



Sego Lily

Newsletter of the Utah Native Plant Society

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Left: Prickly-phlox (Leptodactylon pungens or Linanthus pungens) has an elegant twist to the corolla of petals when the flowers are not quite fully open. Photo by Steve Hegji.

My Freshman Year as a Plant Collector

By Steve Hegji

It's been a little over three years since I started photographing wildflowers while hiking in Utah, learning a bit of botany in the process. In between the first and second photographing seasons I got in touch with others who could help me identify the plants. With some hard work I learned how to read and use a botanical key. In between the second and third seasons, I used what I'd learned to write and publish *Wasatch Wildflowers a Field Guide*. I'm now in between my third and fourth seasons and hope to continue to sharpen my identification skills while I review all my photographs - which at this point cover about 700 species. [continued on page 4]

Utah Native Plant Society



Utah Native Plant Society

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For more information on UNPS: Contact Bill King (801-582-0432) or Susan Fitts (801-756-6177), or write to UNPS, PO Box 520041, Salt Lake City, UT, 84152-0041 or email unps@unps.org

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Chapter News

Cache: The Cache Chapter is organizing our 11th annual Propagation Workshop to be held in late March. We are looking for seeds. Though we already have a good selection, we would like to try out some new things. We are especially interested in *Chrysothamnus* or *Ericameria*, especially rabbitbrush varieties that are not easily available, such as the dwarf forms. These seeds do not remain viable for a long time, so old seeds will not work (unless they have been dried well and frozen). In addition we are looking for species with good fall color. If anyone has seeds that they would like us to try or can share, please contact me—*Steve Ripple* (limax-maximus@comcast.net).

Manzanita (Kane County): Paleontologist Alan Titus will speak to our group in January on “Dinosaur Salads” - just what type of vegetation did the dinosaur’s eat? Dr. Titus is paleontologist with the Grand Staircase-Escalante National Monu-



ment and will discuss paleobotany of the Cretaceous and the number of important botanical fossils being discovered in recent years from southern Utah. The lecture will be at a special time, on Thursday, January 13th at 7 PM in the Grand Staircase-Escalante NM visitor center meeting room.

Later this winter and spring, our speakers will include Laura Fertig discussing her cultural and botanical trek through the

Himalayas of Nepal, John Flatberg describing organic gardening, and Bob Lecour talking about orchid cultivation.

Our December meeting featured landscape architect “to the stars” Tim Clarke, who gave an animated discussion of landscape design basics and showed slides of his previous work. In November, I entertained the group with slides from my ongoing botanical peregrinations in SE Alaska. - *W. Fertig*

Southwestern/Bearclaw

Poppy: The chapter’s January event will be a pruning workshop with extension agent Rick Heflbower on Saturday, January 22 at 10:30 AM. The workshop will take place at 142 East Main Street in Rockville. In case of wild weather, be sure to confirm before coming by calling Barbara (435-772-0525) or Alex (435-669-4561) or emailing (bfarnsworth@fastmail.fm).—*Barbara Farnsworth & Margaret Malm*

Bulletin Board

2011 UNPS Scholarship: UNPS is pleased to announce it is accepting applications for the Society's annual student scholarship program aimed at encouraging research on native plant species in Utah. Applicants are asked to complete a short form (available on-line from the UNPS website—www.unps.org) and provide a 2-3 page summary of their proposed research, methods, and significance. Applications are due by 14 March 2011 and can be emailed to unps.org (please indicate in the subject line your last name and project title). The UNPS scholarship committee will review the applications and choose 1-2 for an award of 500-1000\$. Funds for the scholarship are from donations to UNPS or proceeds from the UNPS on-line store.

Utah Rare Plant Meeting, March 8, 2011: The annual Utah Rare Plant meeting, sponsored by UNPS and Red Butte Garden, will be held on Tuesday, March 8, 2011 at Red Butte Garden (300 Wakara Way, SLC). The meeting will feature updates on rare plant research across the state, agency happenings, and discussion of plant conservation topics, as well as all-important socialization and morale-building. Potential speakers are encouraged to submit a brief abstract to Rita Dodge (Rita.Dodge@redbutte.utah.edu) by February 18. We are also looking for potential topics for group discussion as well as posters. Talks should be geared for 20 minutes. There will be a \$15 charge to cover costs of the venue and a box lunch. To register for the meeting, go to www.redbuttegarden.org/classes/workshops or contact Rita Dodge to pay on the day of the meeting.

Utah Valley University Herbarium Days - Saturday, February 5th, March 5th, and April 2nd, 2011: The Utah Valley University Herbarium is sponsoring volunteer days for mounting and digitizing their backlog of plant specimens on the first Saturdays of each month this winter and spring. The first herbarium day will be held on February 5th from noon until 4 PM. Gluing specimens and labels is a great way to learn about new species from all over the west, while helping the university and having fun with other like-minded paste aficionados. There will also be opportunities to be trained how to digitize herbarium specimens for uploading to the internet. Parking is free on Saturdays at UVU in lots A, C, and D at the University Parkway entrance to campus. For further information, please call (801-763-6806) or email me (alexanja@uvu.edu) - Jason Alexander

Watch Your Mulch

The next time you are tempted by the stacks of cypress mulch at the gas station or garden supply store, consider the following:

- Thousands of acres of bald cypress (*Taxodium distichum*) are logged every year from Florida's native wetlands simply to produce mulch. Cypress mulch used to be produced mainly as a byproduct of lumber operations, but the increasing demand for mulch has led to the use of whole trees—whole forests—for nothing but mulch.

- The old idea that cypress is superior to other mulches is not true anymore. The old growth cypress harvested prior to the 1950s had a reputation for being rot and termite resistant. But those trees have all been taken except for the few saved in Florida's nature preserves. It takes hundreds of years for a cypress tree to grow the heartwood that used to have those properties. The young trees that are harvested today are not decay or pest resistant and do not make a superior mulch.

- Florida's unique cypress forest is a treasure with an important ecological role. It naturally filters pol-



Above: Bald cypress (*Taxodium distichum*) from Britton and Brown (1913) Illustrated Flora of the Northern States and Canada Vol. 1.

lutants and serves as a reservoir for floodwater, so it is essential for protecting ground water. It provides prime habitat for woodpeckers, wood storks, limpkins, several types of owls, opossums, bobcats, and wood ducks.

- You can help save cypress forests by using environmentally-friendly mulch. Switch to alternative mulches for your home and business landscaping, and ask your friends and county government to do the same. If you don't find alternative mulches at your garden supply store, enlighten the man-

ager and request the following alternatives:

Recycled yard waste: Mulch made by your county or city from recycled urban plant debris is inexpensive or even free in some areas. To locate your closest source, contact your county extension service.

Hardwood mulch: Made of shredded bark left over from milling hardwood trees such as maples and oaks, this sturdy mulch compacts over time so it resists blowing or washing away.

Pine bark: An excellent mulch with long-lasting color, it is a byproduct of the timber industry. Pine bark is very effective in weed and seedling control.

Pine needles: The jury is out on whether commercially available bales of pine straw are harvested sustainably, but pine needles on your own property are an excellent mulch that allow more moisture to penetrate to the soil than chunkier mulches.

Fallen leaves: The leaves you rake, especially oak leaves, are free, abundant, and make excellent mulch. - Adapted from the Indiana Native Plant Society's *Inpaws* journal, Autumn 2010

My Freshman Year as a Plant Collector [continued from page 1. All photos by Steve Hegji]

One thing I learned fairly early is that it can be difficult to accurately ID a plant from photographs. Especially if you can't remember exactly which features of the plant are diagnostic and fail to photograph those features. My mentors wanted to see specimens. So this last season, I decided to learn how to collect, press, record, and contribute specimens. I didn't want to disturb the wild plants, and planned to only collect a plant when I was really baffled as to what it could be.



Above: *Vernal daisy* (*Erigeron pumilus* var. *concinnus*) was common and very photogenic.

Robert Fitts had mentioned to me that he'd like to collect out in the Fish Springs Range because it had been mostly ignored. Using the Advanced Search features of UVU's Online Herbarium, I determined that they had no specimens from the Fish Springs range, and only five specimens within a 15 mile radius of the midpoint of the range. So, I constructed a simple plant press, and early on May 31st I packed up my gear (more on this later) and headed out the Pony Express trail from my home in Lehi. This would be my first ever collecting expedition. I intended to camp overnight at the



range and do a day and a half of collecting. However, "no battle plan ever survives contact with the enemy" (Helmuth von Moltke).

On the way out to the Fish Springs Range, I frequently had to resist the urge to stop and explore, but on two occasions some exceptional splashes of color did get me out of the car. The first stop, just on the east side of Dugway Pass, was prompted by a nice patch of magenta colored *Penstemon* that turned out to be *P. confusus*. I saw a few other beautiful plants there, including a large number of *Oenothera howardii* (see my picture in the *Sego Lily*, July 2010, p10). I didn't collect at this site because I wanted to move on quickly. Now I wish I had - collect when you can! On the east side of the pass, out on the flat, there was a lot of *Cleome lutea*, a plant I was aware of but hadn't ever seen. Yep, I took some photographs. Nope, I didn't take a specimen. Oops.

After driving past the southern end of the Fish Springs NWR, I turned south, off the Pony Express trail, and drove to a point about halfway down the range. The Fish Springs Range is 18 miles long and about 2 miles wide, with the long direction oriented north/south. It's bounded on the north by the Pony Express trail, with Fish Springs NWR lying on the NE side of the

Above: *Nakedstem* (*Enceliopsis nudicaulis*) occurs on limestone or gypsum-rich clays over much of the desert country of western Utah.

range. It's bounded on the south by Sand Pass -which divides the Fish Spring and House ranges. The highest point is George Hansen peak at 8523 feet.

I got out of the car and headed around back to get my gear when Nature fired its first salvo in the form of lots, probably billions, of mosquitoes. My normal gear is a 15 lb pack which includes food, water, camera gear, and a comprehensive, 2-part first aid kit - which did NOT include insect repellent! My previous hiking had been in mosquito "no-fly zones." I was wearing long pants, a long shirt, and a hat so I decided to continue. Unfortunately, those guys were able to stab me through the clothing. And all the hat did was trap a bunch of them on top of my bald spot.

With visions of West Nile virus dancing in my head, I put my pack on, grabbed my plant press and headed upslope, eventually climbing up into one of the steep canyons, before turning around. The round-trip was over four hours. Along the way I photographed 36 plant species and took 14 collections - two of which (*Astragalus purshii* var. *glareosus* and *Erigeron pumilus*

var. *condensatus*) will be new records for Juab county whenever somebody examines them and publishes an update to the flora of Utah. I would have taken more specimens, but each time I stopped, the mosquitoes swarmed around me - it was miserable.

In addition to the mosquito problems, this little hike taught me another lesson about my gear - carrying a plant press under your arm for over four hours can be hard work. Also, when you open it up, the wind likes to blow and scatter the paper layers in the press. Some folks just carry a combination of small and large plastic bags to store the specimens. The plants are then put in the press back at the car, or later at home. Sounds like a good idea to me.



Above: *Shockley's buckwheat* (*Eriogonum shockleyi*) has a very nice mound shape and cute, rounded hairy leaves.



Above: *Caterpillar of the Anise swallowtail butterfly* (*Papilio zelicaon*) crawling on the fruitstalk of a *Desert biscuitroot* (*Lomatium foeniculaceum*).

Speaking of my gear, in addition to a camera, I carry a GPS unit and synchronize my camera clock to the GPS when I start out. I download the photos and GPS log file to my computer and use a free software program called GeoSetter to geotag the images with latitude, longitude, and elevation. Each plant is photographed before it's collected. I also write down the collection number and coordinates in a field book, just in case something bad happens to the memory cards in my camera or GPS.

After returning to my car I continued south to Sand Pass and stopped again. The mosquitoes

were there, but in greatly reduced numbers. To the north, the terrain was very rugged and steep. But to the immediate south it was sandy and gently sloping. Guess which way I went. I spent another hour there and collected four more plants, including the extremely beautiful *Enceliopsis nudicaulis*.

Then Nature fired its second salvo of the day. The wind picked up and I could see a storm coming in from the west and decided to return home and not spend the night. I followed a different route, heading east and cutting over to I-15 at Nephi. Along the way I stopped at two places just off highway 132 and got some more pretty pictures, including *Townsendia jonesii* var. *lutea*, another plant I hadn't seen before.

I plan to return to the Fish Springs Range again. I'd like to cover it at different times of the year and get to the high point, and also over to the west side of the range. I've learned my lesson about insect repellent. I may even invest in a hat that has a net on it. I've learned my lesson about not carrying the plant press under my arm. I continued to collect this season and now have 75 speci-

mens. Jason Alexander at the UVU herbarium has allowed me to mount and image those specimens. You can see them online - just type "hegji" in the Collector field under "Advanced Search." Jason has also taught me how to collect enough material to nicely fill an herbarium sheet; and to attempt to collect the flowers, fruit, and roots of a plant. He's also helped me to understand why herbaria need collections of the complete flora, at different times and in different places. I'm excited about collecting again next season. My original intent has changed, and now I attach more importance to collecting a plant. Obviously it's not for everybody, but if you decide to do it, you'll find it rewarding. Hope to see you out there.



Below: *Pursh's milkvetch* (*Astragalus purshii* var. *glareosus*) - a first record for Juab County.



UNPS Student Scholarship Report:

The effect of facilitation by moss on the distribution and performance of Maguire's primrose (*Primula cusickiana* var. *maguirei*)

By Andrew P. Rayburn, Hillary M. White, and Jacob Davidson
Utah State University, Logan, UT

Competition between plants is a widely recognized phenomenon, yet plants may also facilitate the germination, establishment, and growth of other plants in their immediate neighborhoods. Positive plant interactions affect individual plants and plant communities, and may be especially important for maintaining populations of rare plants whose persistence in harsh environments depend critically on deriving benefits from association with other plants.

Many types of plants are involved in facilitative relationships, including trees, shrubs, and mosses. Mosses are known to facilitate both vascular and non-vascular plants, often in environments characterized by harsh conditions. Mosses may increase soil moisture, intercept and store nutrients from throughfall and litter decomposition, and tolerate extreme soil conditions that are prohibitive to the establishment of other plants. In serpentine seeps in California for example, Freestone (2006) reported facilitation of the endemic, rare plant *Delphinium uliginosum* by the moss *Didymodon tophaceus*, likely due to seed trapping, habitat amelioration, and protection of seeds and seedlings from herbivory. Seedling emergence for *D. tophaceus* was four times greater on moss than on bare substrates and moss also retained 46% more artificial seeds. It is unclear, however, if other rare or endangered plants benefit from association with moss in harsh environments.

In our study, funded in part by a research grant from the Utah Native Plant Society, we sought to determine if Maguire primrose (*Primula cusickiana* var. *maguirei* L. O. Williams [Holmgren & Kelso]) is facilitated by its association with moss. Maguire primrose is an endemic,



Above: Maguire's primrose in Logan Canyon. Photo by Hillary White.

threatened perennial forb found only in moist pockets on shallow soils derived from limestone, dolomitic limestone, and quartzite outcrops along a 20 km stretch of Logan Canyon in northern Utah. Conditions within the canyon may be harsh, as frequent extremes in temperature and moisture occur throughout the year. Distinct primrose populations occur in upper and lower portions of the canyon, which are separated by ~12 km of terrain. Individual plants may have single or multiple stalks with between one and six flowers that are approximately 2.5 cm in diameter and exhibit the classic pin-thrum morphology found in many *Primula* species. Seeds of Maguire primrose are quite small, with individual seeds weighing ~0.01 mg.

Maguire primrose is vulnerable to extinction due to its restricted range, habitat specificity, and small populations. In addition, like other heterostylous members of *Primula* sect. *Parryi*, Maguire primrose is highly dependent on insect pollinators for successful

cross-fertilization of floral morphs. Seed dispersal in Maguire primrose is limited to short-distance transport by wind, water, and gravity, and dispersal may be rare between scattered populations. Maguire primrose is also subject to frequent herbivory by snails and small mammals. The plant is further threatened by water development, recreation activities, specimen collecting, and road construction within Logan canyon (USFWS 1990).

Maguire primrose has been observed in association with various species of moss, including *Tortula princeps* and *Weissia* spp. (Davidson 2010). However, it was previously unknown whether the plant benefits from its association with moss and, if so, to what degree. Despite a suite of studies related to the genetics, reproduction, seed production, and regional distribution of the variety, little is known regarding the interactions of Maguire primrose with surrounding plants.

Our approach was first to collect data on the distribution and performance of Maguire primrose to determine if the plant was associated with moss and if it benefited from the association. We hypothesized that, if the net interaction

between primroses and mosses was positive, primroses would occur on moss patches more often than expected by chance and that primroses occurring on moss patches would have greater basal area and more flowers than primroses occurring on other substrates.

Field work was conducted during the Spring 2010 growing season within a lower-canyon primrose population. A total of 150 individual plants were surveyed along random transects laid throughout the population. We recorded the substrate on which each plant occurred, as well as the basal area and the number of flowers present for each plant. Statistical analysis was then used to determine if primroses occurred on moss more often than expected by chance. We also tested for significant differences in basal area and flower number for primroses occurring on different substrates.

Primroses occurred far more often on moss patches than expected if all possible substrates were utilized equally. Interestingly, primroses occurring on moss patches had a significantly greater mean basal area (46.47 cm²) than those occurring on bare ground (23.83 cm²). Primroses occurring on moss also had a greater mean number of flowers (6.64) than those occurring on bare ground (2.90).

We also conducted soil sampling within the study population to determine if the distribution of Maguire primrose was correlated with specific soil characteristics and whether those soil characteristics were linked to different substrates. Since mosses are known to increase available soil resources for other plants, we hypothesized that moss facilitates Maguire primrose by affording plants increased soil moisture and nutrients, both of which are limiting resources in the harsh, exposed canyon environment.

Soil moisture samples were collected from randomly selected patches of moss and bare soil immediately following a major spring precipitation event. After three weeks with no additional precipitation, we collected additional samples from another set of randomly selected patches. Mean soil water content values for each substrate and sam-



Above: Jacob Davidson studying Maguire's primrose in the field. Photo by Andrew Rayburn.

pling period were then statistically compared to test for significant differences. The results showed that soil under moss retained more moisture after approximately three weeks of warm, dry spring weather as compared to bare ground soil.

For soil nutrient analyses, five samples were collected from four randomly selected location types (bare ground, bare ground with primrose present, moss patch, moss patch with primrose present). Soil nutrient analyses were conducted during Summer 2010 at the Utah State University Analytical Laboratories, and consisted of tests for plant available N, organic matter, and water-soluble cations (Ca, Mg, Na, K). Mean nutrient concentrations across substrates were then analyzed to test for significant differences.

The results showed that there was significantly more organic matter and higher concentrations of magnesium in soil beneath moss with primrose present than in soil from other substrates. Organic matter provides the raw material for plant growth, and Maguire primrose may also be dependant on magnesium for proper func-

tion (USFWS 1990). Concentrations of magnesium were relatively high in all soil samples, but especially so in samples taken from soil beneath moss with primrose present.

Mean concentrations of plant available calcium did not vary significantly between the four substrate categories; however, mean Ca:Mg ratios differed in soil beneath moss with primrose present (0.042 : 1) as compared to Ca:Mg ratios in soil from other substrates. Interestingly, Ca:Mg ratios calculated for soil samples in this study (ranging from 0.042 : 1 to 0.063 : 1) were dramatically lower than Ca:Mg ratios for normal soil (often > 1 : 1). In conjunction with other factors such as low water availability, extreme soil conditions such as low Ca:Mg ratios may exert strong selection pressures that act to shape the distribution and fitness of locally adapted plant taxa. We hypothesize that the high concentrations of magnesium and low Ca:Mg ratios associated with soils on the study site may have contributed to the extremely localized endemism associated with Maguire primrose.

The results of this study strongly suggest that the distribution, growth, and reproduction of Maguire primrose are significantly affected via facilitation by moss. Spring conditions in the study



canyon are cool and moist with the potential for freezing temperatures, and field observations confirm that Maguire primrose seedlings emerge during this time. It is likely moss facilitates Maguire primrose during this period by providing safe sites for seed germination and establishment. Throughout the remainder of the spring growing season, we hypothesize that Maguire primrose is facilitated by moss through the increased availability of soil nutrients. As primroses mature and flower, precipitation rapidly declines with the onset of early summer. Available moisture becomes scarce even in shaded, north-facing sites, and primrose growing on moss likely take advantage of wetter soil conditions directly under moss patches in addition to increased availability of soil nutrients. Once primrose seeds are dispersed in late summer and early fall, we suggest that seeds trapped by moss may be protected to some degree from harsh winter conditions.

The species recovery plan for Maguire primrose includes proposals to fully map and inventory existing populations. The knowledge that Maguire primrose often grows in association with moss may lead to more efficient efforts to locate and map additional populations throughout its canyon range. The plan also calls for the development of strategies to establish and maintain new populations. Paramount to this strategy is the identification of potential habitat in which new populations of Maguire primrose could be established. Plant reintroduction is a common strategy for preventing the extinction of rare plant species and reintroduction biology is often concerned with factors affecting population establishment and persistence. While the extent to which Maguire primrose populations are being maintained regionally by positive associations with moss is unknown, the results of this study should inform future

Above: *Maguire's primrose* from Logan Canyon by Steve Hegji.

site-specific reintroductions of this species. The use of moss patches may increase the effectiveness of reintroduction efforts for Maguire primrose, as moss patches may be targets for direct seeding or seedling transplant efforts. Future studies should address the effectiveness of such techniques for Maguire primrose and other rare endemic plants that may also benefit from association with moss.



References

- Davidson, J. B. 2010. Natural history and breeding system of Maguire primrose. M.S. thesis, Utah State University.
- Freestone, A. L. 2006. Facilitation drives local abundance and regional distribution of a rare plant in a harsh environment. *Ecology* 87:2728-2735.
- US Fish and Wildlife Service. 1990. Maguire primrose (*Primula maguirei*) recovery plan. Denver, CO.

Who's in that Name?: Thomas Nuttall

By Al Schneider

Adapted from the Fall 2009 issue of *Aquilegia*, the newsletter of the Colorado Native Plant Society

Thomas Nuttall (1786-1859) was an avid, expert, and intrepid collector, plant taxonomist, botanical writer, ornithologist, and Harvard professor. He came to the United States from England in 1807 and in 1808 met, learned from, and began making collecting trips for famed University of Pennsylvania professor and naturalist, Benjamin Barton who, at the behest of Thomas Jefferson, had just a few years earlier taught Meriwether Lewis. In 1810 on Nuttall's third collecting trip for Barton (this one to the Great Lakes), he learned of a John Jacob Astor Company trip up the Missouri; his adventurous spirit headed him to St. Louis to join the Astor Company instead of to Philadelphia to report to Barton. In the spring of 1811 Nuttall headed west with the Astor Company on a collecting journey which often followed the route of Lewis and Clark.

Nuttall's companions on this Astor trip and on all his many other trips were amazed at his enthusiasm, his devotion to collecting, and his total joy in the beauty of the world they traveled through. When on the scent of new plants, he felt no pain, had no worries about privations, and occasionally wandered off and got lost.

Nuttall amassed a considerable collection on the Astor trip and intended to take it to Barton, but when he returned to St. Louis in the fall of 1811 he, as a British citizen, felt it more prudent to return to England (via New Orleans) than risk being caught up in the imminent War of 1812 between Britain and the United States.

In England, Nuttall began work on his collection for Barton, and he met with Frederick Pursh to discuss and analyze their collections.

Right: Wingseed blazingstar (Mentzelia pterosperma) is sometimes placed in the segregate genus Nuttallia—the only genus name that commemorates Thomas Nuttall. Photo by Al Schneider from east of Aneth, Utah, May 2007.

*To see more of Al's photos, go to his website:
www.swcoloradowildflowers.com*

(Pursh had been hired by Lewis to work on the descriptions of the original botanical specimens from the Lewis and Clark Expedition.) Friction between Nuttall and Pursh over what we would call "intellectual rights" (i.e. who should receive credit for which discoveries and which plant names were to be accepted) soon prompted frantic publishing by Nuttall and Pursh in order to gain credit. Both published a number of articles and Pursh published his two volume *Flora America Septentrionalis* in 1814. It is fairly certain that Pursh purloined many of Nuttall's descriptions.

Nuttall returned to the United States, published his own two volume work, *Genera of North American Plants* in 1818, made many more collecting expeditions, wrote an acclaimed ornithology text book, and, as the most acclaimed naturalist in the United States, became Harvard Professor of Natural History in 1823.

Always the iconoclast and wanderer, Nuttall resigned from Harvard in 1834 when his friend Nathaniel Wyeth (Nuttall named *Wyethia* for him) asked him to join his 1834-1837 expedition to the Oregon coast. Nuttall suggested that his young ornithologist acquaintance, John Townsend, be on the trip and this turned out to be a



fortuitous choice since Townsend was not only an excellent birder but also a very good writer, and it was Townsend who chronicled the expedition in his very interesting journal, *Narrative of a Journey Across the Rocky Mountains to the Columbia River* (1839). On the three year trip, Nuttall and Townsend amassed significant collections (including some from Hawaii which they visited two winters). Townsend collected hundreds of bird specimens (many of which were included in Audubon's *Birds of North America*), and Nuttall collected thousands of plants which he, Torrey, and Gray described and published about six years later in Torrey and Gray's *Flora of North America*.

In the 1840s Nuttall published his own acclaimed two volumes of western North American trees as additions to Michaux's monumental *The North American Sylva*.

In 1841 the terms of his uncle's will required Nuttall to return to live in England at least nine months of every year if he wanted to maintain the estate that his uncle left him. Nuttall complied with his uncle's request but continued botanizing in England and made a number of trips to the United States over the next years. When Nuttall died in England in 1859 he was still acclaimed as one of the few most important botanists in the world.



Utah Botanica

Odds and Ends from Utah Botany



Left and above: Tree cholla (*Cylindropuntia imbricata* or *Opuntia imbricata*) from rocky, semi-desert grassland on BLM lands near Hovenweep National Monument, San Juan County, Utah. Photos by Al Schneider, 11 June 2007.

Below: Parry's little sunflower (*Helianthella parryi*) from the Mt. Linnaeus Trail, Abajo Mts, Utah. Photos by Al Schneider, 16 July 2009.

Noteworthy Discoveries:

New species from San Juan County: Wildflower photographer and botanist of the Four Corners region, Al Schneider has recently added two new species to the flora of Utah.

Tree cholla (*Cylindropuntia imbricata* or *Opuntia imbricata*) is primarily a Great Plains species of eastern and central Colorado and New Mexico to western Kansas, Texas, and northern Mexico. A few populations are known in southwestern Colorado and recently one was discovered on BLM lands near Hovenweep National Monument in southeastern Utah. Tree cholla has the cylindrical stem segments and deciduous spine sheaths typical of all chollas, but differs from our other species in Utah in having pinkish-purple rather than yellowish-green or bronze flowers. It also tends to be larger, growing up to 4 feet tall and wide. Hard to imagine how this showy species eluded observation for so long!

Parry's little sunflower (*Helianthella parryi*) was discovered on Mount Linnaeus in the

Abajo Mountains in July 2009. Previously, it was known only from the mountainous areas of southern Colorado, northern New Mexico, and northern Arizona. This species resembles the common Five-nerve little sunflower (*H. quinquenervis*) found over much of western North America, but is smaller in stature with shorter and more acute leaves and smaller flower heads (only 2 cm broad rather than 4-5 cm).

Al and Betty Schneider and Bill Gray discovered an additional population in the La Sal mountains in July 2010 while working on a plant survey for the Grand Canyon Trust.

Helianthella parryi was named by Asa Gray (not related to Bill) for Charles Parry, considered the "king of Colorado Botany" in the 19th century for his many notable contributions to plant science.

To see more images of both species (and other great plant photos and information about Four Corners botany) consult Al's website: www.swcoloradowildflowers.com —W. Fertig



Utah Botanica

Odds and Ends from Utah Botany



Noteworthy Discoveries:

Frasera ackermanae - A New Species from the Uinta Basin

By Sherel Goodrich,
Uinta National Forest

Frasera ackermanae C. Newberry & Goodrich was found by Diane Ackerman and Tom Elder in a small sub-drainage of Brush Creek north of Vernal, Utah in 2007. The first plants were found on the bottom of a drainage in atypical habitat. In a later search of the area, the plant was found to be locally common in semi-barren slopes of what appears to be Chinle Formation. The total population appears to be limited to less than 15 acres. Other areas of the Brush Creek drainage with similar habitat were searched without finding additional plants of the species.

Plants described as *Frasera ackermanae* are similar to those of *Frasera albicaulis* Douglas ex Griseb. var. *modocensis* (H. St. John) N. H. Holmgren which includes *F. pahutensis* Reveal of Ne-

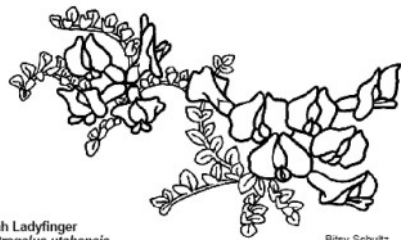
vada, California, and Oregon. The Brush Creek population is separated from the more western plants by over 350 miles. Plants of the Brush Creek drainage differ from the more western plants in a more compact inflorescence that is generally less elevated above the basal leaves and slightly longer calyx lobes. The similar but larger *F. albomarginata* S. Watson is known from Emery County from which *F. ackermanae* is disjunct by about 185 miles. Limited and remote distribution of this species certainly qualifies it to be listed as a "narrow endemic". The habitat of the species supports a concept that low level of competition from other plants is a strong factor in narrow endemism.

As a charter member Diane Ackerman helped establish an eastern Washington chapter of the Washington Native Plant Society. She has a degree in geology from the University of North Carolina, Wilmington, and she worked for the National Park Service at Fossil Butte National Monument near Kemmerer, Wyoming. Currently Diane lives in Vernal, Utah.

Top Left: *Frasera ackermanae*, a newly described Utah endemic from the Brush Creek drainage, north of Vernal. *Top Right:* Barren habitat of this apparently rare species. *Above:* Close-up of the flower of *F. ackermanae* showing the four petals and prominent greenish glands characteristic of this genus in the gentian family.

Tom Elder has enthusiastically taught a range of biology classes at Uintah High School, Vernal, Utah for many years. Some of his current students have parents that were also his students.





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