Sego Lily

Newsletter of the Utah Native Plant Society

March 2011 (volume 34 number 2)

In this issue:

*Left: Fremont cottonwood (*Populus fremontii *or* P. deltoides *var*. fremontii*) is one of 13 full species and varieties named in honor of John Charles Fremont in Utah. Among the Fremont namesakes are a* Mahonia, Chenopodium, Lepidium, Phacelia, Penstemon, Chaenactis, *and* Senecio. *Fremont cottonwood is the signature native riparian tree of perennial streams and springs in the canyons of the Colorado Plateau. Photo by Al Schneider from Hunter Canyon, Utah (www.swcolorado wildflowers.com). For more on Fremont, see Al Schneider's article beginning on page 4.*

Utah Native Plant Society

Website: For late-breaking news, the UNPS store, the *Sego Lily* archives, Chapter events, sources of native plants, the digital Utah Rare Plant Field Guide, and more, go to unps.org. **Many thanks to Xmission for sponsoring our website.**

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

Sego Lily Editor: Walter Fertig (walt@kanab.net). The deadline for the May 2011 *Sego Lily* is 15 April 2011.

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Chapter News

Fremont (Richfield area): The Fremont Chapter started our monthly lecture series for the year with a video presentation on preventing the spread of invasive species in our Public Lands. Chapter member Maggie Williams from the U.S. Forest Service provided the video which dealt with plants, animals, and pathogens, then USU Extension agent Jody Gale talked about the efforts of the Utah Weed Coalition to contain and reduce the spread of Curly dock in Sevier County & the rest of the state.

Our speaker for February is Jim Cane from the USU Logan Bee Lab. He will present his research on native bees and the importance of native plants in our gardens. The lecture is Wednesday February 23 at 7:00 pm. at the Sevier County Administration Building at 250 North Main in Richfield. It is free and everyone is invited.

Merrill Johnson from Great Basin Natives will be our instructor for March. He will share his secrets to successfully propagate native plants at home and has offered to help identify photos of native plants from members of both the chapter and the public. The presentation will be March 16 at 6:30 at the Sevier County Administration Building.

We also have planned a spring cleanup of our native plant garden at the Administration Building on February 19 at 10:00 AM and a two-day camping trip coordinated by our own Bob Own to Toroweap on April 22 to get out and appreciate natives in the wild.

The chapter is looking at different ways to fund a simple "field guide" that can be distributed at events like the Rocky Mountain ATV Jamboree to get information out to the public. We are also hoping to pursue a new native gardening project at Fremont Indian Museum State Park and participate in the upcoming Spring Home and Garden Show and Natural Resources Festival. - *Lisa White*

Manzanita (Kane County): Our annual plant propagation workshop will be held on Saturday, 12 March, from 10Am to noon at the Best Friends Animal Sanctuary greenhouse. Our instructor will be Becca Lieberg of Zion National Park. We will have a variety of native plant seeds available that have been specially chosen for their ease of care and ability to grow wild in the Kanab area. We are asking for a donation of $10 to cover costs of the event. For more information, or to enroll, contact me (walt@kanab.net) - *W. Fertig*.

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 webstite—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. Speakers include Andrew Rayburn (recent UNPS student scholarship winner) on seed gerimination and facilitation by mosses of Maguire's primrose, Joan DeGeorgio on the Uinta Basin rare plant forum, Dorde Woodruff on varieties of *Opuntia basilaris* in Utah, Ally Searle on reproductive success of *Astragalus* species, Matt Lewis on the reproductive ecology of Shrubby reed-mustard, Walter Fertig on developing a rare plant list for Zion National Park, and Sarah Clark on pollinators of rare twinpods. The meeting will conclude with a session on updating the UNPS rare plant list. Attendees to that session are encouraged to forward candidate species for discussion to Rita Dodge (Rita.Dodge@redbutte.utah.edu) or Walt Fertig (walt@kanab.net). 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, 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. 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*

Southwestern/Bearclaw Poppy: Our April meeting will feature Walter Fertig speaking on the "Flora of Southeast Alaska". The meeting will be held in the Springdale Public library. Look for an email on the exact time and date- *Barbara Farnsworth*.

Utah Valley: April 2: In addition to Herbarium Day (see Bulletin Board, above), we will also hold our chapter meeting and election of officers. The business portion will run from 12:15 -1 PM, to be followed by herbarium activities at the Utah Valley University campus.

Plants and Preschoolers hikes (Thursday mornings at 10 AM) at various canyons and trails in the Utah Valley will resume on Thursday, March 10. Anyone can join us, as our pace is slow and distracted (like a botanist). We do not hike for the destination, but for the journey and we love to find new and familiar things along the way. Call Celeste Kennard at 801-377-5918 or email celestegk@gmail.com for updates about hikes or with questions.

March 10 hike: Rock Canyon. From University Parkway at the I-15 exit, continue until you are near BYU, then turn east onto 2230N, (which becomes 2200N) until you get to North Temple (2300N). Follow this east to the parking lots at the trailhead. The road makes a sharp turn to the south and becomes Foothill Drive (don't turn here—just head straight into the parking lot). Meet at the top of the parking lot near the restrooms. This is a moderate climb and a jogging stroller with large wheels is recommended for the stroller set.

March 17: Rock Canyon again (focusing on trails at the mouth of the Canyon).

March 31: River trail to Provo. Starts at the Bulldog fire station (1230N in Provo and approximately 600W—entry lane is unmarked on the S side of Bulldog accessing the medical clinic).

April 7: Hobble Creek Bike Trail (weather dependent– call first).— *Celeste Kennard*

UNPS News

UNPS supports Jordan River Project: The Utah Native Plant Society state board has contributed $1000 toward the printing cost of a new color booklet being published by the Center for Documentary Arts. The new book describes the natural and human history of the Jordan River in pictures and text. It highlights the various features of the river with a detailed map and describes recent ecological restoration projects such as the 120 acre Audubon Migratory Bird Reserve in south Salt Lake County. This project involved Tree Utah volunteers who have planted thousands of native trees and shrubs along the river over the last ten years. The grant from UNPS will purchase approximately 200 copies of the booklet which will be given to teachers whose schools host a touring photography exhibit entitled "Reawaken Beauty: Tillman Crane's Jordan River Photographs". I will be helping teachers develop a curriculum based on the exhibit and booklet.— *Ty Harrison*

Who's in that Name?: John Charles Fremont

By Al Schneider
Adapted from the Spring and Summer 2009 issues of *Aquilegia* (the newsletter of the Colorado Native Plant Society)

Above: Portrait of John Charles Fremont from his "Pathfinder" days. Library of Congress.

I. Fremont the man

John Charles Fremont (1813-1890) was a teacher and surveyor; a student of sciences including mathematics, astronomy, botany, geology, and cartography; a military expedition leader; an American icon; a gold rush millionaire; and a governor, senator, and twice candidate for President of the United States. He was a strong-headed, successful, court-martialed, impoverished, belligerent, American success and failure story.

Fremont is not a central botanical figure of the 19th century (although his collections were numerous and many plants are named for him), but his life does show so well the relationship of the explorer/scientist/politician to the public, the government, and the botanical world.

Fremont's early life had its significant successes and failures and presaged the same roller coaster experiences that would always be his. In his few years in college he did well, especially in mathematics, but he was expelled for poor attendance. Fremont was fortunate throughout his early life in coming under the guidance of influential people; soon after Fremont's expulsion, Joel Poinsett (of Poinsettia—*Euphorbia pulcherrima*—fame, as well as South Carolina congressman, minister to Mexico, and Secretary of War), obtained a position for Fremont as a mathematics teacher aboard a navy sloop bound for two years to South America. Poinsett later helped Fremont obtain a commission as Second Lieutenant of Topographical Engineers, which led to an assignment as chief assistant to the respected French scientist Joseph Nicollet for a survey between the Missouri and Mississippi rivers. Nicollet tutored Fremont in all aspects of expedition logistics and in the gathering of scientific information.

Fremont became a national icon between 1842 and 1854, leading five Western expeditions, traveling over 20,000 miles, mapping large areas of the West, collecting thousands of plant specimens, and inspiring a huge wave of pioneers with his expeditionary reports (mostly, if not wholly, written by his wife, Jessie Benton). He came to be revered as "The Pathfinder" (although the title should more appropriately have been given to Kit Carson, his guide on three of these trips).

Through Nicollet, Fremont met one of the most influential United States senators, Thomas Hart Benton, who quickly saw Fremont's promise in helping Benton promote westward expansion and Manifest Destiny. Fremont was often in Benton's home, and, in 1841 secretly married 17-year-old Jessie Benton. Thomas Hart Benton was infuriated at this action but quickly reconciled with Fremont, became Fremont's powerful ally, and utilized Fremont's expeditions to expand America's boundaries.

In 1842, Fremont conducted his first expedition—to map the Oregon Trail to the Rockies. Prior to this trip, Fremont received a quick course in plant collecting and preserving from the eminent George Engelmann and the expedition collected plants and other scientific data. Congress published 20,000 copies of Fremont's report in 1843. The report appeared in major newspapers, and commercial American and foreign editions sold several hundred thousand copies. Fremont's maps of the Great Salt Lake area influenced the Mormons to settle there, and his maps of routes across the West were studied and followed by westward-moving pioneers.

Fremont was thus catapulted into being the most famous American explorer of the time and, in fact, was one of the most famous Americans of his time. But through all of his exploits, he was rash, headstrong, political, knowledgeable, persuasive, brave, and foolhardy, which led him to having strong supporters and powerful enemies.

In the mid-1840s, for instance, during his third expedition, Fre-

mont played a significant role in taking California from Mexico. He was so popular in California that he was appointed Governor of the new Territory in 1846, but was court-martialed in 1847 for failing to obey military orders to step down from the governorship. He was convicted and ordered dismissed from the military. President Polk upheld the conviction, but pardoned Fremont from the penalty. Fremont was so furious at the conviction that he resigned from the Army in 1848.

Running as a Democrat, Fremont was elected in 1850 as one of the first two senators from California; however, after serving the six-month short term he failed in his bid for re-election.

Fremont went on to make a fortune in the Gold Rush, but only after protracted battles in courts and Congress over land claims, payments, partners, and promises. Fremont's popularity from his western exploits and anti-slavery position got him the newly formed Republican Party's first presidential nomination in 1856. Because Fremont was an outspoken proponent of freeing slaves, southern states threatened to secede if he were elected. Fremont lost to James Buchanon.

When Lincoln became President, he promoted Fremont to Major General. From Fremont's Missouri command post, he confiscated nearby southerner's lands, freed their slaves, declared martial law, and then refused to obey Lincoln's order to rescind these unauthorized actions. Lincoln removed him from command after six months of service, but Republican pressure on Lincoln forced him to reinstate Fremont, which some came to regret as Fremont proceeded to lose a number of Civil War battles. Fremont was demoted again and angrily resigned.

Fremont lost his gold rush fortune, ran for President as a Democrat in 1864, and was convicted by the French in an 1873 swindle case involving the transcontinental railroad. He was also territorial Governor of Arizona from 1878-1881 until removed from office for failing to perform his duties.

II. Fremont the botanical explorer

Fremont's botanical ventures followed the same path as his life—a roller coaster of successes and failure. Prior to his first expedition in 1842, Fremont was unknown in the botanical world. On 18 November 1842, John Torrey wrote to Asa Gray that "a Lt. Fremont" who writes "like a foreigner" was sending Torrey "some plants collected towards the Rocky Mountains." When Torrey received the plants he sent the Compositae to Gray. On 5 December after looking at the plants, Gray wrote in great excitement:

"*Tetradymias* [horsebrush] this side of the Rocky Mts.!! Some new *Senecios* … How I would like to botanize up there! Is the Lieutenant's name Fremont? I wish we had a collector to go with Fremont. It is a great chance. If none are to be had, Lieut. F. must be indoctrinated, & taught to collect both dried spec. & seeds. Tell him he shall be immortalized by having the 999th *Senecio* called *S. fremontii*." (From *The Expeditions of John Charles Fremont* by M.L. Spence.)

Over the next eight years, Fremont continued to correspond frequently with Torrey, who received and, with Gray, described Fremont's collections. Fremont, thus, had the best guidance and assistance; however, he was headstrong and often did not listen to the expert botanical advice given him. For instance, although his expeditions did produce many significant botanical results—Torrey said of the 1842 collection "[It is] a very interesting contribution to North American botany" - much more could have come from his expeditions, if a botanist had been taken on the trips. Fremont finally did take a botanist, Creutzfeldt, on the fourth expedition.

Torrey did get Fremont to study under George Engelmann for a few days, but Engelmann wrote Gray on 6 December 1844:

"[Fremont] appears to me rather selfish—I speak confidentially—and disinclined to let anybody share in his discoveries, anxious to reap all the honour, as well as undertake all the labour himself. He objected to taking any botanist or geologist along with him … even though he himself cannot claim any knowledge of [botany]…"

In his second expedition from 1843-1844, Fremont's collections from his westward leg of the journey

*Right: Fremont's mahonia (*Mahonia fremontii*) first collected by Fremont along the "Rio Virgin" in southern Utah in 1844. Photo by Al Schneider (www.swcoloradowildflowers.com) from Canyonlands National Park.*

through the Rockies and Great Basin was lost when the mule carrying the botanical specimens went over a precipice on the final westward descent out of the Sierras following an heroic, fool-hardy, and life-threatening crossing of the Sierras in the winter. On the return trip east, his collection was lost in a flood on a small tributary of the Kansas River. Yet, Fremont did bring back enough specimens to exhilarate Torrey and Gray. Specimens included the first records of *Eriogonum inflatum, Coleogyne ramosissima*, and *Populus fremontii*.

On his third expedition, Fremont shipped Torrey a treasure chest of over a thousand specimens. On the fourth expedition, some of the collections were ruined by rains and some perished in the snows of the Colorado San Juan Mountains, when he and his men fought for their lives—ten men died. By the fifth expedition (1853-54) Fremont and Torrey had almost no communication.

According to Stanley Welsh, expert on Fremont as botanist, Fremont's 1842 expedition yielded 22 new species of plants, his 1843-44 trip yielded 70, his 1845-46 expedition yielded 52, 1848-49 yielded 10, and his final 1853-54 trip yielded one, "with three more of unknown date for a total of 167" new species collected by Fremont. Welsh further indicates that, "Collections of the first expedition were identified as representing 371 [species]; the second some 379, the third 458, the fourth 60, and the fifth 8." Welsh notes that there were at least an additional 52 species for a total of well over 1,000 species collected on all the expeditions. This is certainly a major collection, but had Fremont taken a trained botanist with him—and been a bit more careful in handling the plant specimens—his expeditions would have produced an even more impressive collection.

It was common practice to take a botanist on such expeditions; for instance, Charles Geyer had accompanied Nicollet on expeditions that Fremont had also been on. However, no one knows why Fremont did not. A good guess would be his ego; as Engelmann said, Fremont wanted to do everything and get credit for everything.

Above: Fremont groundsel (Senecio fremontii) *was first collected by Fremont in the Wind River Mountains of NW Wyoming and named in his honor by Torrey and Gray in 1843. Arthur Cronquist described var.* inexpectatus *from the La Sal Mountains of eastern Utah in 1994 and for more than a decade the variety was thought to be endemic to Utah. Al Schneider discovered the "unexpected" groundsel in Colorado in 2007, where he took this photo (www.swcoloradowildflowers.com). Var.* inexpectatus *(sometimes erroneously spelled 'inexpectans") has more deeply divided leaves than other forms of* S. fremontii *(approaching* S. eremophilus *in their holly-like shape).*

In the late 1840s and early 1850s, Torrey and Gray described many of the plants Fremont collected and honored him in the names of quite a few of these: *Senecio fremontii, Mahonia fremontii, Populus fremontii* (a.k.a. *P. deltoides* var. *fremontii*). Many of us know as common "plant friends" a number of other species that Fremont was the first to collect: *Senecio spartioides, Hymenoxys* [*Rydbergia*] *grandiflora, Coleogyne ramosissima, Senecio multilobatus, Atriplex confertifolia, Lycium pallidum, Eriogonum inflatum, Astragalus preussii*, and *Castilleja linariifolia*.

The plants that John Charles Fremont collected will ensure that we remember his name; the details of his life will ensure that we remember how complex human beings are and that great success is sometimes accompanied by monumental failure.

References:

Spence, M.L. 1970. The Expeditions of John Charles Fremont. University of Illinois Press, Urbana, IL.

Welsh, S.L. 1998. John Charles Fremont, Botanical Explorer. Monographs in Systematic Botany from the Missouri Botanical Garden 66:1-450.

Wildflower Photography Techniques: Dealing with the Desert Sun

*Above: Preuss's milkvetch (*Astragalus preussii*) photo 1 (left) taken in bright April sun and photo 2 (right) of the same plant taken with a diffuser. Photos by Steve Hegji.*

By Steve Hegji

Since this is the March issue of the *Sego Lily*, things are warming up in the lower elevation areas of Utah and your first wildflower pictures of the year are likely to be out under the bright desert sun. The problem with that bright sun is that for most of the day it creates conditions where every picture includes both very bright and very dark areas. The *Astragalus preussii* shown in Photo #1 is an example of this problem. It was taken at 11am in the middle of April along highway 6, about 10 miles north of I-70. The bright areas have nice vivid colors, but they contrast so sharply with the shadows that the picture is a bit hard on the eyes. These conditions tend to reduce the visible detail in both the brightest and darkest portions of the photograph. Notice also how the sunlit earth in the upper right hand corner of the picture creates a bright area that distracts from the subject of the photograph. I'll give you three techniques, all of which will improve pictures taken in bright sunlight.

Technique #1: Eliminate the Sun. If the sun is the problem, let's remove it. What would have been more ideal for the *A. preussii* picture is to have taken it in the early morning, or early evening, when the plant was not receiving direct sunlight. Cloudy or overcast days are also great for desert photography because the light is more diffuse – which darkens the bright areas, and lightens the dark areas. Waiting for the weather can be inconvenient, but if you happen to find yourself out there on a cloudy day, then rejoice, your plant pictures will be better.

Technique #2: Create your own cloud. If you don't want to be captive to the vagaries of the weather, consider creating an artificial "cloudy day". This can be as simple as carrying a large square cut from a white bed sheet. Your friendly assistant can hold it for you while you take the picture. I own a photographic accessory called a diffuser, which is just a more expensive version of that white bed sheet. Photo #2 shows the same plant but with the diffuser creating better light. Notice that although the colors are very slightly muted, you can see more detail in both the bright and dark areas. And the distracting brightness in the upper right corner is gone.

Technique #3: Get a Second Sun. Counter-intuitively, another technique you can try is to add MORE light. Position yourself so that the sun is not at your back, but to one side or the other and use your camera's flash to illuminate the dark areas and even out the overall brightness. This technique is called "fill flash". I didn't do that with this plant or I'd show that picture too, but I encourage you to experiment with it. For a more extensive discussion of this topic, I recommend you go to Ken Rockwell's website (www.ken rockwell.com), click on the "How to Take Better Pictures" link to get to a page of articles, then scroll down and click on the "Fill-Flash" link.

In the May *Sego Lily* I'll talk a little bit about composition. As examples I'll use some photographs of Glacier Lilies (*Erythronium grandiflorum*). They should be out in abundance on the Wasatch Front between mid-April and mid-May. Get out and take some pictures of this beautiful plant. I think you'll find it more fun to follow along if you've got some of your own to examine. I'll also direct you to another useful website for photographers. I will depend on the internet presence of great photographers like Ken to instruct you in greater depth than I can here in the *Sego Lily*.

Consider the Dandelion Before You Dig

By Peter Lesica
Adapted from *Kelseya*, the
newsletter of the
Montana Native Plant Society

The adorable elderly woman living across the street hates dandelions and hires a local landscape company to herbicide her lawn so she never has any. On the other hand, I kind of like dandelions with their cheery yellow flowers announcing the end of winter. Much has been written about their culinary and medicinal uses, and there is reason to believe that dandelion seeds were intentionally carried to the New World on the Mayflower. The leafless flower stalks elongate greatly when mature, always releasing an abundance of seeds just ready to colonize any bare spot (and there are many) in my lawn. There's a reason dandelions are such prolific seed producers. Our common weedy dandelions produce hundreds of flowers that are agamospermous; that is they produce seeds in the absence of any pollination. Male parts of the flowers are superfluous for seed production. The pollen is sterile and in some cases isn't even produced. The plants have no need to worry about the vagaries of insects or wind for pollination. Every one of those flowers in these asexual plants produces a viable seed.

This mode of seed production has some interesting consequences. For one thing it means that clones (populations of genetically identical and morphologically constant plants) may occur in one field or across a continent. Jennifer Lyman, a teacher at Rocky Mountain College, sampled 500 dandelion plants from 22 populations across the U.S. and found 47 different clones. Most clones were restricted to one location, but one clone was found in 19 sites. Some dandelion clones are morphologically distinctive enough that they become recognized as separate species (often called microspecies) by some taxonomists. This wouldn't be a problem if there were only a few distinctive dandelion clones, but there are thousands. New clones are produced in two ways: mutations and reorganization of the chromosomes during seed formation or rare crossing between sexual and asexual parents. Probably most of these newly formed asexual plants appear identical to the clonal parent, but some can be recognized as different, and the result is daunting. Dandelion taxonomists recognize about 2,000 species in Europe and as many as 250 in Alaska. New species are being described nearly every year.

North American taxonomists have generally been much more conservative. The recent treatment in the *Flora of North America* recognizes 15 species, and just four of these occur in Utah. Two are native species occurring in the mountains of North America (*Taraxacum scopulorum* = *T. lyratum* and *T. ceratophorum* including *T. eriophyllum*). The other two are the widespread weeds we are all so familiar with. That's right; there are two species not just one! For many years I called them all "common" dandelion (*T. officinale*) and so have most of my plant ecologist friends. Common dandelion has olive-green seeds, and the leaves usually (but not always) have a large,

*Above: The Common dandelion's (*Taraxacum officinale*) English name is a corruption of the French term dent-de-lion (tooth of the lion) for its leaf shape. Photo by Al Schneider (www.swcoloradowildflowers.com)*

Can't Beat 'em? Eat 'em!

Non-native dandelions may be the scourge of the tidy, modern suburbanite, but for thousands of years they have been considered food and medicine. Ancient Egyptians consumed dandelions to treat stomach and kidney disorders. Europeans have a long history of consuming fresh leaves for salads and grinding and roasting the roots as a coffee substitute. In American folklore, dandelions have been used in remedies for warts, rheumatism, and gallstones.

Modern science confirms the nutritional value of *Taraxacum*. Dandelion greens have 50% more vitamin C than tomatoes, double the protein content of eggplant, and twice the fiber of asparagus. They are also being rich in potassium and iron. The leaves can be consumed raw, cooked in soup, and even converted into wine. Leaves should be picked before the yellow flowers appear (after which they become much more acidic) and harvested in areas free of chemical herbicides. - *W. Fertig*

unlobed terminal portion. "Red-seeded" dandelion (*T. laevigatum*) has brick-red seeds and leaves lobed to the tip. Some dandelion taxonomists think these two forms are actually clusters of microspecies, but only a few of these segregates have been named.

I first noticed the difference between the two dandelion types in my neighborhood where they occur in different habitats. Part of my yard is cool and shaded and supports only common dandelion. Another area is on a steep, west-facing slope with stony soil, and both species of dandelions are found All the dandelions on the nearby dry hillside are red-seeded. They seem like two species to me because the seed color and habitat preference are strongly correlated. However, the late Ronald Taylor at Western Washington University thought otherwise. He conducted a study that he believed showed that characteristics of red-seeded dandelion are induced by a harsh environment. I am dubious because the seed color seems like an unlikely character to change with environmental stress. However, there is no question that dandelions are capable of large changes in appearance in response to the environment (phenotypic plasticity). For example, Otto Solbrig and his students found that common dandelions exposed to frequent mowing (not mine) hold their leaves flatter to the ground than those that are unmowed. The dandelions have not yet figured out how to avoid the digger purchased at your local hardware store. This spring you can check out the dandelions of grasslands and yards near you and see if you think there really are two species (before you dig them up).

References:

Lyman, J. C. and N. C. Ellstrand. 1984. Clonal diversity in *Taraxacum officinale* (Compositae), an apomict. Heredity 53: 1-10.

Solbrig, O. T. 1971. The population biology of dandelions. American Scientist 59: 686-694.

Taylor, R. J. 1987. Population and biosystematic interpretations in weedy dandelions. Bulletin of the Torrey Botanical Club 114: 109-120.

Searching for Thalictrum dasycarpum *in Utah*

*Above: Staminate (" male") flowers of Fendler's meadow-rue (*Thalictrum fendleri*), the most widespread species in the genus in Utah. Photo by Al Schneider (www.swcoloradowildflowers.com).*

By Noel and Pat Holmgren

Park and Festerling (1997), in their treatment of *Thalictrum* (Ranunculaceae) for *Flora of North America,* include southwestern Utah in their distribution for *Thalicturm dasycarpum*. During preparation of the *Thalictrum* manuscript for *Intermountain Flora,* we kept an eye out for specimens to voucher the Utah record, which would represent a substantial disjunction from the main distribution of the species. No luck. Stan Welsh did not mention this species in *A Utah Flora*. Not ready to give up, we wrote to Marilyn Park, asking where she had seen the Utah record. No response.

We noted that *Thalictrum dasycarpum* was in the group that Park studied for her Ph.D, so the NYBG Library acquired a copy of her thesis (Park 1992) for us. Lo and behold, she cited two Utah specimens, both *M. E. Jones* unnumbered collections from St. George, 24 June 1878 (California Academy of Sciences) and 24 June 1879 (University of California at Berkeley). On a visit to California herbaria in connection with our work on *Intermountain Flora,* we examined the two specimens plus two additional ones at Rancho Santa Ana Botanic Garden Herbarium (POM) where M. E. Jones' personal herbarium is housed. One POM specimen was labeled St. George, Utah, 24 June 1879 [1878 had been crossed out], the other Garden of the Gods, "Utah" [error for Colo.], 24 June 1879 [1878 had been crossed out].

Jones did not move to Utah until February 1880, a year or two after the "St. George" collections were taken. His fieldwork in 1878 took place in Iowa and Colorado, not in Utah. In 1879 he collected early in the season in Colorado and from mid-July until early September in the area around Salt Lake City, not St. George. His itinerary (*Leaflets of Western Botany* 10:193-197. 1965) indicates that he did not collect in the St. George area until late March 1880. In view of the confused dates (1878 vs 1879), confused locality (St. George, Utah, vs Garden of the Gods, Colo.), and his itinerary (not collecting in the St. George area before late March 1880), we are convinced that the label information on the "St. George" specimens is incorrect, thereby making the report of *Thalictrum dasycarpum* in Utah erroneous. The Jones specimens could have been collected at Garden of the Gods, Colorado, in 1878 (POM!) or 1879 or near Grinnell, Iowa, in 1876 (POM!), 1877 (POM!), or undated (NY!).

References:

Park, M. M. 1992. A biosystematic study of *Thalictrum* section *Leucocoma* (Ranunculaceae). Ph.D. dissertation. Pennsylvania State University, University Park. Ann Arbor: UMI Dissertation Services. 341 pages.

Park, M.M. and D. Festerling Jr. 1997. *Thalictrum*. *In:* Flora of North America Editorial Committee. Flora of North America north of Mexico 3: 258–271. New York, Oxford: Oxford University Press.

Join the USA National Phenology Network

Track Plants and Animals in Your Own Backyard!

By Theresa Crimmins
and Erin Posthumus
(Reprinted from *The Plant Press*,
Arizona Native Plant Society,
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What do a robin building a nest, a butterfly emerging from a cocoon, and a cherry tree in bloom all have in common? All are examples of phenology, or seasonal life cycle events in plants and animals. Throughout history, people have used phenology to make decisions about when to plant crops and when and where to hunt for particular animals. More recently, phenological observations such as timing of bird migrations, insect molts, and flowering have proven to be very valuable in documenting species' and ecosystems' responses to changing climate conditions.

Changes in phenology are among the most sensitive biological responses to climate change. For example, some butterflies are becoming mismatched with their host plants, the life cycles of some pests are becoming better matched with their hosts, and, in some cases, species with phenologies that are adapting to changes in climate are increasing in abundance while those that are not adapting are declining in abundance.

In general, readily accessible long term phenology data are rare, which limits our ability to understand the changes taking place and forecast their likely impacts. Recognizing this limitation, the USA National Phenology Network (USA-NPN) - a collaborative network of government agencies, non-governmental organizations, citizen science and education programs, and individuals—was created. A key activity of the USA-NPN has been the creation of Nature's Notebook, a national plant and animal phenology observation program.

Above: Creeping rush-pea (Caesalpinia repens, *a.k.a.* Hoffmanseggia repens) *is a Colorado Plateau endemic in the legume family from a genus better known from the tropics. Unlike most legumes in Utah, the uppermost petal (or banner) of* Caesalpinia *does not enclose the other petals in the bud stage. Look for this species along roadsides near Hanksville or Green River (where this photo was taken) in early May. Photo by W. Fertig,*

Using Nature's Notebook, you can track the phenology of plants and animals in your yard. By doing so you will join thousands of other individuals who are providing valuable observations that scientists, educators, policy makers, and resource managers are using to understand how plants and animals are responding to climate change and other environmental changes. Your observations make a difference! Here's how it works:

1. Go to www.usanpn.org

2. Learn about the plants and animals you can observe. Find out which species in your area are on the list—learn more about them and the phenological phases to look for.

3. Learn how to observe. Learn how to select a site, select your plants and animals, and record your observations.

4. Sign up to be an observer. Become an official participant and set your username and password. All you need is an email address and Internet access.

5. Start reporting. Now you are ready to register your site and the plants and animals you will observe, and start reporting. As you collect data during the season, log in to your account at "Nature's Notebook" and enter your observations.

6. Have fun being a "citizen scientist"!

Utah Botanica
Odds and Ends from Utah Botany

Maguire's daisy off the Endangered Species List

On February 18, 2011, the state of Utah bid farewell to one of its Endangered plant species—Maguire's daisy (*Erigeron maguirei*). Don't fear for the little, white-flowered daisy, known only from slickrock canyons in Wayne, Emery, and Garfield counties—it has not become extinct. Quite the contrary, Maguire's daisy has been delisted because it is no longer in need of Endangered Species protection.

Maguire's daisy was first collected by its namesake, Bassett Maguire, from the San Rafael Swell in 1940 (when travel through this area was still extremely difficult). It remained known only from the type locality for over 40 years and was first proposed for protection in the mid 1970s. When it was formally listed as Endangered in1985, fewer than 10 individual plants were known from a single population, and the species was thought to be extremely vulnerable to impacts from mineral development, off-road vehicle recreation, and grazing or trampling by livestock.

Efforts to discover more populations of Maguire's daisy began in earnest after it was listed, as federal agencies in central Utah found themselves responsible for the plant's welfare under the Endangered Species Act. Over the next two decades, Ron Kass. Renee Van Buren, Kim Harper, Tom and Debi Clark, and others greatly expanded the plant's known range and found many more individuals. Today, Maguire's daisy is known from at least 10 main populations and an estimated 163,000 individuals. More importantly, the threats identified in the 1980s have been found to be less severe or extensive than once suspected. Several populations are also now protected in Capitol Reef National Park.

The Maguire's daisy is just the 21st plant or animal species to be de-listed on the basis of recovery in the United States.

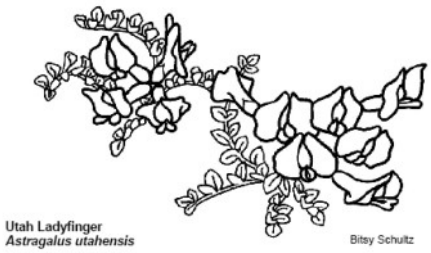
Above: Maguire's daisy (Erigeron maguirei), *a Navajo sandstone endemic of central Utah. Photo by Tom and Debi Clark, NPS.*

"The delisting of the Maguire daisy shows that the Endangered Species Act is an effective tool not only to save species from the brink of extinction but also to recover them to healthy populations" says Tom Strickland, Assistant Secretary of the Interior for Fish and Wildlife and Parks. "Working in partnership with other federal agencies, state and local governments, and other partners, we can ensure irreplaceable plants and animals such as the Maguire daisy and the habitat they depend upon are preserved for future generations."

Although delisted, monitoring studies will continue for the next 10 years to assess whether *Erigeron maguirei* is continuing to thrive. If a decline is detected during this time, the US Fish and Wildlife Service can re-assess the status of the species and potentially reinstate protection under an emergency listing. - *Walter Fertig*

Las Vegas buckwheat joins Utah Candidate List

Utah's current roster of official candidate species for potential listing under the Endangered Species Act has increased from three to four species, with the recognition that Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii*) occurs in the Beehive State. Only described in 2004 by buckwheat specialist Jim Reveal, var. *nilesii* is characterized by its mound-like, shrubby growth from, yellow flowers, white-woolly flowering branches, and silvery-pubescent upper leaf surfaces. As its common name would imply, this variety is found primarily in the vicinity of Las Vegas, though additional populations are now known from Washington County, Utah and possibly Kane County (near the Paria River). Las Vegas buckwheat occurs primarily on gypsum-rich soils and is highly threatened in southern Nevada from urban expansion and habitat damage from recreational vehicles. The variety is considered a synonym of var. *aureum* in Welsh's 4th edition of *A Utah Flora*. - *Walter Fertig*



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