long drive from Carlsbad or El Paso to Farmington and southwest Colorado, so this is a great sharing opportunity. We compare ideas, try out new thoughts and proposals, and try to move forward without making too many mistakes. At the winter board meeting, we also make monetary grants for projects involving native plants of our area. This is a most exciting part of our job: to read proposals for a variety of worthy projects and grant money to assist them. Reports on some of 2012's funded projects as well as herbarium grants are on pages 5–7 of this newsletter and are also available on our website.

So come to the board meeting if you can. I haven't missed one in all these eight years, and I've truly enjoyed the valuable work of the Society and the friendships I've made. You don't have to volunteer for a job, but someday soon you might feel ready. It sneaks up on you! And when that partnership happens, it will benefit you as well as the Society.

If you're interested in attending, let Cindy Roper know that you're coming (to reserve you a room)—see details in the article below.

Speaking of volunteering, we're looking for a new Conservation Chair. This person chairs a Conservation Committee, which monitors issues affecting native plants and their habitats; informs the board and membership of these issues; and promotes the use of native plants for conserving water, land, and wildlife. Jim McGrath, our current energetic and dedicated chair, is resigning from the position. But he promises he'll still be around to assist and advise. (And if you're interested in learning about sedges, watch for the upcoming workshop he's organizing.) Jim has done a very good job this year of bringing conservation issues to the forefront and working for native plants around the state. Thank you, Jim! ❖

Get Involved!

by Cindy Roper

Your NPSNM has two important meetings coming up in short order.

First is our annual **Finance Committee Meeting**, to be held in Albuquerque on Friday, January 11. This meeting is open to the membership and your involvement is welcomed. Board members and committee chairs who wish to add, subtract, or make changes to the 2013 budget should be present or make their wishes known to those who will be in attendance. This is your chance to be heard. If you cannot attend, please send your proposal one week in advance to nativeplantsnm@gmail.com.

Time: 9 a.m.–3 p.m.

Place: Piedra Lisa Room, NMEFCU Training Center, Building B, 4100 Pan American Fwy NE, Albuquerque

Second, our **Winter Board Meeting** is set once again for the Sevilleta National Wildlife Refuge near Socorro, NM, for the weekend of February 9–10. Accommodations at the NWR (shared-housing style) are available for overnight guests. All NPSNM members are invited to attend either or both days. Please watch our website, www.npsnm.org, for further information as this date gets closer. If you are interested in attending, please contact Cindy to be added to the roster: nativeplantsnm@gmail.com. ❖

If you received this newsletter via email, and would prefer a hard-copy, please notify Cindy Roper at nativeplantsnm@gmail.com.

CONSERVATION CORNER

Citizen Involvement in Land Management Decisions

by Jim McGrath, NPSNM Conservation Committee Chair

Recently I attended a formative meeting held by Cibola National Forest officials to engage public participation in the revision of the Forest's Resource Management Plan (RMP). The last RMP was developed in 1985. So it's time to revise it. According to the November 22 edition of the *Mountain View Telegraph,* only 10 people attended the meeting I attended in Albuquerque. Only 1 person attended the meeting held in Corona and no one appeared at the meeting held in Torreon, located east of the Manzano Mountains.

Citizen involvement with government agencies in the preparation of such management plans is extremely important. The folks that run the land management agencies (U.S. Forest Service, Bureau of Land Management, Bureau of Reclamation, National Park Service, etc.) serve us, the public. We the public have a responsibility to ensure that these agencies are doing a proper job on our behalf. There may be times when we notice things that are not being performed that we think should be. I can think of several instances. But I submit one example. This past summer I did some exploring in the San Pedro Parks Wilderness. I was shocked to find entire gigantic meadows grazed to within just a few inches of the surface. Some of the meadows contain relict plant communities that you would normally find in higher latitudes or higher elevation. I know that this wilderness area is open to grazing. But I, as a citizen, expect the Forest Service to manage grazing properly in the wilderness so that the plant communities are maintained on a sustainable basis. Did I call the Forest Service? No. I, like so many people, am really busy, and one phone call probably would not make much difference.

But *a lot of people* making phone calls and writing letters makes a *huge* difference. It often takes one person to drive citizen involvement. Take the effort to protect old-growth junipers in the San Juan Basin Badlands. A few years ago it all started with avid hikers exploring these areas west of Cuba. One person, Mike Richie, spearheaded an effort to document the locations deserving protection. Mike led many hikes out to these areas to gather support for protection of the sites. While leading all those hikes Mike and his colleagues noticed that the old-growth junipers were disappearing in significant areas. Mike got numerous people to write letters and make phone calls to BLM officials, congressmen, and senators. Eventually, the BLM acknowledged that illegal woodcutting was a much greater problem than the agency had realized, and over the past two years has taken corrective action.

Meanwhile, the BLM's Rio Puerco field office released its revised Resource Management Plan (RMP) in July 2012. These plans had not been completely revised since 1986. The new plan places the areas for which Mike Richie and his supporters demanded protection into a larger unit called an Extensive Recreation Management Area (ERMA). By creating this designation the BLM acknowledged future increased recreational use of the overall area. This would make sense after all those hikes Mike Richie led into these areas. The San Juan Basin Badlands ERMA "will offer dispersed recreational opportunities, including hiking, wildlife viewing, paleontological interpretation, off-highway vehicle use, and other activities." During the public comment period, which lasted until November 26, Mike Richie prepared information from the RMP for interested people to make comments on the way this new ERMA would be managed. In the end I made my personal comments, emphasizing the need to protect the resource. Once the area is planned as a recreation area, it becomes of paramount importance to protect the resource.

This is my career as a National Park Service seasonal park ranger speaking. When you have an area that is subject to high recreational use, it becomes imperative to take extra steps to ensure that those resources that attracted visitors to the area in the first place are protected from human overuse. So I recommended that fuelwood harvesting be banned in the entire ERMA, as it is inconsistent with the objectives of the ERMA. I made other recommendations to ensure protection of old-growth juniper stands, petrified wood, and other paleontological resources in the area.

Now, it remains to be seen how the BLM will use the comments from the public in finalizing the RMP. Hopefully, the new ERMA will contain sufficient stipulations to ensure protection of the resource. The public participation process remains ongoing.

The obstacle to citizen involvement in land management decisions is the time required for a person to become an active participant. You have to become informed on the issues, attend meetings, and contact relevant people. Hopefully, there will always be some people willing to give a significant chunk of their time to help government agencies maintain the beauty and biological integrity of the public lands that make us so proud to live in this place we call America. ❖

The Newsletter of the NPSNM

January–March 2013. Vol. 38 No. 1. This newsletter is published quarterly by the Native Plant Society of New Mexico (PO Box 35388, Albuquerque, NM 87176) and is free to members. The NPSNM, a nonprofit organization, is composed of professional and amateur botanists and others with an interest in the flora of New Mexico.

Next deadline is March 1, 2013. 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.

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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.

NPSNM DOLLARS AT WORK

A Busy 2012 in the Dale A. Zimmerman Herbarium

by William R. Norris, Professor and Curator, Dept. of Natural Sciences, Western New Mexico University

The Dale A. Zimmerman Herbarium at Western New Mexico University has seen a flurry of activity in 2012. On any given day, one may step inside the front room of this facility and observe WNMU students studying display specimens of miscellaneous grass, succulent, shrub, tree, and mistletoe species while preparing for quizzes and exams in the Range Vegetation and Dendrology courses offered this fall. You might see these same students in this same front room using scarce unfilled table space to press plants collected during recent field excursions, because each student must submit a collection of 50–60 dried, identified, labeled plants. Most students donate their collections to the herbarium at the end of the semester, and their specimens are incorporated into our growing teaching collection of local plant species.

Frequently, the above students share table space with our team of plant mounters, who regularly come in to process plant specimens that have been submitted to the herbarium. Typically, dried plant specimens are submitted inside newspapers with accompanying labels. A plant mounter will systematically remove the specimens from their enclosing newspaper, arrange them on an empty herbarium sheet to determine the position that best displays critical vegetative and reproductive features of the plant, and finally apply archival glue to the plant and label to secure them to the sheet. Our 2012 plant mounting team consists of John Dunne-Brady, Hillary Hudson, Jeremiah Johnson, Robbin Brodsky, and Debora Nicoli, whose work (mostly volunteer) is greatly appreciated.

During most weekday afternoons, one may step into the back room of the herbarium and observe a different sort of activity crucial to herbarium operations. In addition to the main herbarium collection (16 full cabinets, 2 half cabinets), the herbarium computer resides in this room. Here you will often find another member of the herbarium team, Angela Flanders, entering specimen label information into a specimen database (usually while listening to the blues). Our specimen database is periodically uploaded into SEINet, a larger database of plant specimens housed in more than a dozen southwestern herbaria, which is accessible online by botanists around the world. Angela also files most of the plants into the appropriate folders after data entry has been completed. Due to Angela's tireless work (thanks!), our specimen database has been recently augmented to include specimen data from almost 21,000 specimens.

Truly unpredictable are the visits by local and regional professional botanists who use the herbarium to support their research. According to our herbarium visitor's log, these dedicated researchers are as likely to slip into the herbarium on the weekend as during the week, sometimes well into the evening hours. One of these botanists is Dr. Richard Felger, whom I have encountered here well after dark studying plant specimens. Richard recently informed me that the Dale A. Zimmerman Herbarium is crucial for his research, providing microscopes, a library of botanical books, and, especially, a "wonderful collection of not only local but regional plant specimens." Richard's ongoing projects include revisions of *Trees of the Gila Region of New Mexico, Grasses of the Sonoran Desert,* and *Flora and Vegetation of Southwestern Arizona.* Dr. Jack Carter cited the Dale A. Zimmerman Herbarium as having supported his recently (2011) revised and expanded publication *Trees and Shrubs of New Mexico*. For many years, Jack has also maintained and updated a database of plants documented by herbarium specimens to occur in the Gila National Forest, and this herbarium supports

Continued page 10

NPSNM DOLLARS AT WORK

Southern New Mexico Students Are "Stepping Out" for Science

by Stephanie Bestelmeyer, Asombro Institute for Science Education

Three seventh graders gather around a data logger, pointing to the graph of decreasing carbon dioxide levels in a chamber with a photosynthesizing plant. Other groups are gathered around five additional chambers spread around the classroom. One girl excitedly says, "I feel so scientific. We don't usually get to use science tools since most people are afraid we'll break them. But this really *shows* the plant using CO_2 for photosynthesis. I totally get it now!"

These experiences take place throughout southern New Mexico when students participate in the "Stepping Out for Science Inquiry Project" hosted by the nonprofit Asombro Institute for Science Education. *Asombro* means "wonder" in Spanish, and this sense of wonder about the ecosystem is exactly what Asombro staff members work to provide for more than 14,000 students who participate in Asombro field trips and classroom/schoolyard science programs each year. Asombro programs have been supported by generous grants from the Native Plant Society of New Mexico.

Asombro has classroom and schoolyard programs on a variety of topics, such as climate, microclimates, soil, plants, and animals. Every program is aligned with New Mexico state education standards and focuses on (1) getting students involved in all aspects of scientific discovery, from creating questions and hypotheses to analyzing data and sharing conclusions, (2) teaching about the local desert ecosystem, and (3) emphasizing that anyone can become a scientist.

In the 2012–13 school year, Asombro is maintaining programs for all grade levels, while focusing extra effort on middle school students. Research shows that middle school is the period when many students lose interest in science. Yet we also know that hands-on, inquiry-based science programs offered by Asombro help rekindle that interest.

Every seventh grader in the Las Cruces public schools will participate in Asombro's award-winning schoolyard programs this school year. In addition, more than 1,000 seventh graders at six schools are part of an intensive study of their schoolyard ecosystem. Asombro staff educators visit every month to take students outside for targeted science activities.

Each month focuses on one ecosystem component. September's lesson was an introduction to plant phenology (the timing of natural events such as leaf production and flowering) as well as the biotic and abiotic components of the ecosystem. October was focused on plants' role in the carbon cycle. In November, students completed a study on soil compaction and wind erosion. In December, students will use aerial photographs to examine human-induced changes in the region surrounding their schools over the past decade. Future months will highlight plant diversity, food webs, arthropods, and vertebrates. At the end of each lesson, students add to a conceptual model of the schoolyard ecosystem, beginning to understand direct and indirect linkages between ecosystem components.

Every student deserves to "feel so scientific" and to learn about fascinating New Mexico ecosystems. We are grateful to the Native Plant Society of New Mexico for joining with Asombro in our mutual quest to provide these experiences for the students of New Mexico. ❖

Students take soil moisture readings under a creosote bush. In Asombro science education programs, students learn about science by participating in authentic studies.

NPSNM DOLLARS AT WORK

Phytoremediation: Utilizing Native Plants to Detoxify Contaminated Stormwater

by Aaron Kauffman, Southwest Urban Hydrology, LLC

As urban landscapes increase in size, watershed functions are often negatively impacted in the form of downstream flooding, less groundwater recharge, and habitat loss. Another serious watershed concern related to urban growth is the concentration of pollutants near stormwater outlets. A simple and pragmatic method to address stormwater contaminants is through phytoremediation (i.e., the use of plants to filter, absorb, or degrade toxins). Phytoremediation is a Green Infrastructure technique (i.e., using constructed natural systems to provide environmental services) that can be supplemented with passive irrigation from bio-retention basins. Funding from the Native Plant Society of New Mexico helped support presentations, design, materials, and implementation of a bio-retention basin planted with native flora at the Early Childhood Development Center on the Santa Fe Community College campus. The basin and planting of vegetation were conducted by high school volunteers from the MASTERs Program and led by Aaron Kauffman of Southwest Urban Hydrology. The report below outlines the outcomes of the project.

School Presentations and Workshop

On September 17 and 18, 2012, Aaron Kauffman presented to three environmental science classes (totaling 48 students) from the MASTERs Program. The presentations focused on the impacts of urban growth on watershed functions and how plants can be used to remediate stormwater contaminants such as petroleum products, heavy metals, nutrients, and heat. Presentations touched on phytoremediation concepts such as phytoaccumulation (uptake of pollutants into plant tissues), phytodegradation (breakdown of contaminants by plants or substances exuded by plants), and rhizodegradation (contaminant breakdown assisted by microbes in the root zone).

Following the presentations, multiple students expressed a desire to construct a bio-retention basin with native plants to address stormwater contaminants originating from a campus parking lot. Permission from the Santa Fe Community College was granted to complete a basin at the Early Childhood Development Center. On October 21 fifteen students accompanied Aaron Kauffman for a four-hour hands-on workshop to build a bio-retention basin (see figures 1 and 2). The basin will capture sufficient water to passively irrigate vegetation planted at the site, once the plants have become established (see table 1 with basin dimensions).

Vegetation species and organic mulch used around the basin were primarily selected according to their benefits as-

Continued page 10

Table 1. Bio-Retention Basin Dimensions at the Early Childhood Development Center

Basin Dimensions (ft.):	15 × 10 × 1
Approximate Drainage Area (sq. ft.):	3,900
Basin Volume Capacity (gallons):	1,122
Annual Catchment, Assuming 12″ of Precipitation (gallons):	13,464

Fig. 1. MASTERs students stabilizing basin berms and spreading mulch.

Fig. 2. MASTERs students posing in front of nearly complete bio-retention basin.

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 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 Pam McBride at 505/343-9472 or ebotpam@msn.com or Carolyn Dodson at 505/268-7889 or cdodson@unm.edu. For more info on field trips and forums contact Dana Price, dana_price@gmx.com, 505/872-2646 or (cell) 512/417-9787.

Jan 2 Meeting. New Mexico's Living Landscapes. Bill Dunmire, author, takes viewers to the four corners of our state, focusing on NM's six ecoregions: two deserts, two major grasslands, pinyon-juniper woodlands, and montane forests. In a way, it's a layman's ecology of New Mexico.

Feb 6 Meeting. Native Plant Society of New Mexico Conservation Initiatives. Jim McGrath, outgoing NPSNM conservation chair. Discussion of Blue Hole Cienega and rare plant field trips, especially search for Cloudcroft Phacelia.

Mar 6 Meeting. On the Trail of Seldom-Seen Plants in the American Southwest: Navajo Nation, Utah, New Mexico. Daniela Roth, state Division of Forestry botanist.

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.

Jan 10 Meeting. Planning for 2013, and native food treats from Jim Hastings, the Gringo Gourmet.

Feb 14 Meeting. Growing Color. Ric Rao, Las Cruces artisan. He will showcase dyes made from native plants, both from his own dye garden and plants harvested from nature. Weavings and fiber bundles will illustrate the depth and range of natural dyes.

Mar 14 Meeting. Potting Succulents and Cacti. Jack Makepeace. Soil mixes, pots, and how-to information.

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. Activity updates and further details posted on www.gilanps.org.

Jan 18 Talk. Western Apache Botany. Seth Pilsk, botanist for the San Carlos Apache Tribe's Forestry Dept. Overview of the deep and personal traditional Western Apache relationships with the natural world, with a special focus on plant life and an emphasis on Apache plant taxonomy.

Feb 15 Talk. Charles Darwin. Jack Carter. Darwin's life, contributions, and theories as contained in *On the Origin of Species By Means of Natural Selection,* in which Darwin described the evolution of humankind as a natural process, excluding divine agencies. Cake will be shared after the program in commemoration of Darwin's 204th birthday.

Mar 15 Talk. The Role of Amateur Botanists in Sustaining the Floristic Tradition in Botany. Bill Norris, biology professor at WNMU and director of herbarium. Stories of amateur botanists in NM and Iowa as a foundation to suggest projects for amateur botanists in NM.

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 SamaritanVil-

lage, 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; Al Krueger, 575/532-1036.

Jan 9 Meeting. Conservation in the Las Cruces Area. Nathan Small, Las Cruces city councilor and NM Wilderness Alliance wilderness protection coordinator.

Feb 13 Meeting. Native Plant Propagation. Cheryl Garing, horticulturalist.

Feb 16 Field Trip. Tour of the NMSU Herbarium. Donovan Bailey, herbarium curator, leader. Meet 9:00 a.m. at east door of the Biology Annex, on Williams Ave., N of Williams Ave./Stewart St. intersection, on NMSU campus.

Mar 13 Meeting. The Biogeography of Yosemite. Carol Campbell, NMSU Dept. of Geography. *Deadline for sign-up for WSMR field trip in May.*

Mar 16 Field Trip. Spring Wildflower Walk in the Florida Mountains. Gene Jercinovic, leader. Meet 8:00 a.m. at the parking lot of the U.S. Post Office in Fairacres.

Otero (Alamogordo)

For field trip information, contact Tim Mills, tim.mills1@gmail.com, 210/883-7170; or Helgi Osterreich, hkasak@netmdc.com, 575/585-3315 or 575/443-3928. More info should be available by the beginning of each month.

Jan 12 Talk. Chihuahuan Desert Grasslands and Fragmentation. Allison Heneghan, NMSU. 3:00 p.m., Unitarian Universalist Fellowship Hall, 1010 16th St., Alamogordo.

Feb 9 Field Trip. Bitter Lake and Creek, to find out more about restoration project and efforts to eradicate the extremely invasive *Phragmites australis.* Meet 8:30 a.m. at the Y in Tularosa (junction Hwys 54/70) to carpool. All-day trip; bring lunch and appropriate clothing.

Mar 16 Field Trip. Marble Canyon. Meet 9:00 a.m. at Foothills Park (drive E on 1st St., keep going past Scenic Dr.). Bring snacks and water.

San Juan (Farmington)

Meetings are third Thursdays at 7 p.m. at San Juan Community College. For more info, contact Donna Thatcher, dthatcher@fmtn.org or 505/325-5811.

Feb 21 Meeting. Banking on Seeds. Sheila Williams, BLM district botanist. Rm 9006, Henderson Building.

San Juan (Southwest Colorado)

Details about the following programs of the San Juan/Four Corners Native Plant Society can be found at http://www.swcoloradowildflowers.com.

Jan 9 Tamarisk, Friend or Foe? Derek Uhey and Amanda Rowe, Fort Lewis College students. Lyceum Room, Center of Southwest Studies, Fort Lewis College, 6:30 p.m.

Mar 13 Population of Plants and People. Dr. Richard Grossman, MD and population expert. Lyceum Room, Center of Southwest Studies, Fort Lewis College, 6:30 p.m.

Santa Fe

Meetings are third Wednesdays at 6:30 p.m. at Morgan Hall—New Mexico State Land Office, 310 Old Santa Fe Trail, Santa Fe. Free parking available adjacent to the building. For more information, contact Tom Antonio, tom@thomasantonio.org, 505/690-5105; or visit npsnm.unm.edu.

Jan 16 Meeting. Plant Photos. Members bring photographs of their favorite plants to share.

Feb 20 Meeting. *Eriogonum* (Buckwheats): Amazing Plants of the American West. Bob Pennington, owner of Agua Fria Nursery.

Mar 20 Meeting. Topic/Speaker TBA.

Taos

Meetings are third Wednesdays at 7 p.m. in Coronado Hall at the Taos Convention Center. Please check the NPSNM website for updates and additional information on activities, or contact Sallie at taos800@aol.com or 575/776-0860.

Jan–March Check for updates on website and Facebook.

Herbarium *(continued from p. 5)*

this endeavor. In fact, Jack's friend and botanical assistant Deming Gustafson frequently visits the herbarium (always on weekdays before sundown) to examine all plant specimens just prior to their being filed, looking for any plant species previously undocumented from the forest.

The herbarium has recently expanded to include significant collections of bryophytes (i.e., mosses and liverworts) donated by Drs. Russ Kleinman and Karen Blisard. They have both spent hundreds of hours (often with Dr. Kelly Allred) studying these fascinating but typically ignored plants in southwestern New Mexico. As Russ and Karen have both informed me, it is particularly easy to find new bryophyte species for New Mexico because so few people pay any attention to them. Thus, Karen recently discovered a liverwort in a genus (*Fossombronia*) previously unknown in New Mexico, and Russ several years ago discovered an acrocarpous moss (*Brothera leana*) previously uncollected west of the Mississippi River drainage. These specimens have been deposited in a herbarium cabinet dedicated to bryophytes, and are housed in shoebox-like cartons purchased from a grant generously awarded to me by NPSNM (thanks!). Hopefully, these specimens will provide the "seed" (correction: the "spore") for increased attention and interest paid to mosses and liverworts in southwest New Mexico.

Finally, I must mention that the plant collection in our herbarium has in the past year incorporated several thousand vascular plant specimens collected during ongoing floristic studies of the Burro Mountains (Russ Kleinman and myself), Lake Roberts (Kelly Kindscher), the Gila River in New Mexico (Kelly Kindscher and myself), and City of Rocks State Park (myself and Tim Geddes). Dr. Kelly Kindscher (University of Kansas) recently donated several hundred specimens to the herbarium, collected by him and colleagues during a regional study of medicinal plants in the southwest. Dr. Jack Carter just recently donated several hundred specimens of woody plants that he and co-workers collected over the past two decades to support his research. I hope it is clear from this account of annual activity at the Dale A. Zimmerman Herbarium that traditional botanical research (i.e., study and appreciation of whole plants) is *alive and well* in southwestern New Mexico.

Thanks to all the above-mentioned volunteers, through whose efforts the herbarium functions, and also to NPSNM and GNPS for generous grants awarded to me in the past year to support herbarium activity. ❖

Phytoremediation *(continued from p. 7)*

sociated with addressing stormwater contaminants (see table 2). Hydrocarbons (e.g., oil, gas, and grease) and heavy metals (copper, zinc, and lead) are common in road runoff due to leaking car fluids, brake wear, and tire degradation. Diffusing these contaminants across the landscape and treating them with plants and soil microbes can be a cost-effective alternative to allowing pollutants to be concentrated in storm drains and deposited into rivers or other water sources. In addition to filtering, absorbing, and degrading contaminants, the vegetation planted at the site was aimed at improving habitat, increasing shade to address urban heat-island effect, and adding aesthetic value to a campus with young children.

Project Successes and Burgeoning Interest

Interest in the bio-retention basins (an original basin was completed in October 2011) at the Early Childhood Development Center has been growing among students at the Santa Fe Community College. On October 23, Aaron Kauffman met with students from the Sustainable Technologies Program to discuss future monitoring and implementation of additional basins as part of a more comprehensive Green Infrastructure design at the Early Childhood Development Center. Students are in the process of applying for funds that would evaluate the effectiveness of current basins and help cover the costs of roof catchment systems for more extensive planting around the children's campus. ❖

Table 2. Vegetation Species and Mulch Used at the Early Childhood Development Center Bio-Retention Basin

Common Name	Scientific Name	Potential Parking Lot Contaminants Addressed
Big bluestem	*Andropogon gerardii*	Hydrocarbons, copper, and PCBs
False indigo	*Amorpha fruticosa*	Lead
Fringed sage	*Artemisia frigida*	Hydrocarbons and copper
Northern catalpa	*Catalpa speciosa*	Lead and cadmium
Honey locust	*Gleditsia triacanthos*	Lead
Three-leaf sumac	*Rhus trilobata*	Undocumented
Big sacaton	*Sporobolus wrightii*	Undocumented
Composted wood mulch	NA	Heavy metals (e.g. copper, zinc, lead)

New and Recent Books

Flora Neomexicana III: An Illustrated Identification Manual
By Kelly W. Allred and Robert DeWitt Ivey
Lulu.com, 2012. 719 pages.

Review by Donovan Bailey, New Mexico State University

Breaking news: A new floristic treatment for New Mexico has hit the presses! Following years of effort, *Flora Neomexicana III* by Dr. Kelly Allred and DeWitt Ivey is available through Lulu.com. Prior to 2012, botanists seeking to identify a range of specimens collected in New Mexico were often forced to rely on numerous resources, including treatments for adjacent states and/or highly outdated floras of New Mexico. At New Mexico State University our students have benefited from the presence of Dr. Allred, who offered draft versions of *Flora Neomexicana III* to our classes over the years. As a result, we've seen these keys grow into what has become a beautifully conceived and delivered treatment of the vascular plants of the state.

The utility of *Flora Neomexicana III* derives from a number of important elements. First and foremost, from the methodical approach of Dr. Allred, who invested many years assembling and maintaining a complete list of taxa and up-to-date names for vascular plant species in the state. Alone, this is a tremendous contribution, providing the naming history (synonymy), common names, and appropriate references for 3,783 species (also available through Lulu—*Flora Neomexicana I*). With the list of current names as critical background, Dr. Allred embarked on assembling keys to families, then genera, and ultimately all taxa known from the state.

Dr. Allred's decision to embrace collaborative elements and to self-publish will undoubtedly help *Flora Neomexicana III* stand the test of time. The collaborative components particularly benefit from the addition of over 1,600 line illustrations from DeWitt Ivey. In addition, a variety of New Mexico botanists, including Patrick Alexander, Eugene Jercinovic, Tim Lowrey, William Norris, and Robert Sivinski, contributed treatments for some of the particularly complex groups. Extensive screening of draft versions by a variety of New Mexico botanists has also greatly increased the overall quality of the treatment. Last but not least, New Mexico's beloved Eugene Jercinovic and Betty Griffin have contributed countless hours editing, formatting, proofing text, and checking herbarium records for the final version.

Perhaps of nearly equal long-term contribution was the decision to self-publish. Though there can be special issues with such an approach, my initial thoughts focus on the potential for various formats and future revisions that are not reliant on a commercial publisher's consideration of the bottom line. As a minor set of important editorial errors were noted by the earliest owners of *Flora Neomexicana III,* generating some concern and frustration, the potential benefits of self-publication, by conscientious authors, was quickly realized. The author's response was precisely what we would rarely see from a large commercial publisher—a halt in sales to avoid propagating the problem, a genuine apology, correction within a few short weeks, and an offer to replace previously purchased copies free of charge. Future revisions, through fully revised text or short appendices, will likely keep the flora up to date in the coming years.

In addition, self-publication is resulting in the availability of a wide variety of available formats. In fact, as I was writing this review Dr. Allred announced that we can now purchase no fewer than four different layouts for *Flora Neomexicana III.* These include a softbound book ($70); hardcover book ($85); an abbreviated field-portable version (*Flora Neomexicana III Field Keys,* $26); and a downloadable pdf of the *Field Keys* version for use on iPads, computers, and related devices ($10). This is a wonderful array of options.

Prior to the availability of all these different formats, students in my fall 2012 Plant Taxonomy course were given the option to either purchase a full copy of *Flora Neomexicana III* or use the most recent draft form for free. I was somewhat surprised to see the class essentially divided on the decision, with about half ultimately opting to pay for the full flora. After viewing their progress first-hand, and considering the relative value/utility of the free draft versions floating around the state, there is absolutely no doubt that the full version is worth buying (with a $10 pdf version available, there is little reason to even consider keeping the old draft versions).

Overall, *Flora Neomexicana III* is a wonderful new addition to New Mexico botany. Together with newly available online resources (e.g., full herbarium database searching and mapping abilities through SEINET.org), recently revised texts (e.g., Dr. Jack Carter's *Trees and Shrubs of New Mexico*), previously available resources (e.g., Dewitt Ivey's *Flowering Plants of New Mexico*), exceptional online photo galleries and guides (e.g., Dr. Patrick Alexander's polyploid.net and Dr. Russ Kleinman's *Vascular Plants of the Gila*), and online active discussions (NMPLANTS-L@unm.edu), the opportunities to learn and study the vascular plants of New Mexico continue to expand in wonderful new directions. ❖

Ivey's Bladderpod *(Physaria iveyana)*: A New Plant Species!

by Carolyn Dodson, Albuquerque chapter

Ivey's bladderpod *(Physaria iveyana),* has long been in plain sight at the Sandia Crest, but only recently have botanists recognized it as a different species from the White Mountain bladderpod *(Physaria pinetorum),* a common plant of the spruce-fir zone. Ivey's bladderpod is restricted in range to a small area on the west-facing limestone escarpment at the summit of Sandia Peak. Also, two individuals have been found near the Kiwanis cabin.

Robert DeWitt Ivey

Appropriately, the species is named for our own Robert DeWitt Ivey, an outstanding naturalist and artist who is honored for stimulating interest in and appreciation of the plants of New Mexico. He is fondly remembered by the hundreds of former high school students whom he introduced to a lifelong interest in botany and he continues to share his vast knowledge of plants and the environment. Ivey's unique reference guide *Flowering Plants of New Mexico* is an indispensable tool on the bookshelf or in the backpack of professional botanists as well as wildflower enthusiasts. The fifth edition comprises his meticulous life-size drawings of more than one-third of the species known for the state, with brief notes and individual range maps and regularly updated nomenclature.

Ivey's bladderpod is a small, rock-hugging plant of tufts of gray-green hairy leaves, well suited for the rigors of a wind-swept high-elevation habitat. Ivey's differs from White Mountain bladderpod in that it is less dense and the fruits are raised above the leaves. ❖

Contributions to the Jack & Martha Carter Conservation Fund

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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Scenes from a Field Trip to Blue Hole Cienega, September 15, 2012

by Sandra Lynn, Albuquerque chapter

Conservation Chair Jim McGrath completely surrounded by rare (really?) sunflowers, *Helianthus paradoxus*. If they don't appear rare, it's because they bloom in lovely profusion only in very few and very limited locations in New Mexico and West Texas. These are blooming in mid-September in the Blue Hole Cienega Preserve at Santa Rosa.

Conservation Chair Jim McGrath working on species lists for the Blue Hole Cienega Preserve.

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NPSNM Would Like to Thank . . .

. . . all members who have made monetary contributions above their regular dues in the past year. This list includes those who sent in extra contributions with their memberships from October 2011 through November 2012. It doesn't include other contributions people make, such as those sent directly to the treasurer or to the Carter Fund, or the contributions of cooperation and energy from the wonderful members of this volunteer organization.

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

New Mexico wildflower posters: $8 (nonmembers, $10)
Cactus poster: $5 (nonmembers, $8)

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of the

NATIVE PLANT SOCIETY OF NEW MEXICO

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Download PDFs of this and recently archived issues at the NPSNM website:

www.npsnm.org

Winter Board Meeting: All Invited

NPSNM's annual winter board meeting will be February 9–10 at the UNM Sevilleta Field Station *(read more inside, page 2)*. Pictured here, the field station's lower housing complex and pond in the early morning, looking west.

Photo 2001 by Mike Friggens

VOLUNTEER OPPORTUNITY

Conservation Chair

The Native Plant Society of New Mexico is looking for a new Conservation Chair. This position is important in keeping the Board and membership informed of issues affecting native plants and their habitat. The Chair also looks for ways to promote native plant uses and appreciation. The Chair has the option of gathering a Conservation Committee for assistance. For more information on the duties, or to volunteer, please contact NPSNM Board President Renee West, keywestern@hotmail.com.