New Mexico's Voice for Native Plants

Newsletter

of the

Native Plant Society of New Mexico

July, August, September 2013 Vol. XXXVIII No. 3

The Value of a Good Sedgucation

Scirpus microcarpus (red tinged bulrush) is found at water's edge, either steamside or at the side of standing water or lakes. The flowers are tightly packed. The flower clusters are subtended by multiple bracts and the style divides into two stigmas. Shown here is a 1× field macro of flowering clusters. Photo by Russ Kleinman.

Read more, page 6.

Important Note: Change of venue for the Annual Meeting!
See page 3 for details.

Inside This Issue

From the President

by Renée West

The Native Plant Society of New Mexico said a sad goodbye to our membership secretary Lolly Jones last month. She and Al have moved to California to start a new phase of life. Lolly served on our board as membership secretary since 2008, and was a dedicated member before that. She was instrumental in the native plant landscaping project at the Placitas Library grounds.

Lolly's absence leaves a hole in our board and in our hearts. She spent her time on the board working hard to manage the membership database and renewal process. Lolly kept things well organized. And with the continuing help of former membership secretary John Freyermuth, Lolly brought the overwhelming mountain of tasks to the board's attention. At our last meeting, the board voted to fund a part-time position of contract membership coordinator to take on some of the tasks. As she packed to leave, Lolly advertised, hired, and trained this new contractor!

So we're pleased to announce the selection of Lindsey Kirchhevel as our new membership coordinator. As Lolly said, "I'm very impressed with her computer expertise and her enthusiasm for life in New Mexico, plants, and animals. We're lucky to find someone with great technical skills and a worldview so in line with the NPSNM." Welcome, Lindsey!

Lolly has left us in great shape with the membership situation—an excellent setup for the next person who takes on the board position of membership secretary. This special new person—could it be you?—will work with John and Lindsey, eventually taking over management of the system. John, the society's long-time membership secretary before Lolly, can then truly retire!

More Society Vacancies!

On other fronts, the NPSNM is looking for someone to fill the role of conservation chair. This important position keeps the board informed about conservation issues affecting our native plants around the state. If you're interested, please contact me at keywestern@hotmail.com.

And later this year, the book sales chair position will be opening as well. As I write this, the Society has some decisions to make about the future of our book sales. But it is likely we will need someone to manage the sales and inventory. If you have a love for books about New Mexico and botany, and a little extra time, why not think about helping out the Society?

Volunteering Can Be Rewarding

Even with our modest contract staff of two part-timers, the NPSNM still cannot function without all its volunteers—board members and committee chairs. That's the way it will always be, because we want to put most of our money toward native plant projects. These volunteer positions are very important in fulfilling our mission. They take some time and energy but can be very satisfying. And you get to work with a great bunch of people! So if you have a little extra time and energy and want to put them toward an excellent cause, please consider volunteering to help the Society as conservation chair, membership secretary, or book sales chair. We can use your help! ❖

Meet Our New Membership Coordinator

Lindsey Kirchhevel is a resident of Cedar Crest in Albuquerque's East Mountains. She is a retired professional musician turned gardener and computer enthusiast. Lindsey is an Albuquerque Master Gardener and also serves as a mentor and board member in that organization. She is the webmaster for both the Master Gardeners and the Music Guild of New Mexico (formerly the Symphony Guild). She has been involved in animal rescue for over 20 years and has a house full of rescued plants as well. Although she's not quite a native New Mexican, Lindsey intends to make the Land of Enchantment her forever home! ❖

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

2013 Annual Meeting: Venue Change

Due to space restraints at the MCM Elegante, the locations for the 2013 Annual Meeting of the Native Plant Society of New Mexico have been changed. See details below.

New Meeting Location The Thursday board meeting, registration, and Friday and Saturday presentations will be at State Bar of New Mexico Center, 5121 Masthead St. NE, in the Albuquerque Journal Center, Albuquerque. The Center is located on Masthead, east off Jefferson St. between Paseo del Norte and Ellison St. The Friday evening reception remains at Plants of the Southwest.

New Time and Place for Early Registration Early registration will now be at the State Bar Center from 3:00 p.m.–5:00 p.m.

New Banquet Location Nativo Lodge, 6000 Pan American NE, Albuquerque

New Location for Accommodations Rooms have been set aside at **Nativo Lodge**, 6000 Pan American NE, Albuquerque, 505/798-4300. Rate for attendees is $65 per night, plus tax. Call the hotel directly before July 10 to make your reservation. After July 10, rooms and rates will be on space- and rate-available basis only. Be sure to mention you are with the Native Plant Society of New Mexico. The hotel is about a mile from the Bar Center.

Other Nearby Accommodations

Baymont Inn and Suites 5101 Ellison NE, 505/344-1555
La Quinta Inn Albuquerque NW 5241 San Antonio Drive NE, 505/821-9000
Clarion Hotel 7620 Pan American Freeway NE, 505/823-1300
Quality Suites 5251 San Antonio Drive NE, 505/797-0850
Call these hotels directly to make a reservation. No special rates have been negotiated.

All speakers, workshops and field trips remain the same, but those scheduled at the Elegante will now be at the State Bar Center. We apologize for any inconvenience this may cause, but the space originally allotted to us was drastically reduced.

Addition to program: Book signing by member authors.

Silent Auction: Be sure to bring items for the silent auction. Contact Beth Herschman at herschman9@aol.com for more information.

For additional information, please visit
www.npsnm.org/events/2013-annual-conference/
or call Bettie Hines, 505/298-8408.

Please Note
As this newsletter goes to press, there are still time slots available for Annual Meeting member presentations. See back page for more details.

Calling All Writers and Photographers!

If you're going to the Annual Meeting, and if, at some point during the August 8–11 event, you find yourself at a fascinating-fun-amazing talk, walk, workshop, or botanical what-have-you, 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.

The Newsletter of the NPSNM

July–September 2013. Vol. 38 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, 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.

CONSERVATION CORNER

The New Mexico Rare Plant Treasure Hunt: A Call for Action

by Daniela Roth, Endangered Plant Program Coordinator, NM Forestry Division

New Mexico ranks fourth highest in the U.S. in plant diversity. This is partly due to the convergence of several ecoregions: the Colorado Plateau, the Southern Rocky Mountains, the Arizona–New Mexico Mountains, the Central and Southern Short-Grass Prairies, the Chihuahuan Desert, and the Apache Highlands. The interaction of topographic and geologic diversity with temperature, wind, and precipitation also contributes. Approximately 4,200 plant species are known in the state, including 500 varieties and subspecies. New species continue to be described from New Mexico, at a rate of about two per year during the past decade. About 4% of New Mexico plants are endemic and another 5% are rare throughout their range. The New Mexico Rare Plant Technical Council recognizes 190 species as rare and/or endemic to New Mexico (http://nmrareplants.unm.edu/).

The Forestry Division (New Mexico Energy, Minerals and Natural Resources Department) has statutory responsibility for the State Endangered Plant Species Act and is responsible for investigating all plant species in the state for the purpose of establishing a list of endangered plant species. The Endangered Species List currently lists 37 plants as state endangered, including 13 federally listed species (www.emnrd.state.nm.us/SFD/ForestMgt/Endangered.html). The list is updated as new information becomes available through research. The Forestry Division gathers information about population abundance, distribution, habitat requirements, threats, limiting factors, and other biological and ecological data to determine the status of an endangered species. The information is then used to develop conservation measures for the species' survival. The Forestry Division is further directed to establish a program necessary to promote the conservation of listed endangered plant species through research, inventory and monitoring, law enforcement, habitat maintenance, education, and propagation.

A tall order for a program that consists of one employee. In addition, there are very few land management agencies in New Mexico that have botanists on their staffs, and even if they do, rare plant research is seldom on their work agenda. As a result, many of New Mexico's rare plant populations have not been seen in decades, and some parts of the state have seen little to no botanical exploration to date.

In 2010 the California Native Plant Society started the Rare Plant Treasure Hunt as a citizen-science program with the goal of getting up-to-date information on many of California's rare plants, while engaging chapter members and other volunteers in rare plant conservation (see www.cnps.org/cnps/rareplants/treasurehunt/). This program has helped to conserve the state's rare flora by providing valuable data to the CNPS Rare Plant Program and the CA Department of Fish and Game. Treasure Hunters can join an organized rare plant search or learn at training events how to plan their own trips; those who already have botanical experience can start leading trips. The CNPS Rare Plant Treasure Hunt has harnessed the efforts of over 200 volunteers, who have spent over 8,500 hours on the project, and has gathered data on over 1,450 rare plant occurrences during the initial three years of the program. Not only have their volunteers documented many historical occurrences, they've also made important new botanical finds; 40% of the occurrences found in 2012 were previously unknown!

Establishing a similar program for New Mexico would greatly enhance our knowledge of rare and endangered plants, establish baseline data for trend analysis in the face of changing climate and associated ecological changes, and provide us with information on the current status and distribution of our most sensitive plants. Over the long term, continued surveys and updates on known populations could lead to citizen-science monitoring projects and discoveries of new populations.

Depending on land managers' interest and on whether their lands contain historic observations of rare plants, partner organizations may include the U.S. Forest Service, USFWS, BLM, NPS, U.S. military lands, NM state lands, and tribal and private lands. Collected data would be stored with the land manager, Natural Heritage New Mexico, and the Forestry Division.

The NM Forestry Division Endangered Plant Program is looking for interested volunteers to locate historic sites of rare and endangered plants throughout New Mexico. Proposed projects led by the Division include:

- Post-fire recovery of rare and endemic plants, Lincoln and Gila National Forests, July–August 2013
- Rhizome fleabane (*Erigeron rhizomatus*) sites, Cibola National Forest (June–July 2013)
- Aztec gilia (*Aliciella formosa*) sites, BLM Farmington (Spring 2014)

Other projects will be forthcoming, depending on interest by land managers and volunteers, and will be announced through the NPSNM newsletter. If you are interested in participating in any of these projects, please contact Daniela Roth at daniela.roth@state.nm.us. ❖

Sedgucation I: What Is a Sedge and Why Should New Mexico Botanists Care?

by William R. Norris, Gila chapter

When someone utters the term "sedge," many people can quickly conjure up the expression "sedges have edges" but then have to work hard to recall other tidbits about these frequently ignored plants. First of all, is the expression "sedges have edges" sufficient to characterize all sedges? Well, no. Many sedges *do* have edges, but many others have round (e.g., soft-stem bulrush: *Schoenoplectus tabernaemontani*) and occasionally even flat (e.g., flat-stemmed spike-rush: *Eleocharis compressa*) stems that are not accounted for by the above catchphrase. As for sedge trivia, consider that every time you munch on water chestnuts in some delicious Oriental stir-fry, you are eating the crunchy shoot base (i.e., corm) of a sedge, the Chinese water chestnut (*Eleocharis dulcis*). Tasty, subterranean tubers of another sedge, yellow nutgrass (*Cyperus esculentus*), are sold in small packages or jars as "tiger-nuts" (for the record, I did not coin this phrase), particularly in Spain. I'll bet that many of you are now remembering that ancient Egyptians used papyrus (yes, another sedge: *Cyperus papyrus*) stems to prepare parchment for writing. On this continent, indigenous peoples used the stems of chairmaker's bulrush (*Schoenoplectus americanus*) to weave elegant baskets. If the category "Sedge" ever comes up in Jeopardy, I think you are now well prepared for general-interest questions pertaining to these plants.

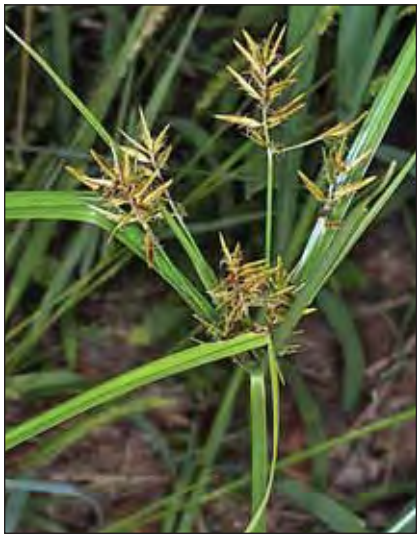
If you have spent any time in New Mexico wetlands, your eyes were probably drawn to sedges even if you didn't realize it at the time. That bulrush patch providing cover for birds at the edge of a lake or lurking in some backwater of the Gila River? These are sedges in the genus *Schoenoplectus* or *Scirpus*. Those low, grass-like plants that have flat reproductive parts and emerge on mudflats and moist sandbars along rivers in late summer? Good chance those were nutsedges (often referred to as umbrella sedges or flat-sedges) in the genus *Cyperus*. A moist swale (I know, rare in New Mexico this summer) is likely to contain a spike-rush (sedge genus *Eleocharis*) clone, each emergent, unbranched stem possessing a single wispy reproductive head at its terminus like a green Q-tip.

If you have inferred that I experience some aesthetic pleasure when I encounter a sedge, you would be right. And I am not the only one. The English poet William Butler Yeats was inspired by these plants to write the poem "He Hears the Cry of the Sedge." Not one of his more well-known poems to be sure, but write it he did. Although I have been studying sedges for more than two decades, I have yet to hear them utter a sound, but due to Yeats' above assertion I now keep my eyes *and* ears wide open when in sedge habitat.

So why are sedges the cause of such confusion (and sometimes, fear) among plant enthusiasts? Much of this can be attributed to the unfortunate use of common names that intermingle "rush," "grass," and "sedge" across taxonomic family lines. Technically, a rush is a grass-like plant in the family Juncaceae, closely related but absolutely distinct from the sedge family (Cyperaceae). Nonetheless, the terms "bulrush" (*Scirpus, Schoenoplectus, Bolboschoenus)*, "spike rush" (*Eleocharis*), "beak rush" (*Rhynchospora*), "nut rush" (*Scleria*), "Nile grass" (alternative name for *Cyperus papyrus* mentioned above), "saw grass" (*Cladium jamaicense*, the dominant vegetation in the Everglades), "cotton grass" (*Eriophorum*), etc., are commonly used to refer to sedges in this country and elsewhere in the world. What's wrong with changing the above common names to "bull sedge," "spike sedge," "beak sedge," "nut sedge," "Nile sedge," "saw sedge," and "cotton sedge"? Nothing, as far I can see. Alas, people are free to use and coin common names for plants as they wish, without the strict governance of a Botanical Code of Nomenclature, which exists to govern the application of scientific names to plants. And so, confusing names for sedges will linger on.

Given that the phrase "sedges have edges" is insufficient for sedge recognition, and that common names for many sedges are misleading, how can one be sure that one is looking at a sedge (and not a grass or a rush)? With a hand lens and/or a dissecting scope, this is reasonably accomplished by inspection of the reproductive parts of a putative sedge.

Continued page 10



***Cyperus odoratus* var. *squarrosus* (rusty flatsedge) is recognized in the field by its broad leaves to about 10mm in width, three stamens and three stigmas. It is an annual. It is found in sandy areas near streambanks.**

Except where noted, all photos and caption text in this article by Russ Kleinman/Western NM Univ. Dept. of Natural Sciences, Dale A. Zimmerman Herbarium; www.gilaflora.com

A Letter from the NMSU Herbarium

Dear Members of the New Mexico Native Plant Community,
The Department of Biology and the College of Arts and Sciences at New Mexico State University are pleased to announce the recent hire of Dr. Patrick Alexander into a half-time postdoctoral position as curator of the department's herbarium (NMC). This two-year position and the university support for the herbarium are, in part, the result of many years of donations to the herbarium endowment and current use accounts. In particular, donations from numerous individuals and organizations made a big difference in the university's decision to open such a position. We would like to thank these individuals and organizations (particularly the statewide NPSNM, as well as the Otero and Las Cruces chapters) for their support. We hope that you will all be pleased to see the outcome of this generosity.

This development means that we can now offer public open hours for herbarium access to facilitate plant identification, botanical research–related activities, literature use, and outreach activities to the region. The herbarium will now be open to the public from 8:30 a.m. to 5:00 p.m. on Mondays and Tuesdays. However, as there may be days when Patrick is out of the museum or when school groups are occupying much of the collection, it is still best to contact Patrick or me if you plan on traveling to Las Cruces to use the herbarium. More information about the herbarium, use of the collection, and visitation can be found at http://biology-web.nmsu.edu/~herbarium/.

Many thanks,
Donovan Bailey
Department of Biology Herbarium, NMSU

Do You "Like"? NPSNM is a growing presence on Facebook, with well over 400 followers! You can find us at www.facebook.com/NPSNM. The Las Cruces, El Paso, and Taos chapters each has its own Facebook page too.

BIOBLITZ OPPORTUNITY

Calling all biologists and naturalists!

October 5–6, 2013

Santa Rosa, New Mexico

The Santa Rosa area is unique in New Mexico in that it is situated near the northeast edge of a six-mile-wide sink caused by the dissolution of the underlying San Andres limestone and gypsum and the collapse of the overlying Santa Rosa Sandstone. The strata dip to the east and water passing through the soluble layers comes to the surface in the sink, creating numerous seeps and springs. Within the Santa Rosa sink itself are smaller subsidence features, including six sink holes that fill with water and become small lakes. The Natural Resources Conservation Service has worked closely with the local landowner to establish the 265-acre Red Hawk Conservation Easement, which is now protected for its outstanding wetland values. It contains several rare and endangered wetland plants, including Pecos sunflower and Wright's marsh thistle. However, we do not know the full extent of biodiversity at this beautiful site. This is an opportunity to establish a plant and animal list of the property while camping along two of the six Santa Rosa sink hole lakes (Perch Lake and Rock Lake), which are otherwise inaccessible to the public. Come and spend a weekend to establish an inventory of plants and animals on the newly established conservation easement. Camp on site or stay in a hotel in nearby Santa Rosa.

For more information please contact Daniela Roth (Daniela.Roth@nm.state.us).

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. For meeting places indicated [A] through [H] see website.

July No monthly meeting.

Jul 27 Field Trip. Exploratory trip to San Gregorio Lake. Pamela McBride and Philip Clark, leaders. Located near Cuba, off State Rd. 127 & Forest Rd. 70. Carpoolers meet 8:30 a.m. at [D].

August No monthly meeting.

Aug 8–11 NPSNM Annual Meeting in Albuquerque.

Sep 4 Meeting. The Solution Is Never That Simple: The Impact of the Introduced Salt Cedar Leaf Beetle on the SW Willow Flycatcher in NM. Debra Hill, USFWS biologist.

Sep 14 Field Trip. Ranney Ranch tour. Jim McGrath, leader. All-day field trip, travel time >2 hrs. each way. Expected return to Albq. about 5:30 p.m. To sign up, contact Jim McGrath (505/286-8745).

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 11 Meeting. Potting Cactus and Succulents. Jack Makepeace.

August No monthly meeting.

Sep 12 Meeting. What Is Going On With Our Weather? State Climatologist David DuBois.

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. 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 Deming Gustafson, 575/388-5192. Destinations may be changed due to weather. Activity updates posted on www.gilanps.org.

Jul 21 Field Trip. Gold Gulch Spring.

Aug 18 Field Trip. Knight Peak.

September Field Trip (date TBD). McMillan Campground.

Sep 13 Meeting. Speaker TBD.

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; Al Krueger, 575/532-1036.

Jul 10 Meeting. Southern New Mexico Cacti. Lisa Mandelkern.

Jul 13 Field Trip. Summer wildflowers in Karr Canyon, Sacramento Mtns. John Freyermuth and Carolyn Gressitt, leaders. Meet 8 a.m. east parking lot of K-Mart on Hwy 70.

Aug 14 Planning Meeting for 2014. Members to elect officers and help pick speakers and field trips.

Aug 17 Field Trip. Hike in the Black Range. Russ Kleinman, leader. Meet 8 a.m. at east parking lot of K-Mart on Hwy 70.

Sep 11 Meeting. Gregory Penn, NMSU doctoral student in botany, will speak on his research.

Sep 14 Field Trip. Hike in Barr Canyon, Organ Mtns. Tom Packard, leader. Meet 8:00 a.m. at east end of Rio Grande Bank parking lot at the corner of University/Telshor.

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.

Jul 27 Field Trip. Mothing with Eric Metzler, preceded by talk about the importance of moths to plants. Location TBD; either White Sands Nat'l Monument or Oliver Lee Memorial State Park. Meet 7:30 p.m. at old Walmart, junction Hwys 54 and 70, in Alamogordo. For more info, contact Eric at spruance@beyondbb.com or 575/443-6250.

Aug 8–11 NPSNM Annual Meeting in Albuquerque.

Aug 14–17 Otero County Fair. We will have our usual booth. We would appreciate any help you can give. Contact Helgi (info above).

Sep 7 Field Trip. Eye of the Needle, Laborcita Canyon. Meet 8 a.m. near Gordon house on Lower Cottonwood Canyon Rd. Brunch/lunch served at the Gordons' after the walk.

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.

San Juan (Southwest Colorado)

The chapter is offering numerous field trips in SW CO in addition to the NM trip listed here. More details can be found at www.swcoloradowildflowers.com. Field trips are free and open to everyone. For further information, call Al at 970/882-4647.

Aug 17–18 Field Trip. Plant ecology at El Malpais Volcanic Fields. Bob Powell, leader. El Malpais National Monument and Conservation Area near Grants, NM.

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. Meetings and talks are free and open to all.

Jul 20 Field Trip. San Gregorio Lake, San Pedro Parks Wilderness. Chick Keller, leader. Meet 9:00 a.m. in Los Alamos.

September Meeting. 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.

Jul 6 Field Trip. Box Canyon, Ghost Ranch. John Ubelaker, leader. Meet 8:00 a.m. at Ranchos Church (across from Martina's Hall). All-day outing to see orchids and waterfall.

Aug 3 Field Trip. Hike to Williams Lake. David Witt, leader. Meet 8:00 a.m. at KTAO parking lot. All-day outing to learn about local mushrooms.

Aug 19 Field Trip (tentative). Learn about composting at New Buffalo. Meet 9:00 a.m. at KTAO parking lot. Half-day outing.

Sep 18 Talk. Native Trees and Shrubs. Jack Carter, author, *Trees and Shrubs of New Mexico.*

Sedgucation *(continued from p. 6)*

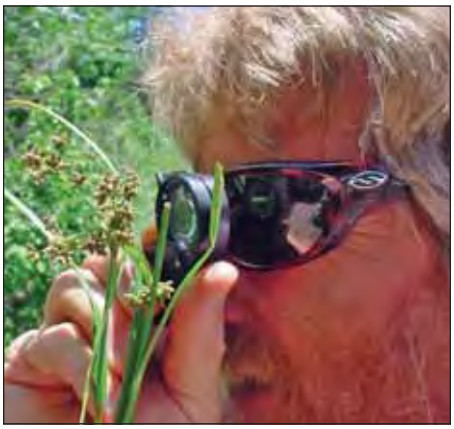
Being wind pollinated, a sedge flower lacks the petals and sepals typically found in insect-pollinated flowers. A given sedge flower consists of stamens and/or carpels (old term: pistil)*, subtended by a single scale.* For those of you who have studied grasses, you know that a grass flower is very similar in design except that it is subtended by *two scales* (i.e., lemma and palea). And a rush flower looks like a miniature brown lily flower with six symmetrically arranged tepals surrounding stamens and carpels. Vegetatively, sedges differ from most grasses in having closed leaf sheaths, which means that the two sides of the leaf sheath that clasps a sedge stem are fused together where they meet, to form a leafy tube that tears when one pulls down on the associated leaf blade. Most grasses (exceptions include the grass genera *Bromus*, *Glyceria* and *Melica*), in contrast, have open leaf sheaths, which means that the two sides of the leaf sheath clasping a grass stem are *not* fused together where they meet.

The previous paragraph got technical all of a sudden, didn't it! That's enough academic stuff for this article, which is intended to inspire interest in this fascinating group of plants. By now, some of you are wondering when I'm going to get around to mentioning the most diverse plant genus in New Mexico, *Carex,* which is indeed a sedge. *Carex* clocks in at almost 90 taxa in this state, with more than a dozen additional *Carex* taxa known from Arizona and Colorado in counties adjacent to New Mexico (and thus potentially waiting to be discovered in this state). If you don't believe me, just ask NPSNM field trip leaders Jim McGrath and Chick Keller, both of whom have discovered the first occurrence of several *Carex* species in New Mexico in recent years. To do justice to *Carex*, I would have to introduce additional structural features of sedge flowers and sedge inflorescences (especially regarding the "perigynium"—a sac enclosing the female flower in all species in this sedge genus) that would require an additional technical paragraph or two to explain, so I omit this information for now. But be aware that many habitats in New Mexico are characterized, at least in part, by specific *Carex* species, such as the white mountain sedge (*Carex geophila)* that greens up the forest floor of montane forests each spring, or the huge hummocks of swamp sedge (*Carex senta*) growing right in the middle of rushing water in the Gila River, or the awl-fruit (*Carex stipata*) and Northwest Territory (*Carex utriculata*) sedges that frequent mountain meadows. So if plant inventory is your aim, you absolutely cannot ignore sedges in the genus *Carex.*

***Cyperus* flower, with carpels and stamen enclosed by scale. Style and stigma of fused carpels protruding; stamens concealed by scale.** (William Norris)

If you are now intrigued by the idea of learning more about sedges in general and *Carex* in particular, consider attending the NPSNM-sponsored workshop on sedge identification July 24–26 at the Valles Caldera Science and Education Center in Jemez Springs (see the previous NPSNM newsletter for more details). Or read the companion article to this one that will appear in the next NPSNM newsletter. Let the sedgucation begin! ❖

Dr. Kelly Kindscher inspects *Scirpus* flower head.



***Carex hystericina* (porcupine sedge) is one of the easiest of the genus to recognize. The perigynia look like little spiny footballs about 2 cm in length. The terminal spike is usually staminate. The lower pistillate spikes are on flexuous pedicels. *Carex hystericina* prefers moist habitat near streams or rivers and is found at middle elevation in the Gila National Forest.**

Spruce of the Gila National Forest: Bellwether of Climate Change

by Richard Stephen Felger, Gila chapter;
Herbarium, University of Arizona, Tucson, Arizona 85721 & Sky Island Alliance, Tucson, Arizona 85717

After moving to Silver City in 2007 I asked if there was a list of the trees of the Gila National Forest region. Since there wasn't, I made my own and embarked on learning about them. That effort resulted in collaborating with Kelly Kindscher on an article on the trees (Felger & Kindscher 2010). Having done a book on trees of the state of Sonora, Mexico (Felger et al. 2001), I decided to continue studying the Gila Region trees, in collaboration with Jim Verrier. While learning about the forest trees I soon realized I was witnessing the receding of the forest due to climate change.

A giant Douglas fir stood at Sandy Point, 9135 feet elevation, on the Bursum Road in the Mogollon Mountains (fig. 1). From Sandy Point a trail leads through Douglas fir, spruce, firs, and pine forest to Bead Spring at 9878 feet and on to Mogollon Baldy. When I hiked to Bead Spring in May 2008, the forest floor was spotted with the spectacular purple flowers of *Calypso bulbosa* var. *americana,* the fairy slipper orchid. Ever since high school I had tried to see it in flower, always too early or too late. *Calypso* and *Goodyera,* rattlesnake orchid, are the only Gila Forest orchids that retain green leaves all year.

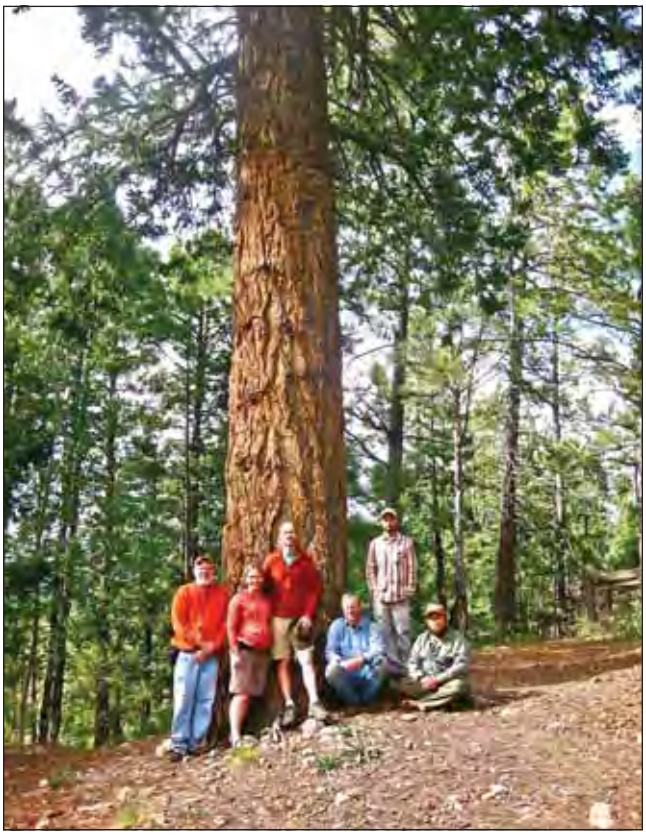


Figure 1. Douglas fir, Sandy Point, September 13, 2009, with (L–R) William Norris, Dorea Klecker expecting Aven, Ed Gilbert, Russ Kleinman, Leith Young, and Patrick Alexander. Photo by RSF.

Arriving at Bead Spring, I was reminded that Kevin Keith had told me that from about 2000 there had been a considerable die-off of white fir (*Abies concolor*) in the Gila Forest region and that spruce (*Picea*) would be even more vulnerable. A substantial number of the larger Engelmann spruce near the spring were declining or had died, although the forest of spruce, white fir, cork bark fir, Douglas fir, white pine, and ponderosa pine shaded most of the trail from Sandy Point and on across the mountain.

In early 2012, Karen Blisard and Russ Kleinman documented a diverse moss flora and more than 10 liverwort species at Bead Spring, the richest assemblage of liverworts anywhere in the Gila Forest (www.gilaflora.com). Bead Spring is at the head of one of three streams that combine to form Willow Creek, which flows into Gilita Creek, which becomes the Middle Fork of the Gila River. Fradkin (1981, p. 54) tells that "Indians supposedly made their offerings of beads at this spring."

Bead Spring, Yoo Bitu'é in Apache, is one of the holiest places, prime in importance among springs. Whitewater Baldy is Nadasai, the principal holy mountain of the east. Springs are highly respected by traditional Apaches. They consider them quite literally as the source of life and the first human people. Mosses, liverworts, and algae are powerful components of some of the most potent healing ceremonies, and the specialists in these types of healing intimately understand the nature of these plants. Elders note with tremendous alarm declines in the diversity, health, and numbers of mosses and liverworts, frogs, fireflies, and many habitats. They see it as marking ecosystem collapse, and not good for the health of the world and humans. They see this near-universal decline as the beginning of multi-ecosystem collapse, with dire forebodings. They see these declines as a direct result of our disrespect towards *Nigosdzán* ("Earth is Woman"—the earth): a sharp warning to us from a people who have no need for a word for "natural world" or "wilderness."

I returned to Sandy Point with Russ Kleinman in November 2012, after the Whitewater-Baldy Fire Complex earlier in the year from May to July. It was the largest fire in recorded history in New Mexico, having begun as two sepa-

Continued page 12

Spruce of the Gila *(continued from p. 11)*

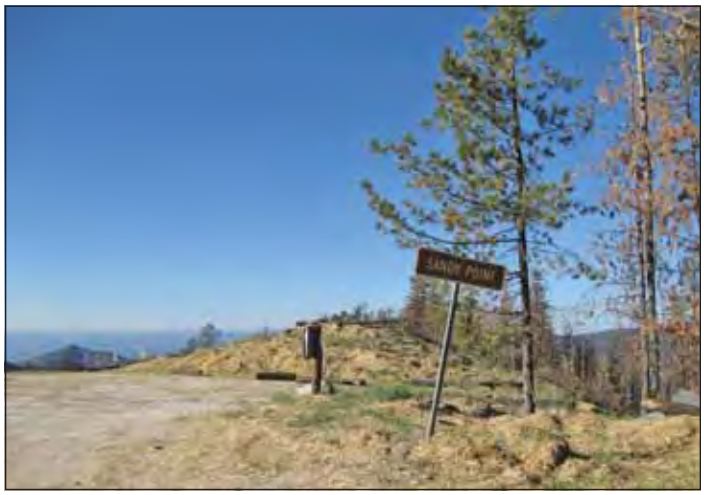


Figure 2. Sandy Point, November 7, 2012. Photo by RSF.

rate lightning-caused fires in the Gila Wilderness. The landmark giant Douglas fir at Sandy Point was gone along with more than 330,000 acres of forest (fig. 2). Here and there we saw remnant pockets of spruce and other forest trees. The once closed canopy as far as we could see was a charred dead stick see-through forest but with a carpet of golden-leaved aspen shoots (fig. 3). They had already grown 3 to 6 feet tall, having sprouted from long-dormant root stocks, adapted for the chance of a forest clearing.

Bead Spring and the surrounding spruce/conifer forest were totally burned, dead blackened trees like dead soldiers lying on top of each other beneath the cold open sky (fig. 4). The spring flowed cool and clear but had downcut a new channel. There were no mosses and no liverworts. The ground was muddy and squishy and elk trampled. Quaking

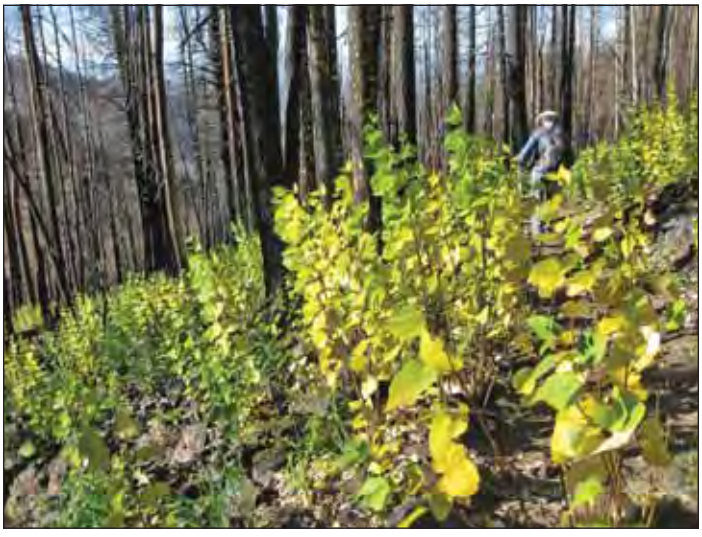


Figure 3. Aspen and conifers on the trail to Bead Spring, November 7, 2012. Photo by RSF.

Figure 4. Bead Spring, November 7, 2012. Photo by RSF.

aspen (*Populus tremuloides*) and some Scouler willow (*Salix scouleriana*), Rocky Mountain maple (*Acer glabrum*) and New Mexico elder (*Sambucus coerulea*) had resprouted, but not the conifers (spruce, firs, pines, and Douglas fir).

Here is an excerpt for spruce from *The Trees of the Gila Forest Region, New Mexico*, a work in progress co-authored with Jim Verrier.

Picea, Latin for pitch, and the pitch pine. Spruce; *abeto* (Spanish)

Large, conical or spire-shaped trees occurring at highest elevations. Bark gray or brown, scaly with thin plates, sometimes with resin blisters, becoming thick and furrowed with age. Branches whorled; twigs roughened by persistent, peg-like leaf bases. Leaves single, spreading in all directions, generally firm. Cones maturing in one year, pendent, falling entire, the cone scales thin, slightly papery, persistent, and not spinescent. Seeds winged.

There are about 35 species of spruce in north temperate regions worldwide. Two species are native in New Mexico and cultivated in Silver City and elsewhere in the state. Spruce trees in the Gila Region are restricted to the highest mountains. The most extensive spruce forest in the Gila Forest region was in the Mogollon Mountains, but the Whitewater-Baldy Complex fire of early summer 2012 devastated much of that forest. Gila Region spruce often grows with *Abies concolor, Pinus ponderosa, P. strobiformis, Populus tremuloides*, and *Pseudotsuga menziesii*.

Continued next page

Spruce of the Gila *(continued from p. 12)*

The two New Mexico spruce species are sometimes difficult to distinguish. Engelmann spruce has finely pubescent twigs, cones mostly less than 6 cm long, and the cone scales extend 3–8 mm beyond the seed-wing impression. Blue spruce usually has glabrous twigs, cones mostly 6 cm or more long, cone scales extending 8–10 mm beyond the seed-wing impression, and leaves firmer and more sharply tipped (often spinescent) and generally shorter and thicker than those of Engelmann spruce.

The spruce dwarf mistletoe (*Arceuthobium microcarpum*) is sometimes found on spruce. This is the most delicate dwarf mistletoe in the region, the branches rarely more than 5 cm long.

Picea engelmannii subsp. **engelmannii** (for George Engelmann, 1809–1884, American botanist). Engelmann spruce

Local distribution: Mixed-conifer forest in the Mogollon Mountains mostly above 9300 feet. Also in the Black Range on Hillsboro Peak, where in October 2010 a single tree was discovered by Cedric Hayes and other students from Aldo Leopold High School in Silver City, and additional trees were located at a later date. Robert Winston located a stand of about ten young trees on the north side of McNight Peak in 2012. Presumably there were more of these trees in the Black Range, but many have probably been lost to fire and perhaps climate change.

General distribution: Pacific Northwest southward in scattered mountains to Sky Islands in southern New Mexico and Arizona. Subspecies *engelmannii* is replaced by subsp. *mexicana* in montane areas in Mexico (*see* Earle 2010). The usual potential life span is 450 to 559 years (Loehle 1988). One of the oldest known specimens is from the Rocky Mountains and is at least 852 years old (Brown et al. 1995).

At its northern geographic limits this species passes freely (hybridizing and/or intergrading) into the north-temperate and arctic white spruce, *Picea glauca*. Engelmann spruce is common and the only spruce on the Pinaleño Mountains in southeastern Arizona.

Picea pungens (pungent, ending in a sharp, hard point, referring to the leaves). Colorado blue spruce (fig. 5).

Local distribution: Mixed-conifer forest, mostly above 8000 feet. Common in higher forested zones in the Mogollon Mountains, such as Willow Creek, and in 2011 observed on north-facing slopes as low as about 7500 feet on the road from Willow Creek to Reserve. The foliage varies from tree to tree, either green or bluish without apparent pattern. Blue spruce is more common and wider ranging in the Gila Region than Engelmann spruce.

Blue spruce occurs in montane forests in intermountain areas of western United States, with southern limits in southern New Mexico. It is cultivated in temperate regions worldwide. There are many horticultural selections, especially for the blue to silvery color. Juvenile trees are widely sold as Christmas trees. The oldest known blue spruce is 600 years old (Moir 1992).

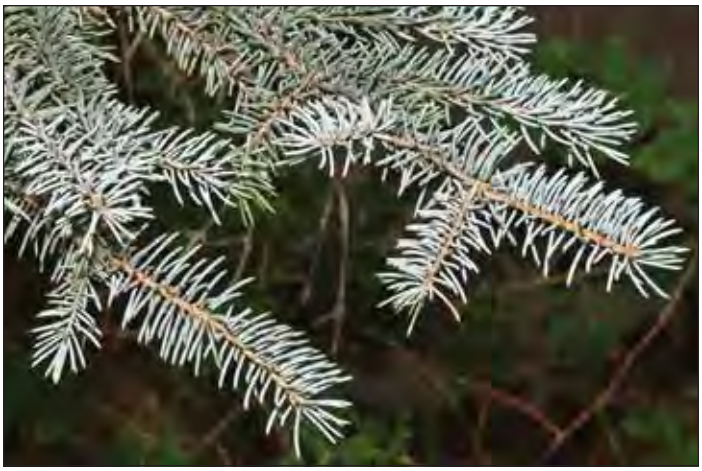


Figure 5. Blue spruce, Sandy Point, September 24, 2008. Photo by Elroy Limmer.

Continued page 14

Spruce of the Gila *(continued from p. 13)*

Nigosdzán

Forest fires of course are natural and healthy choreographers of western forests, but too often nowadays we have too-large and too many hot crown fires, largely a heritage of earlier fire suppression. Climate change brings longer times between the last and first killing freezes, allowing extra generations of bark beetles and other insects, including non-native invasive species. These combinations and drought portend poorly for our Sky Island forests. To protect the forest is to know the trees and respect Nigosdzán.

Acknowledgments

Many friends have helped my studies of Gila Forest trees. I especially thank Kelly Allred, Karen Blisard, Wayne Brown, Kevin Keith, Kelly Kindscher, Russ Kleinman, Elroy Limmer, Bill Norris, Seth Pilsk, Silke Schneider, Lee Stockman, Jim Verrier, Ben Wilder, Robert Winston, and the Thursday hiking friends.

Postscript

This article was written some days before the June 2013 "Silver Fire" in the Black Range in the Gila National Forest, which appears to be consuming remaining stands of spruce and cork bark fir (*Abies arizonica*).

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The 2013 Annual Meeting in Albuquerque will feature fascinating speakers from an unusually wide variety of professional disciplines. But one hour on Saturday afternoon has been reserved ***just for you***. The Program Subcommittee encourages you to submit a proposal for an illustrated talk ***you*** would like to present.

Proposal Guidelines

- Talks should be planned to last no longer than 15 minutes.
- Your topic can be anything related to New Mexico native plants.
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- If you send it by snail mail, please include 5 copies of it for distribution to the program subcommittee. (If you send it by email, Sandra will simply forward your proposal to the members of the subcommittee.)
- Your proposal should be received by June 15, 2013. (**If you've missed that deadline**, you may see if there's still a time slot available by contacting Sandra Lynn at 505/256-2594 or sandra.d.lynn@gmail.com.)

Only three presenters will be selected. You will be notified as soon as the committee has made its decision.