Sego Lily
Newsletter of the Utah Native Plant Society

May 2008 Volume 31 Number 3

A plant's eye-view (in this case the Rose-heath, Chaetopappa ericoides*) of Chimney Rock in western Capitol Reef National Park. Photo by Maggie Wolf*

In this issue:

Capitol Reef National Park and its Flora

By Walter & Laura Fertig

In a state synonymous with national parks, Capitol Reef remains one of Utah's least known protected areas. While cars are backed up trying to get into Zion, Arches, or Bryce Canyon on most summer weekends (and often weekdays), one rarely experiences a traffic jam in Capitol Reef National Park. Perhaps the park's relative anonymity stems from its isolation (located in south-central Utah between Torrey and

UNPS Spring Meeting in Capitol Reef National Park, sponsored by the Fremont Chapter, May 16-17. See page 5 for details.

Hanksville along UT Hwy 24, Capitol Reef is a little ways off the beaten path). Or perhaps the area just isn't well publicized. Whatever the reason, we can't complain. It is nice to hike without the madding crowds, to have room to ponder and muse at the overlooks, to find a parking space on the first try. All the Utah parks enjoy indescribable beauty, but solitude allows us to penetrate that splendor more deeply. And what splendor there is here!

First and foremost, the beauty and character of Capitol Reef is shaped by its geology. The park's very name is derived from two geological [continued on page 4]

Utah Native Plant Society

Website: For late-breaking news, the UNPS store, the Sego Lily archives, Chapter events, links to other websites (including sources of native plants and 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 (582-0432) or Susan Garvin (356-5108), 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). News items, articles, photos, and illustrations from members are always welcome. The deadline for the July 2008 *Sego Lily* is 15 June 2008 (Father's Day!).

The *Sego Lily* is a publication of the Utah Native Plant Society, a 501(c)(3) not-for-profit organization dedicated to conserving and promoting stewardship of our native plants. Use of content material is encouraged but requires permission (except where exempted by statute) and must be correctly credited and cited. Articles, photographs and illustrations submitted to us remain the property of the submitting individuals or organizations. Submit permission requests to unps@unps.org. We encourage readers to submit articles for potential publication. By submitting an article, an implicit license is granted to print the article in the newsletter or other UNPS publications for reprint without permission (in print and electronic media). When submitting an article, please indicate whether it has been previously published or submitted for consideration to other publications.

It's our Birthday

This year we celebrate our 30th anniversary! Back in 1978 a small group of people organized a society to further the cause of Utah's native plants, and in 2008 we plan several things by way of celebration.

Special Edition of *Sego Lily* In the Fall we shall devote a special issue to looking back at what we have accomplished over the past 30 years, calling on our records and on the memories of some of our members who have been active for the whole period of time.

***Sego Lily* Archive** We are working on a total recall edition: a complete compendium of all issues from first to last. Only for the past several years do we have electronic versions, so we have to scan old paper copies to create it. The final product will be a CD-rom readable on any computer. Thanks to a few major caches from Keith & Kathy Wallentine, Tony Frates, and Duane Atwood, we are about 99% complete. We know of only two issues that are missing: Volume 20, #6 (1997) and Volume 21, #6 (1998). So, packrats please check your middens. The first person to come up with the missing items will receive a free copy of the CD. Send an email to Bill Gray at cyberflora@xmission.com. Copies will be scanned and returned promptly. Early volumes were irregularly produced and numbered, so it is possible there are issues we don't even know about: If you have stashes from 1979 through 1985, please list them in an email so we can check against our records.

Special Members Meeting Our annual members meeting is scheduled for **October 18th or 25th** in Salt Lake City. This is when we elect our board of directors for the coming year. This time we are planning a bigger than average party at which we will look both backwards and forwards, at our past and our plans. We hope to have a great turnout of members who have played significant roles, from founding fathers and mothers to up-and-coming kids. Please mark your calendars and save the dates.

Where do we go from here? The world changes and we need to change with it. In August our Board of Directors is planning to take time for looking ahead to the next 30 years. How can we best adapt to new challenges that arise from things like global climate change and local political change? What will be the big issues in a few years? - *Bill Gray*

Chapter News

Cache: Native Plant Vegetative Plant Propagation Workshop: July 10, 6:30 PM, with a possible second session July 12 at 10 AM. Learn how to propagate native plants from cuttings. We will provide an assortment of cuttings and supplies for raising them at home. Some of the species will likely include Coyote willow,

Netleaf hackberry, Silver buffaloberry, California fuchsia, manzanita, Ceanothus, and others. Cost: $15 for Master Gardeners or UNPS members, $20 for others. Location: to be announced. Pre-register at the USU/Cache County Extension Office (179 North Main St., Suite 111, Logan, next to the historic Cache County Courthouse), or call or email (435-752-6263, alterniscapes@saabra.org).

Alterniscapes Tour: June 21 (time to be announced). Tour native plant and waterwise landscapes throughout Cache Valley. This year we have a whole new set of landscapes that range from hardscape intensive to more informal cottage gardens. We will also have a visit to USU's Greenville Farm where techniques for low water-use will be demonstrated and discussed. The tour is self-guided and you will need to furnish your own transportation, but tour guides will be stationed at all sites to answer questions. Cost: $5 per person. Pre-register at the USU/Cache County Extension Office (179 North Main St., Suite 111, Logan), or call or email (435-752-6263, alterniscapes@saabra.org). - *Steve Ripple*

Escalante (Garfield County): Dennis Bramble presented a great talk on animal/plant interactions (fascinating stuff on ants and grass and rabbits and shrubs) in Upper Valley, outside Escalante, for our February chapter meeting. In March, more than 20 volunteers participated in the Escalante Main Street cleanup. In April Terry Tolbert and I gave a presentation entitled "So how native are they?" on native plants readily available in local retail nurseries. - *Allysia Angus*

Manzanita (Kane County): Roger Hoverman of Wild Mountain Fire and Forestry described landscaping practices to reduce risk of wildfire in the wildland-urban interface for our March meeting. In April, Bala Chaudhary of Northern Arizona University described recent research that is changing our perspective on the biological richness and ecological interplay between soil microbes and plant roots. On May 6, Ethan Aumack of the Grand Canyon Trust will give a presentation on his organization's research programs on grazing and fire management practices at the historic Kane/Two Mile Ranch in the House Rock Valley and Kaibab Plateau in northern Arizona. This meeting will be held at 7 PM in the Grand Staircase-Escalante NM Visitor Center in Kanab. - *W. Fertig*

Salt Lake: Saturday, May 3rd, 9 AM-2 PM—Plant Sale at REI. Our annual plant sale fundraiser will be sponsored by Jeanette Warner of Wildland Nursery. She will have a huge selection of various native perennials, shrubs, and trees. 10% of the proceeds will benefit the Salt Lake Chapter. Please pass the word to friends and family!

Wednesday, May 21st, 7 PM Chapter meeting. Jack Brown of the Utah Bureau of Land Management will discuss the Great Basin Restoration Initiative, an ambitious project being carried out by the BLM in several western states. The goal of this project is to rehabilitate the land after many years of abuse, fires, overgrazing, etc.—*Bill Gray*

Southern (Washington County): The chapter's plant sale in April was a great success, with Wildland Nursery and Great Basin Natives present and nearly selling out of their entire stock. For those who may have missed it, at least one of the nurseries will be back on the weekend of May 3-4 at the Desert Bloom Festival in Kayenta. Also on May 3 The Nature Conservancy is sponsoring its annual field trip, led by Renee Van Buren of Utah Valley State University, to see the endangered Dwarf bearclaw poppy and other Mojave plants of the St. George area. The field trip is limited to 20 people, so you must make a reservation (801-531-0999, or email hnedreberg @tnc.org) by April 25.

On May 5, Carolyn Shelton will present "Sex in the garden and field" (about plant reproduction) at 7 PM in the Canyon Community Center, 126 Lion Blvd., Springdale. The June 2 chapter meeting (also at 7 PM in the Canyon Community Center) will be on Firescaping with a panel composed of Rich Heflebower, Katie Johnson, and Claire Crow. Contact Barbara Farnsworth (772-0525) for information. - *Margaret Malm and Barbara Farnsworth*

Utah Valley (Utah County): Every Tuesday at 2:30-4:30 PM our chapter is working with students at Wasatch Elementary (1040N 900E in Provo) on the Heritage Garden (call Bitsy Schultz for more information). Every Thursday morning at 10 AM our Plants and Preschoolers group goes on short walks tailored for young children (though everyone is welcome). We hike trails throughout Utah County. Call or email me (801-377-5918, celeste.p.kennard@gmail.com) for information.

Join us Saturday, May 3, at 9:30 AM for a work day at the Wasatch Heritage Garden located at 1040N 900E in Provo. We will be preparing the garden for two activities celebrating its 10th anniversary.

Friday, May 23rd from 9-11 AM we will have a tour of the garden during school hours and other activities to honor the garden's 10th birthday.

Saturday, May 31: Anniversary celebration and potluck brunch, 10-12 AM. If you have ever worked in or enjoyed a heritage garden or want to learn more about water-wise gardening, please join us for a reunion hosted by Susan Meyer and Bitsy Shultz. Darin Johnson, now owner of Mountain Meadow Nursery, was a teacher at Wasatch Elementary and offered a home for our first Heritage Garden. The garden is easy to spot at 1040N 900E in Provo and there is plenty of parking. Bring a chair or a picnic blanket and your favorite brunch item. We will provide the tableware.

Final note from the President: I would love to have a garden tour this year or some field trips or lectures. Call me if you are willing to lead an activity - *Celeste Kennard*.

Capitol Reef National Park and its Flora

[continued from page 1] references: "capitol" for the white domes of Navajo Sandstone like so many capitol rotundas, and "reef" for the tilted bedrock along the east boundary that was as much a barrier to pioneer travel as a coral reef is to shipping. This reef, better known today as the Waterpocket Fold, is the park's preeminent geological feature. Spanning nearly 100 miles from Thousand Lake Mountain nearly to Lake Powell, the Fold is a faulted spine of colorful sedimentary bedrock that was uplifted more than 7000 feet in the late Cretaceous. Over time the different geologic layers exposed by the great fault have been carved by wind and rain into deep canyons, picturesque domes, arches, and "waterpockets" (also known as potholes or tenajas) that provide valuable water sources for wildlife following rainstorms.

As with so many parks and monuments of southern Utah, many of the most notable cliffs, canyons, and other stone features of Capitol Reef are derived from the Navajo and Wingate sandstones. However, at least 17 other major geologic formations are represented in the park, spanning more than 200 million years of earth history. These rock layers represent a variety of past environments, including coastal deltas, ancient rivers, deep marine waters, Sahara-like dune fields, and debris from ancient lava flows and glaciers.

Geology has helped shape the history of human settlement and land use in the Capitol Reef area. The earliest known inhabitants were the Ancestral Puebloan and Fremont, who occupied the area from 2000-8000 years ago (the latter culture was named for the Fremont River that slices through the park and where many of the first Fremont sites were discovered). These cultures practiced farming along the fertile banks of the Fremont until the great droughts of the 13th Century, after which the region was populated by nomadic bands of hunter-gatherers.

The Waterpocket Fold provided a barrier to white exploration and settlement until the mid-19th century. Almon Thompson of the Powell survey made the first scientific foray into the Capitol Reef country. Shortly thereafter Mormon pioneers settled the area in the late 1870s and early 1880s. The present orchard in the park was planted when the small farming community of Fruita began in 1886. Limited road access and distance to markets kept the community small and made farming a struggle, however, and local civic leaders began searching for alternatives to promote the local economy. In the 1920s, many started to advocate for protection of the geologic features of the Fruita area as a state or national park under the name of the "Wayne Wonderland" (after Wayne County). After a few false starts, Capitol Reef was declared a national monument in 1937. The boundaries were enlarged nearly 600% by Lyndon Johnson as one of his last official acts as President in January 1969 to the dismay of many in the local community (perhaps not surprisingly, Utah has not voted for a Democratic presidential candidate since). Congress made Capitol Reef a national park in 1971.

Above: Capitol Reef National Park, by Maggie Wolf

From a botanist's perspective, Capitol Reef is one of the more notable national parks because of its diversity of vegetation and high species richness. Ken Heil, Mark Porter, Rich Fleming, and Bill Romme conducted a major survey of the park's vegetation in the late 1980s and early 1990s and identified 34 main plant communities. They found the vegetation to be strongly influenced by elevation, geology, and proximity to water.

The driest, lowest areas of the park tend to coincide with bentonitic (shrink-swell) clays and gypsum badlands derived from the Moenkopi, Chinle, and Mancos shale formations. These areas typically are vegetated by salt desert scrub consisting of Shadscale, Mat saltbush, Castle Valley saltbush, and Spiny hopsage. Desert lowlands with shallow soil over impervious bedrock tend to support stands of Blackbrush.

At higher elevations and on old alluvial terraces, desert scrub and blackbrush are replaced by sagebrush grasslands of Big sagebrush and Rubber rabbitbrush. Sites that are especially sandy may be locally dominated by Sand sagebrush, while saline terraces are vegetated by Greasewood.

Much of the park consists of woodlands of Two-needle pinyon and Utah juniper on thin, rocky soils derived from sandstone bedrock. Open expanses of slickrock may be sparsely vegetated by low cushion plants, rounded clumps of Dwarf mountain mahogany, or, rarely, Bristlecone pine. At the highest elevations or in shady canyons, the pygmy pinyon-juniper forest gives way to Ponderosa pine-Greenleaf manzanita on dry sites and Quaking aspen in more mesic environments.

A variety of wetland vegetation types are associated with the Fremont River and its smaller tributaries as well as wet seeps or springs. Fremont cottonwood and willow occur commonly along the larger watercourses, often interspersed with marshy stands of Common reed and Baltic rush. Hanging gardens, associated with shady cliff alcoves and perennial seeps, are commonly inhabited by Southern maidenhair fern, Giant helleborine orchid, and Western poison ivy.

All told, the mix of vegetation types and geologic substrates in Capitol Reef National Park provides habitat for at least 887 species of vascular plants. Capitol Reef is second only to Zion in overall species richness among national parks in Utah and third behind Grand Staircase-Escalante National Monument among all protected areas of the state. In fact, an industrious botanist can find almost ¼ of all vascular plant species native or naturalized in Utah within Capitol Reef. The park is especially well-represented by local and regional endemics, with over 140 plant species restricted to the immediate vicinity of Capitol Reef or the Colorado Plateau. Of these, more than 60 are considered species of concern by the Utah Conservation Data Center and seven are currently listed as Threatened or Endangered under the US Endangered Species Act (18 more were under consideration for listing at one time).

Capitol Reef's rarest plants tend to be edaphic endemics restricted to a particular soil or geologic type that is itself of limited distribution. These include Jones' cycladenia (*Cycladenia humilis* var. *jonesii*),

Above: Last Chance townsendia (named for Last Chance Creek) is unusual within its genus for having yellow flowers, rather than the more typical white, pink, or bluish blossoms of other Townsendia species. Photo by W. Fertig.

found only on gypsiferous clays; Barneby's reed-mustard (*Schoenocrambe barnebyi*) of Moenkopi talus; Last Chance townsendia (*Townsendia aprica*), Winkler's cactus (*Pediocactus winkleri*) and Wright's fishhook cactus (*Sclerocactus wrightiae*) found on siltstone and clay soils; and Harrison's milkvetch (*Astragalus harrisonii*), Maguire's daisy (*Erigeron maguirei*), Beck's spring-parsley (*Cymopterus beckii*), and Rabbit Valley gilia (*Gilia* or *Aliciella caespitosa*) of Navajo sandstone slickrock. One of the park's rarest species is the federally Threatened Ute ladies'-tresses orchid (*Spiranthes diluvialis*), which has not been relocated at Capitol Reef for more than a decade.

Although the park's flora is well documented, new discoveries continue to be made. Just since 2004, botanists and ecologists working on various projects for the park service have reported 35 new plant species for Capitol Reef. The most notable finding has been *Eriogonum corymbosum* var. *heilii*, discovered by Debi Clark on Thousand Lake Mountain and described as a new variety by buckwheat systematist James Reveal in 2004. What other plants remain to be found in the high peaks and shadowy canyons of the park?

2008 UNPS Spring Meeting in Capitol Reef National Park

The new Fremont Chapter (covering Richfield and the greater Richfield area) will be hosting the UNPS Spring meeting in Capitol Reef National Park on the weekend of May 16-17. The following is a list of events being offered:

Friday, May 16: for those who want to arrive early, Group Area A of the Sunglow Campground on Highway 24 (just outside of Bicknell) has been reserved. There are also individual camp sites available on a first come first served basis. For those who prefer not to camp, there are several nice but reasonable motels in the area (such as the Aquarius Inn in Bicknell, and Wonderland and Boulder inns in Torrey). You will need to make your own motel reservations.

Saturday, May 17: BLM botanist Maria Ulloa will lead a morning hike in Capitol Reef National Park. Meet at 9 AM at the Sunglow Campground, Group Area A and from there we will travel to the trailhead in the park. Bring a sack lunch and plenty of water.

No formal outdoor activities are planned for the afternoon. The state UNPS board will meet in the conference room at the Aquarius Inn in Bicknell at 3 PM. At 5 PM Bob Campbell, ecologist with the Fishlake National Forest, will give a presentation on the ecology of the Capitol Reef area in the Aquarius Inn conference room.

The day concludes with a potluck dinner hosted by the Fremont Chapter at 6:30 PM at the Group Area A site at the Sunglow Campground. The chapter will provide meat, but participants should bring their own beverages. C.R. Wood, local cowboy poet will provide dinnertime entertainment. — *Rebecca Harmon*

2008 Utah Native Plant Society-Red Butte Garden Rare Plant Meeting

UNPS Honors Duane Atwood

Article and photo by Tony Frates

On March 4, 2008 at the annual rare plant task force meeting, the Utah Native Plant Society presented Dr. N. Duane Atwood with a lifetime achievement award. The presentation was made following Duane's keynote speech relating to the early history of UNPS (and the concern we should all have for the future of systematic botany).

Armed with an MS degree from BYU in 1967 followed by a Ph.D. degree also from BYU in 1973, Duane became the first Utah BLM botanist in 1975, and the second BLM botanist nationally. On the heels of the passage of the Endangered Species Act of 1973, Duane became actively involved in developing various rare plant programs and publications in a number of western states. In Utah, this ultimately led to the publication of the *Utah Endangered, Threatened and Sensitive Plant Field Guide* in 1991, a pioneering work which other states later followed (and which is the basis for the Utah Rare Plant Guide hosted and maintained by UNPS at www.utahrareplants.org).

In September of 1978 Duane was part of a small group of botanists that helped found UNPS. Duane was the first president of UNPS, serving in that capacity until 1981 (and continuing on as a board member for many years).

As the primary mover and shaker of the UNPS rare plant committee throughout the 1980's, Duane spearheaded annual rare plant meetings that provided input to the status of candidate species to the Fish & Wildlife Service and which in essence began the tradition of information sharing and networking that we attempt to continue today. His extensive efforts with rare plant conservation have led to continued research and protective actions for many species but perhaps most notably *Phacelia argillacea* and *Arctomecon humilis*.

Above: N.D. Atwood holding UNPS lifetime achievement award.

After working first as zone botanist for the Forest Service's Intermountain Region from 1978 to 1983 and then as regional botanist until 1992, he has since been the assistant curator/collections manager at the BYU Herbarium in Provo where he tirelessly continues his role of taxonomist, educator, author and explorer. This lifetime achievement award, while overdue, was appropriately made at a rare plant conference and as UNPS nears its 30th anniversary.

As an expert in the *Hydrophyllaceae*, co-author of *A Utah Flora*, the discoverer and rediscoverer of numerous Utah native plant species, and the most prolific Utah native plant collector ever (with over 32,000 collections and counting), Duane would be eligible for any number of lifetime achievement awards related to Utah botany and is truly one of Utah's botanical legends. However it is in connection with his leadership, inspiration and continuing efforts to promote and improve communication between government agencies, education institutions, conservation groups and the general public that we are the most grateful.

Congratulations Duane, and thank you.

Selected Abstracts

Interagency Rare Plant Conservation in South-central Utah

By Tom Clark, Capitol Reef National Park and Debi Clark, USFS/ BLM Interagency botanist

The Waterpocket Fold and San Raphael Swell in south-central Utah encompass spectacular scenery and unique geologic features. The convergence of semi-arid environmental conditions, rapid elevation change, and unique geologic substrates has resulted in extremely high levels of plant endemism. Numerous federally listed and candidate plant species occur in the area and 32 additional species are considered endemic and rare. In the past, each federal agency did rare plant work on its land as funds became available, resulting in a piecemeal approach to species management. In 1999, Capitol Reef National Park, Bureau of Land Management Richfield Field Office, Fishlake National Forest, and Dixie National Forest developed an interagency agreement to hire a botanist and coordinate inventories for these species across agency boundaries. Information gathered has enabled the agencies to concentrate on species that are truly rare. Inventory data has shed light on life histories of many species. Monitoring has provided information about rare species that has enabled the agencies to make informed management decisions. Information gathered during this partnership has enabled the participating agencies to coordinate their management of rare plants and to meet the fundamental beneficial intent of the Endangered Species Act.

Uinta Basin Rare Plant Forum Update

By Joan Degiorgio, Northern Mountains Regional Director, The Nature Conservancy

The Uinta Basin Rare Plant Forum had its first meeting in November 2005. In general the Forum provides an opportunity for university, agency, industry, consultant, conservation group and local government participants to discuss the latest surveys, studies, and findings for the Uinta Basin's most at-risk plants. More specifically, they are working together to produce a biologically-driven strategic plan for the nine most at-risk rare plants impacted by energy development in the Uinta Basin. The planning process provides a structure through which known information about the nine plants is being assembled: common threats will be assessed, and specific strategies will be collectively developed to abate the threats. In 2008 the Forum will complete the Plan. Prior to plan completion, the group has moved ahead with "no-regret" strategies, e.g., additional training needed for consultants, better data sharing, and need for additional surveys. Several actions are being implemented this spring: 1) an inter-agency training for consultants doing surveys for energy companies; and, 2) a May 2-3 volunteer survey effort for Graham's penstemon. We are looking for both experts and non-experts for the surveys – please join us!

Finding Gaps in the Protected Area Network in the Utah Portion of the Colorado Plateau

By Walter Fertig, Moenave Botanical Consulting, Kanab, UT

About 19% of the Colorado Plateau region of Utah is currently under some form of permanent protective status. Most of these protected areas, however, were established for their scenic, cultural, or recreation value rather than conservation of biological diversity. I used Gap Analysis methods to determine how well vascular plant species are represented in the existing protective network and to identify types of species, habitats, and geographic areas that are unprotected. At present 1948 of the 2859 species in the study area (68.1%) occur in Gap Status 1 or 2 protected areas, while 911 taxa (31.9%) are unprotected. Among protected species, 438 (22.5%) are Colorado Plateau endemics and 419 (21.5%) are listed as rare by the Utah Natural Heritage Program, while 1510 (77.5%) are widespread native or non-native species and 1529 (78.5%) are considered common. By comparison, plateau endemics (288 taxa) comprise 31.6% of the unprotected flora, and rare species (345 taxa) comprise 37.9%. Species from high elevation habitats are more likely to be unprotected than those from desert shrub, sagebrush, and pinyon-juniper communities. Almost 70% of the unprotected taxa occur in just 12 plant diversity hotspots (Uinta Basin, Tavaputs Plateau, Book Cliffs, Wasatch/Fish Lake plateaus, San Rafael Swell, La Sal Mountains, Abajo Range, Henry Mountains, Richfield area/Arapien shale, Tushars, Aquarius Plateau, and Pine Valley Mountains) that are not currently part of the state's protected area network.

Update on White Dome Nature Preserve

By Elaine York, The Nature Conservancy

The Nature Conservancy (TNC) and partners are making significant progress in their efforts to purchase and protect an 800-acre White Dome Nature Preserve for two of Washington County's federally-listed plants - the dwarf bear poppy (*Arctomecon humilis*) and Siler pincushion cactus (*Pediocactus sileri*). Located in south St. George City, the project is supported by U.S. Fish and Wildlife Service, the State of Utah, School and Institutional Trust Lands Administration (SITLA), Utah Department of Transportation (UDOT), St. George City, Washington County, Red Cliffs Desert Reserve, TNC and others. The landowner, SITLA, and TNC have signed a Letter of Intent that established SITLA's willingness to sell approximately 660 acres to the Conservancy as funds are available up to the year 2015. By spring 2008 TNC will have acquired 190 acres of the Preserve with generous grants from U.S. Fish and Wildlife Service (applications made through the State of Utah) and funds from TNC. All are optimistic that the funds will be raised to purchase the remaining acreage. Additionally, SITLA has sold 140 acres to UDOT as a mitigation property for the Southern Corridor, a soon-to-be-built highway south of the preserve. UDOT's and TNC's properties will be managed as one preserve.

An endowment for the White Dome Nature Preserve has recently been established to generate funds for some of the ongoing management costs. Long term plans for the Preserve include rare plant monitoring, habitat restoration, fencing and a limited trail system so local residents and visitors alike can appreciate the natural treasures of Washington County through a series of hiking trails and educational signage. In addition to the two federally-listed plants, the White Dome Nature Preserve is home to burrowing owls, roadrunners, kit fox, zebra-tailed lizards, and sandpaper bush.

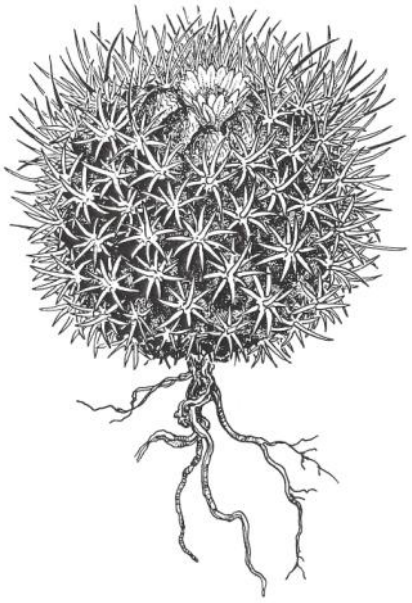
Andrew Lafayette Siler (1824- 1898), Cabinet Maker, Lawyer, Teacher and Collector

By William H. King

Andrew Lafayette Siler was born December 4, 1824 at Sweetwater, Roan County, Tennessee, son of William Syler and Charlotte Foute of German descent. Around 1836 the family moved to Cassville, Georgia. In 1847, Andrew served in the Mexican American war as a Georgia Volunteer. Andrew joined the Latter Day Saints church in 1850 and moved to Great Salt Lake City, Utah. The 1850 census records in Salt Lake show him as single and a cabinet maker, same as his father's profession, but soon thereafter in 1851 he filed a petition to practice law and he became one of the first attorneys in Salt Lake City. Also in 1851, he was ordained a "seventy" by his church. In 1856 he helped guide the Willie Handcart Company from Iowa City to Salt Lake. Later from May 1864 to December 1866 he served a LDS southern states mission in Missouri, Georgia and Tennessee.

On May 18, 1851 he married Ruth Ann Van Valkenburgh at Big Cottonwood Canyon and on January 14, 1857 he also married Ruvina Jane Mount in Salt Lake City (they would divorce in 1866). Between his two wives he had at least 14 children. Andrew moved from town to town at the bequest of his church acting as a teacher and lawyer. The birthplaces of his children provide a good record of the movements of his family in Utah. They lived in Brigham City (1851, 1857, 1858), Manti (1853), American Fork (1859, 1860), Fountain Green (1861, 1863), Washington City (1864), Grafton (1866), Springdale (1868), Belvue (1870, now Pintura) and Glendale (1873). About 1875, he finally settled for most of the rest of his life in Upper Kanab, near the present Alton, in Kane County. This area was variously referred by him as Pah Reah, Osmer or Ranch, Utah. He also may have lived in Hillsdale for a short period in 1883. The Siler Ranch grew hay, grain and potatoes for their own consumption and produced butter and cheese to sell or trade.

It is not known when or how Andrew developed his keen interest in collecting plants but Siler did write John A. Kennicott, a well known nurseryman in Grove, Illinois, in 1862 to ask for nursery seeds and cuttings. He said that he had made his living as a cabinetmaker but had become "heartily tired of jack planes and rip saws" and thought he would "find the labor of fruit and flower growing certainly more healthy and pleasant and in all probability equally as remunerative."



*Above: Siler's pincushion cactus (*Pediocactus sileri*), a Threatened species from southern Utah and northern Arizona named for A.L. Siler. Illustration by Kaye Thorne.*

The earliest Siler herbarium specimen dates from 1870 and the last was made in 1889. In the 1880 Utah census Siler's occupation was described as botanist and naturalist. He collected mostly in southern Utah, especially in Kane and Washington counties. He also collected some in the Wasatch Mountains of northern Utah as well as in northern Arizona along the Grand Canyon and southeast Nevada. Siler made a cactus collection trip to Coahuila, Mexico in 1889. Many of his specimens have only the most general of location descriptions and most lack numeration. Cacti were his delight but he also collected ferns, bulbs and other desert species such as *Eriogonum* and *Penstemon*. He sent his cactus collections to George Engelmann in Missouri for identification. His great interest in cactus likely blossomed after he moved to Washington County in 1864. Andrew sent many other plant collections to Asa Gray and Sereno Watson at Harvard to be determined. Once identified, Siler sold duplicates of the specimens to other interested institutions and individuals around the world. His collections are held at over ten herbaria even today.

The completion of the transcontinental railroad in 1869 brought many government sponsored explorers and collectors to Utah and also made it practical for local individual collectors to ship their specimens east as well. Siler had as early as 1864 "donated fossil wood, shells and Indian curiosities" to the Smithsonian Institution. Siler may also have had contact with John Wesley Powell's survey of the Hundredth Meridian including the Grand Canyon, which had its headquarters in Kanab during 1871 and 1872. From May to August, 1875, Lester Frank Ward collected plants in central Utah in connection with the Powell Survey from his base in Glenwood, near Richfield. Siler may have bumped into him too.

Siler surely knew Joseph Ellis Johnson, another local Mormon botanical collector, nurseryman, druggist, printer and newspaperman who moved to St. George in 1865 and started the Gardener's Club. Charles C. Parry made a collecting trip in 1874 to the "Valley of the Vergin" and made his headquarters at Johnson's house in St. George. In his "Botanical Observations in Southern Utah in 1874." published in the American Naturalist in 1875, Parry credits Siler and Johnson with extending our knowledge of plants of this region.

The Siler family also supplemented their income by collecting Sego lily bulbs (*Calochortus nuttallii*) in the springtime and shipped them to Germany for sale. He supplied cactus and seed to Albert A.

Blanc, a Belgian printer and engraver who published a cactus catalog in Philadelphia, Pennsylvania during the 1880's and 90's. In 1876, he sent 4,000 specimens, (principally *Abies concolor*) to the well known nursery, Backhouse and Son, York, England.

Marcus Jones visited Siler at his ranch in June, 1890 and in the journal *Zoe* (Vol. 2, 1891), named *Astragalus sileranus* (now *A. subcinereus* var. *sileranus*) in his honor. " I take pleasure in dedicating it to my friend A.L. Siler, who has labored under the greatest difficulties in collecting the flora of that inhospitable region and who, though he has never seen this plant, has collected many rare and some new species, and has never had due recognition." Jones writing again in 1931 did not speak as nicely of Siler: "a kindly and ignorant old man, a Mormon and polygamist. He was about seven feet tall and as slim as a rail and wore about a No. 14 shoe. He was awkward and uncouth, but a real man." Jones, in his later years, had the reputation of overstating his descriptions of other botanist and collectors. Siler's great grand daughter, Velma Hansen, in her book *Born of Goodly Parents* describes Siler as "a tall man, standing six feet six inches tall and weighed 185 pounds. His hair was dark brown."

Perhaps Siler's most notable collection was that of *Echinocactus sileri* (now *Pediocactus sileri*) which he collected in May 1883 near Cottonwood Spring and Pipe Springs. Siler reported that these locations were in Utah but most likely they were just across the Utah –Arizona border in what is now called the Arizona Strip.

John M. Coulter references six different Siler collections of cactus from 1870 to 1889 in his revision of Cactaceae in "Contributions from the U.S. Herbarium," published in 1896. Among them was *Echinocactus polycephalus* var. *xeranthemoides*. Siler first collected the type of this plant in 1881.

Siler collected the type specimen of *Sheperdia rotundifolia* in the upper valley of the "Virgen" in 1873 and gave it to Parry for determination. The name was published in the *American Naturalist* in 1875. Among Siler's other collections was *Penstemon linariodes* ssp. *sileri*, first collected by him in southern Utah in 1874 and determined by Asa Gray in 1878. He collected *Lupinus sileri* (now *L. kingii* var. *kingii*) in 1873 in Washington County (published in 1875 by Sereno Watson). He also collected the type of *Eriogonum triste* (now *E. alatum*) in January 1874 in Kane County.

*Above: Roundleaf buffaloberry (*Shepherdia rotundifolia*): A.L. Siler collected the type of this species from southern Utah in 1873. Photo by Laura Fertig*

In 1876 and 1877 Siler authored several articles in "The Gardener's Monthly" entitled "Notes on Rare Plants of Southern Utah" in which he espoused Utah plants, shrubs and cactus for their use in the garden. Parry credits Siler with introducing *Penstemon palmeri* to gardeners. In 1874 Siler donated seeds of various Utah trees to the Arnold Arboretum at Harvard. Besides plants, Siler also had an interest in shells, fresh water fish, snakes, mammals, fossils, insects, galls and ancient Indian sites.

Siler suffered a paralyzing stroke sometime in the 1890s. He died on May 19, 1898 and is buried in Kanab, Utah. It is indeed ironic that Siler's great delight, cactus, may have become threatened by his collection and commercialization of them, especially *Pediocactus sileri*.

Wildflower Hotline Warms Up

Looking back through old issues of *Sego Lily* it was interesting to see some of the features that were tried at different times. One of these – a guide to what was blooming in various parts of the state – must have been a real challenge, given that the newsletter was at best monthly. But that did not prevent some very good articles from being written that can still be useful guides.

Inspired by this, and by Margaret Malm's 'What's up in Zion?' link on our UNPS website, I decided to create a small website to provide information in a more timely fashion. It was a steep learning curve, but there is now something to show for it at http://web.mac.com/wasatchgrays/Wildflower_Hotline/. This is, in essence, a small satellite of our main site at unps.org, with reciprocal links.

So far there are two main hotline pages, one for the Salt Lake area, the other for Zion (reposting Margaret's). Feel free to send me reports for other parts of the state, and I'll try to post them promptly. A few photos would also be very good to include. For some of my reports I will include 'Virtual Hikes' as outlined in the article about Google Earth and/or plant lists. This will enable one to follow the actual route taken and see exactly where plants were found (subject to masking the locations of sensitive species).

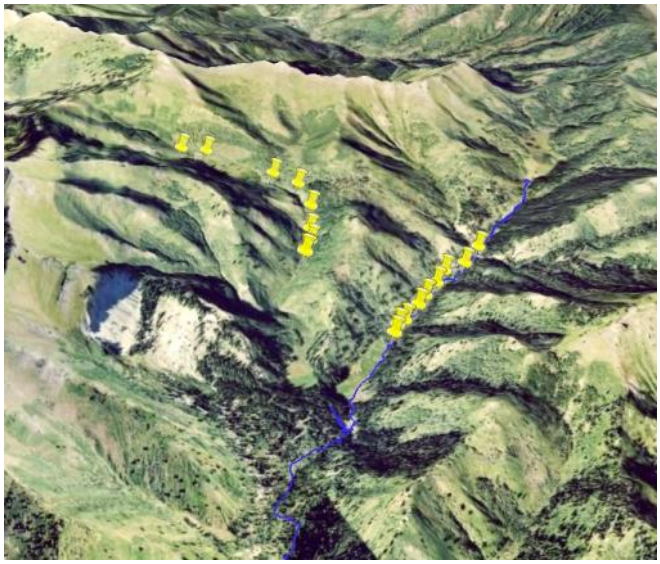
In parallel to the hotline pages there are photo albums of plants, organized by family. Most of my collection of plant images, about eight thousand and growing, will become available for viewing. Right now these are organized by botanical name, but a more user-friendly system will follow. We shall also be able to post a moderate number of other people's photos, with proper attribution. Eventually I would hope to incorporate an identification guide for the layman, and checklists for many sites large and small. It will take a while for the site to grow and have the bugs shaken out, but it is a promising way to put the electronic media to good use. *- Bill Gray*

Googling the Earth

By Bill Gray

A few years ago I was visiting a nephew in England when his 13 year old daughter introduced me to 'Google Earth'. With a few mouse clicks she transported me around the world, back to Salt Lake City, and perched me high in the sky. Then, swooping down we could clearly make out my home street! I remember thinking this would be great for keeping track of where unusual plants grow, and where one has seen anything of particular interest. Back at home, however, I found that coverage outside the city areas was quite variable in quality, so I set aside the idea for later. Later is now. Satellite images have improved immensely, so that over much of Utah one can clearly distinguish the individual bushes of sagebrush. Many new program features have been added and beautifully integrated into a handsome, smooth working system. And it's free. With it I have begun converting my collection of plant locations into a form that can be readily shared by email or internet, and viewed by anybody with Google Earth™ (GE). Your own photographs can be built into the display.

How it works. The program is a civilian spin-off from the old 'Keyhole' spy satellite days. Far in space satellites circled the earth, taking photographs of the surface. Knowing where the satellite was, how high above the surface, what direction the camera was pointing, and what lens it was using, a person on the ground could figure out exactly what was being viewed. Millions of images and several generations of computers later, the basic system is now accessible to everybody. At a central location in Mountain View, CA, images are computer-stitched into a mosaic that covers the entire earth. As you move the controls on your computer at home GE returns a continuous stream of information from the satellite images of that part of the earth's surface. You are *there* - and you can control the zoom, the orientation and the perspective! Not only that, you can easily set the computer drifting over the landscape to give a very realistic 3D sense of actually cruising along a low elevation flight.



Left: Google Earth view looking NE along upper City Creek Canyon. At left is a huge landslide that blocked the stream, which now runs underground. Blue line: track of a UNPS-led hike to map Corydalis caseana. *Yellow pushpins mark exact locations where plants were found on this and a previous hike.*

Is it really free? Yes, in the sense that television is free – it is financed by advertising. If you instruct GE to search for Moab, it will show all the restaurants, motels and campgrounds, which is great if you need them. But if not, you can hide them all with a single click. For the purpose of displaying plant locations, photos and habitats the advertising need never even appear.

Getting the program. Visit http://earth.google.com/, where you can download a free version of the software that runs on either Mac (OS X 10.4) or Windows (2000 or XP). You will need a fast Internet connection such as DSL or cable, and good graphics display. It is easy to set up, and very intuitive to use. I have written a brief user's guide, downloadable at Link 1 below.

Give it a whirl. Once you have set up the program, try Link 2 in your browser (you may have to copy and paste to get a single line). This should download a file with the .kmz extension, which is a simple text file readable by Google Earth. The 'k' is in honor of the program's origin with Keyhole. Double click on it to view a pair of hikes in City Creek Canyon, Salt Lake City. Places where Yellowbells (*Fritillaria pudica*) and Glacier lily (*Erythron-ium grandi-florum*) were blooming are marked with blue and green balloons respectively. Balloons with a star indicate there is a photo attached – not necessarily taken on that date or at that place, just an illustration. Link 3 is of a hike taken in Cedar Breaks last summer. There was a wonderful array of plants blooming, though only one photo is included at present. With both of these files you can do flyovers of the route, which I call 'Virtual Hikes' – especially effective in Cedar Breaks. The routes themselves, recorded by GPS, are shown as blue lines.

When publishing location data of this kind, I shall remove specific references to plants that are vulnerable to exploitation, such as cacti, penstemons and other collectibles. All too often the plants become victims of somebody's greed.

Link 1 (user guide) http://web.mac.com/wasatchgrays/Wildflower_Hotline/Virtual_Hikes_files/080325%20Google%20Earth.pdf
Link 2 (City Creek) http://web.mac.com/wasatchgrays/Wildflower_Hotline/Virtual_Hikes_files/080404%20City%20Creek-Morris%20Meadows.kmz
Link 3 (Cedar Breaks) http://web.mac.com/wasatchgrays/Wildflower_Hotline/Virtual_Hikes_files/Cedar%20Breaks%20plants.kmz

How to Answer the Common Question: What Native Plants Can I Grow in my Yard?

By Maggie Wolf,
UNPS Horticulture Committee Chair

You've probably been in this situation at least once – maybe many times. New acquaintances learn that you know about Utah native plants. They have good intentions to "go green" and make their landscape more environmentally friendly. Their question seems simple enough – "what should I plant"? But as a native plant enthusiast, there is no simple answer. Here are some tips for helpful, non-misleading, supportive, yet fairly quick responses:

Encourage continued interest. Echo their statements about wanting to conserve native plants, use less water, apply fewer pesticides, etc. Assure them it's smart to employ sustainable landscaping practices and that by growing native plants they will be leaders among their peers.

Introduce a larger concept. Initial focus may be on saving water in the landscape, but broaden their perspective so they will understand that not ALL native species are adapted to desert. Native plants also support native insects, which support native birds and an entire food chain, helping to keep our ecosystem balanced.

Cite a few of your favorites. Here's your chance to brag on one of your own landscape choices. Palmer Penstemon, perhaps. Fairly easy to grow, extremely tolerant of very little irrigation, and remarkably beautiful. Avoid misleading claims like "can't kill it".

Recommend resources. Gardening books on this topic are rare, and there is still much to learn about Utah native plants "in captivity". The website www.utahschoice.org is a good place to start. Forty species of Utah native trees, shrubs, grasses and perennials are described with photos. Tell them to watch for the Utah's Choice plant tags when they shop at participating garden centers and nurseries (listed on the website).

Above: Penstemon rostriflorus *in a garden in Cedar City*.

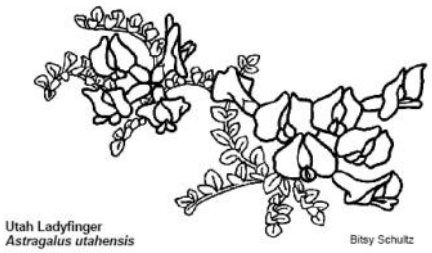
Invite them to your UNPS Chapter meetings. Everyone has something to contribute. Welcome your new acquaintances into UNPS, assuring them that they can participate at whatever level of commitment they can afford. Brag on some of the accomplishments UNPS has achieved in protecting rare and endangered species, and how much everyone's membership helps continued efforts.

For the Bookshelf (or Glove Compartment) by Bill Gray

Two field guides may be of interest to members who don't insist that everything have a flower.

Field Guide to Plant Galls of California and other Western States by Ron Russo (California Natural History Association, $16.47 from Amazon.com). When certain insects lay their eggs on plants the plant may respond by forming distinctive structures known as galls. These are familiar to anyone who walks in the outdoors and take on various forms such as knobs, spongy tissues or quite elaborate shapes. The insect develops inside this custom-built home until it is ready to emerge. Rarely do we take the trouble to investigate, and even if we do the result is usually no more informative than a squishy grub or pupa. This little book gives a fascinating glimpse into the world of galls and the insects (plus a few fungi and other organisms) that produce them. There is a very clear introduction that explains the broad outline of gall production. This is followed by a short section organized around the various agents (inducers) that produce the galls. A majority of the book's 397 pages is devoted to the plants on which particular galls occur, broken down between trees and shrubs, and then more specifically to oak, sagebrush, rabbitbrush, etc. A few hundred galls are covered, many with good photographs and some with line drawings. After our Salt Lake Chapter hike on Stansbury Island we were able to easily identify some galls on rabbitbrush as bubble galls produced by a little tephritid fly. Inside each was a small black pupa waiting for the weather to warm up before hatching. This book is thoroughly recommended for those with a general interest in natural history.

A Field Guide to Biological Soil Crusts of Western U.S. Drylands: Common Lichens and Bryophytes by Roger Rosentreter, Matthew Bowker and Jayne Belnap (U.S. Government Printing Office). Available free as a spiral bound book from the USGS (email cparry@usgs.gov), or by download as a pdf file (http://sbsc.wr.usgs. gov/products/pdfs/Field_Guide_Book_25.pdf). This is a very nice little guide of about 100 pages, intended to help workers in the field identify and monitor the soil crusts that are such an important part of our desert ecosystems. A brief introduction to the crusts and their biological function is followed by keys to the mosses, liverworts and lichens. Each species has its own page with color photos, descriptions and distribution maps. The narrower scope of this guide (it does not include lichens that occur predominantly on rocks, for instance) limits the number of people who will really get a lot out of it, but it does provide a compact source of information about these fascinating organisms for any interested person. I suggest you check out the web version to see if it is really of interest to you before sending off for a hard copy.



Non-Profit Org.
U.S. Postage
PAID
Salt Lake City,
Utah PERMIT No.
327

Utah Native Plant Society

PO Box 520041

Salt Lake City, UT 84152-0041

Return Service Requested

Want to see the *Sego Lily* in color? Or read late breaking UNPS news and find links to other botanical websites? Or buy wildflower posters, cds, and other neat stuff at the UNPS store? Go to unps.org!

Utah Native Plant Society Membership

__ New Member
__ Renewal
__ Gift Membership

Membership Category

__ Student	$9.00
__ Senior	$12.00
__ Individual	$15.00
__ Household	$25.00
__ Sustaining	$40.00
__ Supporting Organization	$55.00
__ Corporate	$500.00
__ Lifetime	$250.00

Mailing
____ US Mail
____ Electronic

Name _____
Street _____
City _____ State _____
Zip _____
Email _____

Chapter _____

__ Please send a complimentary copy of the *Sego Lily* to the above individual.

Please enclose a check, payable to Utah Native Plant Society and send to:

Utah Native Plant Society
PO Box 520041
Salt Lake City, UT 84152-0041

Join or renew on-line at unps.org