Sego Lily
Newsletter of the Utah Native Plant Society

September 2013
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In this issue:

Alpine Collomia (*Collomia debilis* or *Collomiastrum debile*) is a perennial alpine or subalpine herb characterized by sprawling, rhizome-like stems that grow interspersed among rock talus. Growth of these stems (technically called sobols) allows the plant to adapt to rockslides. Collomia is a small genus in the phlox family (Polemoniaceae) named for the glue-like coating on its wet seeds. Photo taken by Steve Hegji in Timpanogos Basin, July 2013.

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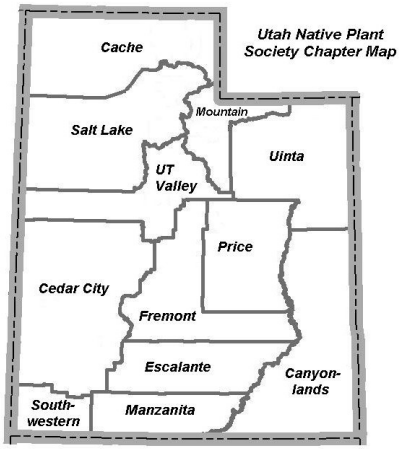
Chapter News

Fremont (Richfield area): During the summer months when everyone is busy with travel and family we decided to postpone any lectures. However, our native plant garden at Sam Stowe Campground at the Fremont Indian State Park has been our excuse to escape and relax to get away from the demands of summer. We are planning with the park to expand the garden to include the adjacent perennial stream. If you are traveling along I-70, please visit the museum and get directions to our native plant garden.—*Janett Warner*

Manzanita (Kane County): Our first fall meeting be on Friday, September 20 and feature Janett Warner from Wildland Nursery in Joseph. Janett will give a presentation entitled "Getting to know the Natives: Successful gardening with native plants" at 7 PM in the public meeting room of the Grand Staircase-Escalante NM visitor center in Kanab. The following



day, Janett will have a selection of native plants for sale at the Kanab Farmers Market.—*W. Fertig*

Salt Lake: As you read elsewhere in this issue, we are saddened by the loss of Ann Kelsey, after a long battle with leukemia. She was the most naturally gentle yet passionate advocate for our native plants. We shall miss her greatly.

Elise Erler is taking over from me as chapter President. I thank her and hope that all members will give their support.

Our first chapter meeting of the new season is at 7:00 PM, Wednesday, September 4th, at REI (3300 East on 3300 South in Salt Lake City). This is our traditional UFO (Unidentified Flowering Objects) night. Response has been tremendous, with close to 200 photos submitted. I am building these (actually, not all of them!) into a program with identification tips, flower lore, and just plain enjoyment of lovely photos. The following meeting will be October 2nd, with Rita Reisor and Tony Frates bringing us up to date about Utah's rare and endangered plants—*Bill Gray.*

Southwestern (Bearclaw poppy): The next meeting of the Southwestern chapter of UNPS will be on Tuesday, September 10th at 7 PM in the Canyon Community Center in Springdale. The meeting will feature Brian Black, lead biological science technician of Zion National Park, who will speak about the "High Priority Weeds of Zion." - *Barbara Farnsworth*

Bulletin Board

UNPS Annual Members Meeting, Saturday November 16: The Utah Native Plant Society annual members meeting is scheduled for Saturday, November 16 at Utah Valley University. The formal meeting will begin at 3 PM with a short UNPS business meeting, followed by a presentation by UVU herbarium curator Jason Alexander entitled "Can digital image vouchers increase the participation of citizen scientists in herbarium research?" After this presentation, there will be a potluck dinner with a New World cuisine theme. Early birds may wish to take part in a session from 1-3 PM on digitizing and mounting plant specimens. The volunteer session will be in room SB277 in the Science Building on the UVU campus, with the formal meeting and potluck next door in SB 275. See the notice on herbarium days at UVU (below) for additional information on parking.

Herbarium Days at Utah Valley University, Saturday September 21st, October 26th, and November 23rd: The UVU Herbarium is holding another series of volunteer days for mounting and digital imaging of specimens. Volunteer activities will take place in SB 277 in the Science Building and run from 1 PM until 5 PM. The herbarium will also be hosting a Utah Valley Chapter meeting toward the end of the volunteer session around 4 PM, where I will be continuing my education seminar series on difficult-to-identify Utah plant families and digital vouchering of plants in the field. Parking: The Lakeside Parking Lot is now faculty parking and not a visitor pay lot. On weekends, this lot is free parking. The lots between the UCCU events center and the library are recommended alternative parking locations. For further information, please call me (801-863-8606) or email (alexanja@uvu.edu) - *Jason Alexander*.

Calochortiana Volume 2 Deadline: The deadline for submissions for the second edition of the Utah Native Plant Society's annual technical journal, *Calochortiana*, is 15 October 2013. The inaugural issue is posted on the UNPS homepage (www.unps.org). For more information on format and review requirements, potential authors should contact *Calochortiana* editor, Walter Fertig (walt@kanab.net). Volume 2 of the journal will come out in the winter of 2013/14.

Upcoming Rare Plant Meetings: The Idaho Native Plant Society is hosting the 26th Idaho Rare Plant Conference on October 23-24 2013 in Boise, ID. The meeting will include updates to the INPS rare plant list, presentations on rare plant conservation, and a field trip. For more information, go to the Idaho Native Plant Society website.

Mark your calendars for the annual UNPS-Red Butte Garden Utah rare plant meeting, scheduled for Tuesday, March 4 at Red Butte Garden. Look for more details in the next issue of the *Sego Lily*.

The Sixth Southwest Rare Plant Conference is scheduled for February 20-21 in Tucson, hosted by the Arizona Native Plant Society and the Desert Botanical Garden. More details will be in the November issue of *Sego Lily*.

Unidentified Flowering Object

This month's UFO is a low-growing perennial from sandstone mesa rims in the San Rafael Swell. It is in flower, but only the sepals are colorful. Any guesses?

The July UFO photo was *Mentzelia thompsonii*, a Mancos Shale endemic from western Colorado and eastern Utah. Have a UFO to share? Send it in! - *W. Fertig*

In Quotes

"Having to squeeze the last drop of utility out of the land has the same desperate finality as having to chop up the furniture to keep warm" - *Aldo Leopold*.

Ann Kelsey (1948-2013)

On August 16, we lost one of the most beloved members of the Utah botany community when Ann Kelsey lost her rematch with cancer. Ann was the manager of the Garrett Herbarium from 1990-2013. When the herbarium moved to its new home at the Rio Tinto Center, Ann and volunteers collected plant seed and bulbs from the grounds to help restore the landscape after construction was completed. Many of her beautiful plant specimens grace the exhibits at the Natural History Museum.

In March, 2012, Ann's friend and colleague Beth Corbin named a remarkable new species of milkvetch in her honor, *Astragalus kelseyae*. Beth described the origin of the name in the July 2012 issue of *Sego Lily*:

The name Kelsey milkvetch is in honor of my dear friend Ann Kelsey, plant collection manager at the University of Utah and everyone's favorite native plant champion, with whom I've spent many pleasant field days in Utah's mountains and deserts, bowing to especially worthy plant friends. I'm very pleased to be able to recognize her with this appropriately pretty plant.

Ever humble and gracious, Ann left the following message to her friends in her obituary in the *Salt Lake Tribune*:

I have met such remarkable people through my work—first at the Marriott Library—but my greatest joy was working for 23 years as the botany collections manager for the Garrett Herbarium at the Natural History Museum of Utah. It has been a great honor and privilege to work with this dedicated band of people and be part of the work that they do. Thanks, you guys, you're very dear to me. Through the herbarium work I have been associated with the botany community in Utah and I have greatly enjoyed my association with all of you. You've meant a lot to me.

Above: Ann Kelsey (at left) introducing school children to cattails and other plants. Photo courtesy of the Salt Lake Center for Science Education.

Ann Interviews the Angel — by Bill Gray

First, will there be lots of flowers?

Of course there will -

who would want to come here otherwise!

And will I recognize them and know their names?

You will meet a lot of old friends -

but many more that will be quite new to you.

Hmmm. Will there be a good key I can use?

No, that's quite unnecessary -

just introduce yourself and they will do likewise.

Sounds like my kind of place! Sign me up.

Should Mountain Goats and Wildflowers Mix in the La Sals?

By Walter Fertig

A few summers ago my wife and I were hiking on Mount Roberts, just outside of Juneau, Alaska. It was an especially memorable day because of the display of alpine wildflowers and the bright, sunny weather (a rarity in southeast Alaska). We reached a saddle at the top of the trail and paused to take in the scenery. To our west were the snowy peaks of Chichagof Island separating the inland passage from the Pacific Ocean. To our east were the high crests of the Coast Range, stretching clear to British Columbia. Below us was a mostly barren boulder field with occasional patches of late-lying snow.

But suddenly one of the snow banks moved. It was not an avalanche, but a snow-white mountain goat rising from its nap. The humpbacked goat* ambled off across the talus on some appointment only he or she knew (male and females look identical).

Watching this mountain goat was a great thrill and capped a wonderful day. Mountain goats are beautiful animals and seeing one in the wild is always memorable. Yet when I recall the first mountain goat I ever saw, I have a slightly different feeling. It was in the Beartooth mountains of northwestern Wyoming where I observed a small herd while mapping the distribution of rare alpine plants. I felt a twinge knowing they were out of place. Mountain goats were deliberately released in the Beartooths in the 1940s for the benefit of hunters and wildlife enthusiasts.

Mountain goats are native to the northern Rocky Mountains from Alaska to northern Washington, central Idaho, and northwestern Montana. They were not historically known from the Beartooths or other high mountain chains in the central and southern Rockies, despite the presence of potentially suitable habitat. In the 20th Century, state and government agencies began releasing goats to many of these areas, including the Olympic mountains of Washington, the central Rockies of Colorado, and the Wasatch mountains of Utah. With their well-insulated and camouflaged coats and specially-fitted hooves, mountain goats are well-adapted for life in rocky cliffs above treeline. Most introductions have been very successful, and in many areas herds are large enough to allow hunting. Demand greatly exceeds the supply of permits, making goat introductions popular (and profitable) for state fish and game departments. efforts to have the goats removed.

Unfortunately, introducing animals and plants to new locations outside their natural range often has unintended consequences. European starlings were released in New York's Central Park in 1890 by an organization that wished to introduce all of the birds mentioned in Shakespeare's plays. Within decades, starlings spread across the entire continent, crowding out native songbirds. Nonnative plants such as kudzu, tamarisk, and multiflora rose were actively promoted by the government to reduce soil erosion before proliferating to become major agricultural pests today. Nearly 5000 plant species have

*Above: Mountain goat (*Oreamnos americanus*) by W. Fertig*

*Technically, mountain goats belong to their own taxonomic group, the goat-antelopes and are most closely related to the European chamois. *Oreamnos americanus* is the only surviving species.

been introduced in North America over the past five centuries. The Weed Science Society of America has estimated that invasive weeds cause $4 billion in losses to farmers each year. An exotic insect, the boll weevil, has cost the cotton industry an estimated $13 billion.

Introduced mountain goats are no exception in causing ecological damage to their new lands. Goats were brought to the Olympic mountains in the 1920s by the US Forest Service and a local hunting group, ostensibly to provide hunting opportunities. When the area became a National Park in 1938 hunting ceased and the herd began to grow, topping 1000 animals by 1980. Mountain goats have had a negative impact on the vegetation of the park, primarily from trampling and digging dust wallows in the thin alpine soil. At least 12 rare vascular plant taxa are endemic to the Olympics and are potentially threatened by the expanding herd. Similar problems with introduced mountain goats have been documented in Rocky Mountain National Park and other high peaks in Colorado. Efforts by the park service to reduce mountain goat numbers by transporting surplus animals to other areas or by sterilization have had limited long-term success. Proposals to shoot goats have met with stiff resistance from the public, with as many as 70% of Washington state residents siding with the goats.

Mountain goats were first introduced to Utah in 1967. Since then, the Utah Division of Wildlife Resources (DWR) has established 12 herds in the Wasatch, Uinta, and Tushar ranges. At present, there are about 2000 mountain goats in the state. DWR issued 175 goat permits in 2012. Demand for permits is high; the odds of in-state residents getting a tag is 29:1 and out-of-state hunters 222:1. Non-resident tags cost over $1500.

This May, DWR presented an updated management plan for mountain goats in Utah that called for a new round of introductions in the La Sal and Deep Creek ranges. The proposal was protested by environmentalists, prompting DWR to hold public hearings this summer. DWR denied that the introduction was just to increase hunting opportunities, noting that goats are a popular tourist attraction.

*Above: La Sal daisy (*Erigeron mancus), *one of ten locally endemic or rare plants found in the alpine zone of the La Sal Mountains. Photo by Sarah Topp.*

The Division has also suggested that mountain goats may, in fact, be native to Utah. They cite an anecdotal Forest Service report from 1917-18 estimating 25 goats in the Wasatch Range. Unfortunately, there are no skins, skeletons, or photographs to corroborate this or any other report. Fossil evidence has been found of a second, smaller *Oremanos* species, commonly called Harrington's mountain goat, from caves in the southwest (including a site near Baker, Nevada just west of the Utah state line), but this species became extinct in the Pleistocene.

Nonetheless, DWR defended its proposal in the draft management plan. "Regardless of their native status to Utah, they are currently native to the North American continent and the Northern Rocky Mountains. The DWR's position is that mountain goat habitat exists in Utah, as indicated by the success of introduced populations. As such, the DWR believes mountain goats are a valuable addition to our wildlife resource diversity and are a legitimate part of our modern Utah faunal landscape." On August 22, the Utah Wildlife Board, which is appointed by the Governor to oversee DWR, voted to approve the agency's plan and begin releasing goats in the La Sals (introductions in the Deep Creeks will come later).

Like the Olympic mountains, the La Sals are an isolated range with a suite of locally endemic plant species that did not evolve with mountain goat herbivory, trampling, or wallowing. Among the rare alpine plants are Unexpected groundsel (*Senecio fremontii* var. *inexpectatus*), La Sal groundsel (*S. dimorphophyllus* var. *intermedius*), and La Sal daisy (*Erigeron mancus*) - all of which are restricted to the La Sals or Uintas in Utah. La Sal daisy is on the US Forest Service Sensitive species list and populations have been monitored for several years as potential indicators of vegetation response to climate change. Several other uncommon plant species only occur in the La Sal Range in Utah, including Parry's wormwood (*Artemisia parryi*) and black-headed daisy (*Erigeron melanocephalus*).

The alpine summits of Mt. Peale, Mt. Mellenthin, and Mt. Tukuhnikivatz in the La Sals were designated as the Mount Peale Research Natural Area (RNA) by Manti-La Sal National For-

est in 1988 in recognition of their ecological values. RNAs are used by the Forest Service as reference areas or to protect good examples of common or unusual vegetation types. There are no barriers to prevent mountain goats from occupying the RNA. For its part, the Forest Service asked that the goat release be postponed until further studies were completed, but did not actively oppose goat introduction.

DWR plans to initially release 20 mountain goats in the La Sals, all of which will wear radio collars so that they can be easily monitored. Previous releases elsewhere in Utah have been similarly small at first. In the absence of predators and with good habitat, the herd may grow to 200 animals. A DWR official was quoted in the August 31 issue of the Salt Lake Tribune as saying that goats should have no impact on alpine vegetation if the population is "set and maintained at a low enough density."

Time will tell whether mountain goats have the same deleterious impacts on the vegetation of the La Sals as they have at other sites outside their historic range. But even if there are no impacts, are such introductions a good idea? Just because mountain goats can live in the La Sals, should they?

Some philosophers have argued that since humans are part of nature whatever we do is, by definition, "natural." Others claim that assigning nativity to species is a form of bias, not unlike racism or nativism - the political or ethnocentric thought that immigrants are inferior to those who are already present. DWR has essentially put forward the argument that the niche once occupied by the extinct Harrington's mountain goat is unfilled. If people want to observe or hunt goats in Utah, rather than traveling long distances to Alaska, Canada, or the northern Rockies, then they should be allowed to do so.

If introducing species is natural because humans do it then the same argument could be made to justify conservation of native species and wildlands. The problem arises, as is so often the case with resource management debates, in the desire to do two or more competing or mutually exclusive activities at the same site. Society may choose to have mountain goats in some alpine wilderness areas in the state, but it hardly seems necessary that goats be introduced to all potential sites. Certainly a case can be made to keep some areas goat-free for those who prefer other values.

Biologists and conservationists should be careful in how we define native vs. non-native species and cautious in avoiding value judgements. Typically, species are considered native if they are found within their area of presumed evolutionary origin, or migrated to a site without human intervention*. But often there is little direct evidence to support whether a species is native or not, and a number of "weedy" species have been demonstrated to be at least partly native (see September 2011 *Sego Lily*). With the possible exception of goatheads (*Tribulus terrestris*), there is nothing inherently evil about nonnative species— they simply occur in places where we often don't want them. Responsibility for their negative impacts rests with us.

But should our wildlands be a glorified menagerie of whatever species can survive there, either by accident or to suit our whims? Seeing a mountain goat in the wild is truly a thrill, and I recommend it to everyone. But it is not unreasonable to suggest that people travel to the northern Rockies to do so. I would love to witness lions, cheetahs, and camels in nature —all of which once roamed wild in North America before becoming extirpated in the late Pleistocene —but I don't expect the government to introduce them into wild places of Utah on my behalf.

And finally, what of the native plants of the La Sals and Deep Creeks? The La Sal fleabane is a very handsome plant with its pom-pom like heads of bright yellow disk flowers and deeply divided, fern-like foliage. It apparently evolved in isolation from its closest relatives, the ubiquitous cutleaf daisy (*Erigeron compositus*). The species may be an important bellweather for climate change in its alpine habitat. There is still much to learn about the other endemic and rare plants of the high mountains.

There are plenty of places to see and enjoy mountain goats, but only one place to see the La Sal fleabane. Once it is gone, it is gone for good.

*Ironically, mountain goats are thought to have evolved in Asia and migrated to the northern Rockies in the Pleistocene under their own power, only to later become extinct in the Old World.

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Camas in Utah

Article and photos by Dr. Ty Harrison, Emeritus Professor of Biology, Westminster College

In June 2013 I found several large populations of the beautiful, but elusive, Camas (*Camassia quamash*) at the north end of the Strawberry Valley. I had glimpsed a few along the road southwest of Strawberry Reservoir about 20 years ago, so I knew the plants were there. As an invited instructor for the Great Salt Lake Audubon's yearly Basin and Range seminar, I was to teach several sessions on "The Wildflowers of Strawberry Valley". So several days before I did the proper thing, and scouted the area to see what was in bloom at this elevation of 7650 feet. On turning east from U.S. Forest Road 131 at the Strawberry Bay fee station, and looking for the group camp area nearby, I was astounded to find the largest population of Camas that I have ever seen, growing in a broad swale with a meandering creek flowing between the Strawberry Bay road and the upper campgrounds. There were thousands of plants! Some were so thick they painted the meadow with a blue haze. I was flabbergasted. And as a bonus, there was a garden of other associated wildflowers just starting to bloom in the wet meadow. This unique site is protected from grazing animals by being inside the fenced area of the campground. It stretches along this swale from near the fee station down to the edge of Strawberry Reservoir. The plants occur scattered through the campground on upper, well drained slopes, but are more common in the wetter swale bottom. Soils were very rocky but the population was dense, with only a space of 3-4 inches between most of the plants.

As I began my research in preparation for my upcoming wildflower "nature creep" for the Audubon members, I checked the internet USDA PLANTS database, and was surprised to find that these Utah plants are identified as the Utah Small Camas (*Camassia quamash* (Pursh) Greene ssp. *utahensis* Gould) which is smaller than the typical species of the Pacific Northwest. The distribution map of the USU Digital Atlas of the Vascular Plants of Utah (http://earth.gis.usu.edu/plants/), shows that this important population around Strawberry Reservoir is at the extreme southern limit of the species distribution in North America. We know that populations at the edges of their range are often genetically unique and important.

Above: Typical Camas wet meadow south of Daniels Summit with willows and Veratrum.

As one of the botanical consultants for the celebrated University of Nebraska Press publication of the Lewis and Clark Journals, I had read the famous entry of Meriwether Lewis when he was at Camp Chopunnish on the Clearwater River in Idaho County, Idaho. The place is now called Kamiah, Idaho and is near the western end of the Lolo Trail. In his journal entry on Wednesday June 11th, 1806, Lewis described the Camas plant and its flowers in exquisite botanical detail because he knew it was new to science and he must have had live plants in flower to have described it so thoroughly. The plant's scientific description was later published by Fredrick Pursh from a pressed specimen that Lewis collected on June 23, 1806 at Weippe Prairie. See Fredrick Pursh, *Flora Americae Septentrionalis: or A Systematic Arrangement and Description of The Plants of North America*, variously dated as published in 1813 or 1814. The complete book can be read on-line at http://www.botanicus.org/title/b11729004.

The Camas and its ethnobotanical use by the Nez Perce Indians can be found on pages 13-21 of Volume 8 of the Journals of the Lewis & Clark Expedition, Gary E. Moulton, Ed. Univ. of Nebraska Press, 1993. Lewis describes how bushels of the bulbs were collected with digging sticks, roasted

in heated stone pits, formed into small loaves and then dried for storage and trade. Based on his writing he must have seen and recorded this first hand. Lewis described how plants were a major food item and cooked with many other foods.

It is noteworthy that Lewis saw and collected the Camas in Idaho at exactly the same time I saw the plants blooming in the Strawberry Valley. The elevation at Weippe Prairie in Idaho is 3000 ft. while the Strawberry Valley Camas plants are found above 7600 feet. *Camassia quamash* ssp. *utahensis*, as described in the Flora of North America (http://www.efloras.org/florataxon. aspx?flora_id=1&taxon_id=242101517) is distinguished from the other western subspecies by having flowers which dry over the capsules, and "tepals pale to deep bluish violet, 16–31 mm; anthers dull yellow to violet; s Idaho, n Utah". It is not clear why the different sub-species would have exactly the same flowering period at such different elevations.

I was able to locate two other large populations (thousands again) approximately 6.5 miles to the northwest along U.S. Highway 40 immediately south of the Main Canyon Road turn off, just south of Daniels Canyon summit. This population is at lat 40.291229°, long -111.249408° at 7890 ft. elevation, visible from the highway when the plants are in bloom. The plants here flowered slightly later than the Strawberry Campground population. A third population was found 0.6 miles to the south west at lat 40.283483°, long -111.246213° along the same drainage south of Daniels Summit.

By observing the conditions of these three dense, but separate populations we can begin to understand the ecology of this rare Utah plant. It is clear that the plants require a stable and predictable amount of moisture. The Strawberry Campground population, which I am calling "Camas Swale", grows on a northeast-facing slope which probably receives significant melt water from snow drift accumulation areas as well as from the ephemeral stream which drains down the swale toward Strawberry Reservoir, all inside the campground fence. The other two Daniels Pass area populations are found exclusively in spring seep areas where ground water springs issues from the base of rocky alluvial fans that have been deposited at the mouth of minor canyons entering from the west. The Camas plants are associated with the Corn lily (*Veratrum californicum*) which is also a spring-seep obligate species. There is an interesting assemblage of wet meadow taxa, some of which I had never seen before. Mixed among the Camas plants were Parry lousewort (*Pedicularis parryi* var. *parryi),* Rydberg clover (*Trifolium longipes*), Longleaf starwort (*Stellaria longifolia*), Alpine sorrel (*Rumex paucifolius*), and Toad lily (*Montia chamissoi*) as well as a number of more common species such as the Small flowered penstemon (*Penstemon procerus*), Gauge plant (*Senecio integerrimus*), and Slender cinquefoil (*Potentilla gracilis*).

The Utah camas is worthy of cultivation in our gardens as a spring flowering bulb, but more importantly, it was first discovered by the Lewis and Clark expedition and is an important historical reminder of how Native Americans utilized native plants for their survival.

Below: Close-up of flowers of Camassia quamash *ssp.* utahensis*.*

Botanica:

Odds and Ends from the World of Botany

by Walter Fertig

Gierisch's globemallow listed as Endangered: On August 13, the US Fish and Wildlife Service (USFWS) published a final rule in the Federal Register listing Gierisch's globemallow (*Sphaeralcea gierischii*) as Endangered under the US Endangered Species Act. This orange-flowered member of the mallow family is known from only 18 locations in southern Washington County, Utah and adjacent Mohave County, Arizona. Gierisch's globemallow is restricted to gypsum-rich clay soils derived from the Harrisburg Member of the Kaibab Formation. The species is threatened by gypsum mining, competition from non-native annual weeds, and habitat degradation from livestock grazing and unregulated off-road vehicle recreation.

Above: Gierisch's globemallow along the Utah-Arizona state line. Photo by W. Fertig.

Gierisch's globemallow was first collected in 1978 by the late Ralph Gierisch, but remained unrecognized as a new species until named by Duane Atwood and Stan Welsh of Brigham Young University in 2002. *S. gierischii* resembles Rusby's globemallow (*S. rusbyi*) and Moore's globemallow (*S. moorei*) in having bright green, nearly hairless, and deeply cleft leaves (other globemallows have grayish-white densely hairy foliage or less divided leaves). The species is distinctive in having large flowers and a glabrous calyx.

Most populations occur on BLM or state trust lands managed for multiple use (including grazing, recreation, and gypsum mining). Surveys in 2012 by retired BLM botanist Lee Hughes suggests that the entire population contains about 10,000-15,000 individuals.

In a separate notice, USFWS has designated 12,822 acres as critical habitat. Such lands are considered vital to the conservation of a listed species. Federal agencies are required to consult with the Service before funding or permitting activities on formally designated critical habitat that might destroy or degrade habitat used by a species.

Gierisch's globemallow is one of 23 Utah plant species currently listed as Threatened or Endangered by the USFWS. Another six species are candidates or have been proposed for future listing.

Graham's penstemon and White River penstemon proposed for listing: Two of Utah's rarest Penstemon species were proposed for listing as Threatened under the US Endangered Species Act on August 6, 2013. The US Fish and Wildlife Service is seeking additional technical information pertinent to the potential listing of Graham's penstemon (*Pen-stemon grahamii*) and White River penstemon (*P. scariosus* var. *albifluvis*) by October 7, 2013. Electronic comments can be submitted at www.regulations.gov under docket # FWS-R6-ES-2013-0081. Comments can also be sent by mail to Public Comments Processing, Attn: FWS-R6-ES-2013-0081; Division of Policy and Directives Management, US Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042-PDM; Arlington, VA 22203.

Both species are endemic to the Uinta Basin in northeastern Utah and northwestern Colorado and are found on outcrops of the Green River Formation. Unfortunately, these areas contain rich deposits of oil shale, oil, and natural gas which are being actively developed. Over 90% of the range of *Penstemon grahamii* and 100% of the range of *P. scariosus* var. *albifluvis* is on lands already leased or slated for mineral leasing. The survival of both species is also threatened by road construction, competition from invasive annual weeds, dust, grazing, OHV recreation, and inadequate protection. At present, Graham's penstemon is known from 24 main

Above: Graham's penstemon by Keith Megown, USFS.

populations with an estimated 31,700 individuals. White River penstemon is found at 7 confirmed sites with 11,400-25,000 plants.

Graham's penstemon was first proposed for listing under the Endangered Species Act in 1975 and White River penstemon was added to the candidate list in 1983. In January 2006, the USFWS published a notice in the Federal Register proposing to list Graham's penstemon due to high threats from mineral development and surveys indicating downward population trends. This proposal was rejected in December 2006 based on input from the Bureau of Land Management that challenged these assumptions and the findings of the Service's external peer reviewers. The non-profit Union of Concerned Scientists investigated the Service's reversal and found evidence of deliberate misinformation by the Bureau to keep the species from being listed and interfering with oil shale development in the Uinta Basin (see www.ucsusa.org/scientific_integrity/abuses_of_science/blm_prevents_listing_of_an.html). In 2008 the Center for Native Ecosystems and other conservation groups (including the Utah and Colorado native plant societies) sued the Service to reverse the decision. The US District Court for Colorado ruled in June 2011 that " [US]FWS violated the ESA in withdrawing the proposed rule to list Graham's penstemon by failing to consider the threats in combination, ignoring or disregarding the best available scientific and commercial information, and relying on undetermined or unspecified conservation measures which were not implemented or established to be effective." As a result, the December 2006 decision to drop the species as a candidate was vacated and USFWS was ordered to reconsider listing. The proposal to list White River penstemon was also prompted by a recent court settlement requiring the Service to clear the books on a number of long-time candidate species.

Listed plant species receive less overall protection from harm than animals. Nonetheless, ESA protection will result in improved standards for mineral leasing that should reduce negative impacts to the plants and their habitat. Several other uncommon Green River shale endemics that co-occur with the penstemons, such as *Aquilegia barnebyi, Astragalus lutosus*, and *Eriogonum ephedroides*, should also benefit.

Susan Meyer Receives Award for Rare Plant Work: Dr. Susan Meyer, research ecologist at the Rocky Mountain Research Station Shrub Sciences Laboratory in Provo, was honored by the US Forest Service in July with the agency's "Excellence in Rare Plant Management Award." Meyer should be well known to UNPS members for her tireless work in promoting native plants in home and community gardens, and recently was lead author of a popular guidebook *Landscaping on the New Frontier* published by Utah State University Press. Perhaps less known is Meyer's long career as a researcher on plant ecology, propagation of rare species, and population viability analysis.

In particular, the Forest Service commended Meyer for her work on the conservation biology of two extremely rare endemics: Slickspot Peppergrass (*Lepidium papilliferum*) and Clay phacelia (*Phacelia argillacea*). For 16 years, Meyers worked with the Idaho National Guard to study the habitat requirements, life history, seed bank dynamics, and population trends of *L. papilliferum* on the Snake River Plain of southwestern Idaho. This federally Threatened species is restricted to small, clay-lined depressions in sagebrush communities and is being impacted by grazing and development. Listing this species was controversial, but Meyer's research on population dynamics proved critical in gaining the plant some protection.

Clay phacelia is listed as Endangered and is known from only two populations in Spanish Fork Canyon in northern Utah. Meyer and colleagues conducted studies on the germination requirements and pollination biology of this species. This work has greatly increased the number of seeds available for reintroduction into the wild. To date, seeds have been planted at three new sites on Uinta National Forest and new seedlings are slowly becoming established.

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