



Sego Lily

Newsletter of the Utah Native Plant Society

Fall 2021 Volume 44 Number 4



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Flora and Vegetation of Grand Staircase Escalante National Monument: Redux

by Walter Fertig

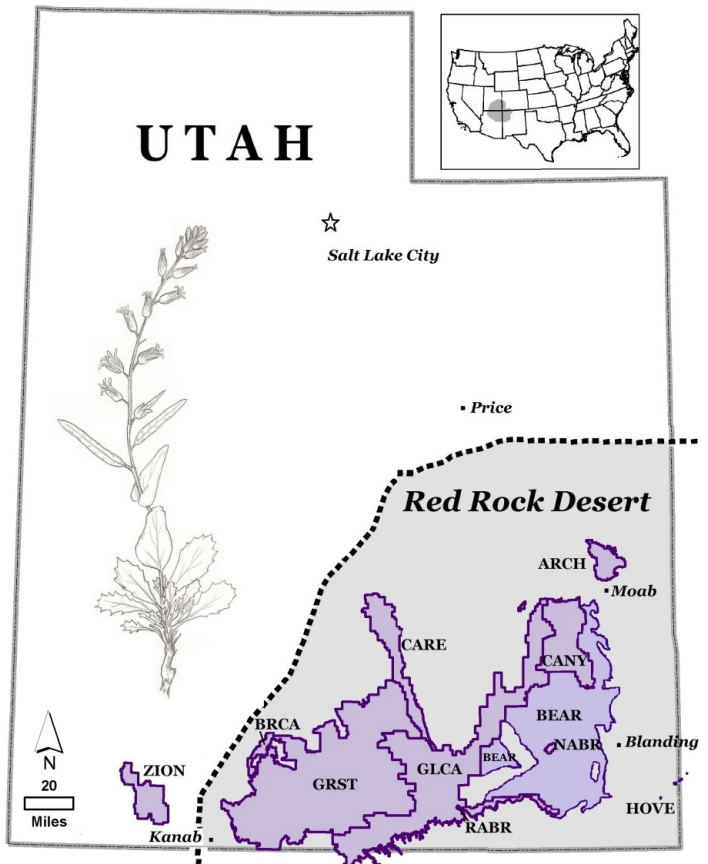
2021 was a noteworthy year for Grand Staircase-Escalante National Monument (GSENM). On 18 September, the monument celebrated its 25th anniversary. Then on 8 October, President Biden restored the monument's boundaries to their original extent, reversing the decision by President Trump to reduce the area of GSENM by nearly 40% in 2017. As part of the double celebration, I have dusted off a feature on Grand Staircase I wrote for the May 2007 issue of *Sego Lily*. The article has been revised a little to reflect new discoveries made since that article appeared.

Grand Staircase-Escalante National Monument was established in September 1996 when President William J. Clinton invoked the Antiquities Act to protect nearly 2 million acres of remote canyons and slickrock mesas in Kane and Garfield counties, Utah. In addition to spectacular scenery, the new monument contained a rich trove of geological, archaeological, paleontological, biological, and historic wonders that were to be managed as an outdoor laboratory to further scientific research. The lands comprising the monument were primarily administered by the federal Bureau of Land Management (BLM) and Utah state trust lands (swapped to BLM in 1999). In an unusual precedent, Secretary of

Interior Bruce Babbitt kept the new monument under the jurisdiction of BLM rather than turning it over to the National Park Service. GSENM became the flagship of the BLM's new National Landscape Conservation System (now called National Conservation Lands), an effort by the bureau to modify its historic role from promoting mining, livestock, and extractive industries on the "lands no one wanted" to being more conservation-minded stewards of important scientific and recreational areas.



Grand Staircase Escalante vista. Photo by Andrey Zharkikh



National Parks and Monuments of southern Utah. ARCH = Arches NP, BEAR = Bear's Ears NM, BRCA = Bryce Canyon NP, CANY = Canyonlands NP, CARE = Capitol Reef National Park, GLCA = Glen Canyon NRA, GRST = Grand Staircase-Escalante NM, HOVE = Hovenweep NM, NABR = Natural Bridges NM, RABR = Rainbow Bridge NM, ZION = Zion NP. Inset of *Strep-tanthus cordatus* by W. Fertig.

Cover photo: Escalante River—Grand Staircase Escalante National Monument. Photo by Tarpley for the Bureau of Land Management.



Kaiparowits milkvetch (*Astragalus malacoides*) is restricted to the Kaiparowits Plateau, Circle Cliffs, and Henry Mountains of southern Utah. Illustration by Kaye Thorne.

Stella's evening-primrose (*Oenothera caespitosa* var. *stellae*) and Kodachrome bladderpod (*Physaria* [*Lesquerella*] *tumulosa*), two Utah endemics from the Paria River Member of the Carmel Formation, south of Cannonville, on GSENM. Stan Welsh named the new variety of evening-primrose after his wife, Stella, in 2003. Photo by W. Fertig.

In the proclamation creating the monument, President Clinton devoted an entire paragraph to extolling the botanical and ecological values of the region. Indeed, GSENM has the second highest plant species richness of any protected area in Utah (exceeded only by Zion National Park). Much of the species diversity of the monument can be attributed to its location near the boundary of three major centers of plant speciation: Colorado Plateau, Mohave Desert, and Utah High Plateaus. In addition, GSENM's size and elevational breadth capture a wide array of vegetation types, ranging from desert shrublands to montane coniferous forests and riparian woodlands.

Floristic Diversity

At a scientific conference celebrating the first anniversary of the monument in 1997, Leila Shultz of Utah State University predicted that on-going floristic and ecological research would ultimately bring the GSENM flora to about 1100 taxa. Since then, 234 new vascular plant species have been discovered within the monument, bringing the current flora to 1003 taxa. An additional 100-200 species are known from the vicinity of the monument in Kane and Garfield counties, and may still be found in GSENM.

The vast majority of species documented in GSENM were collected by Stan Welsh, Duane Atwood, and colleagues from Brigham Young University during floristic surveys for the proposed Kaiparowits power plant in the early 1970s and again from 1992-93 and 1997-2002. Over the years, however, the monument area has attracted many other botanical luminaries, including Marcus E. Jones, Ellen Powell Thompson, Alice Eastwood, John T. Howell, Basset Maguire, Walter Cottam, B.F. Harrison, Dwight Ripley, Rupert Barneby, Noel Holmgren, James Reveal, and Arthur Cronquist, who all added significant collections, including nearly three dozen type specimens from GSENM and vicinity. Since 2001, Welsh and Atwood have described at least five new taxa that were first recognized during their surveys of the monument (Lori's columbine, Stella's evening-primrose, Murdock's evening-primrose, White chia, and Smoky Mountain globemallow).

GSENM contains about 26% of the entire flora of Utah and 46% of the flora of the Colorado Plateau section of the state. Nearly 75% of the monument's 1003 species belong to just 16 plant families, led by the sunflower family (Asteraceae, 179 taxa), grass family (Poaceae, 119 taxa), pea family (Fabaceae, 82 taxa), and mustard family (Brassicaceae, 57 taxa). Although often



Golden mariposa (*Calochortus aureus*) from the Cottonwood Wash area of GSENM. Photo by W. Fertig.

Lori's columbine (*Aquilegia loriae*) was described as new to science by Stan Welsh and Duane Atwood based on a collection from Lick Wash on GSENM. The name commemorates Lori Armstrong, a BLM botanist from Richfield, Utah. Illustration by Elaine Kneller McMullen.

ecologically dominant, trees and shrubs account for only 14% of the monument's plant species. Herbaceous species (a.k.a. 'wildflowers') are the dominant growth form with 695 species. Just over 200 species of wildflowers are annuals that complete their entire life cycle in one year and are often only prevalent during years of sufficient winter or spring precipitation. About 15% of the monument flora is comprised of perennial and annual grasses and grass-like plants (sedges and rushes).

Biogeography

GSENM resides entirely within the Colorado Plateau physiographic province, a broad regional uplift centered on the Four Corners region of Utah, Colorado, New Mexico, and Arizona. The Colorado Plateau has a unique flora adapted to the region's arid continental climate, canyon and mesa topography, and layer-cake geology of Mesozoic and early Tertiary marine, lacustrine, or ancient coastal sandstones, limestones, and shales. Due to the variety of habitats and isolation provided by wide rivers and deep canyons, the Colorado Plateau is regarded as one of 12 major centers for the evolution of new plant species in western North America. The plateau region has the highest concentration of endemic plant species in the intermountain west and the highest species richness of any ecoregion in Utah.

Approximately 18% of the flora of the monument (178 species) consists of plant species that are restricted to the Colorado Plateau.

The lower stairs of the Grand Staircase near Kanab (Chocolate and Vermilion cliffs) have been described as the "Dixie Corridor" connecting the floras of the Colorado Plateau and the Mohave Desert of southwestern Utah and southern Nevada. The Dixie Corridor lies at the northern edge of the distribution of many Mohave or Sonoran desert species, including Whipple's cholla, Mexican manzanita, and turbinella live oak. In addition, the Dixie Corridor has an unusually high concentration of local endemics restricted to Navajo sand dunes (Welsh's milkweed, escarpment milkvetch), Moenkopi clay flats (Kane breadroot, meager camissonia, Atwood's pretty phacelia), and Chinle badlands (gumbo milkvetch, Murdock's evening-primrose, Kanab thelypody). Many of these local endemics are listed as Threatened, Endangered, or BLM Sensitive and are rare or absent from other portions of the monument.

At higher elevations of the Skutumpah Plateau, White Cliffs, and slopes of Canaan and Boulder mountains, the Colorado Plateau flora is augmented by Rocky Mountain species more typical of the Utah High Plateaus ecoregion. This mountainous spine also acts as an

effective barrier to the desert flora of the Great Basin region. Over 40 plant species are endemic to the Utah High Plateaus, many of which have recently been documented for the Grand Staircase region. These include MacDougal's aletes, Zion draba, Panguitch buckwheat, Canaan daisy, Zion daisy, Paria breadroot, and smooth penstemon.

The number of species in the monument flora has increased by nearly 10% with the establishment of 96 non-native species. The majority of these taxa were introduced inadvertently, but a small percentage have escaped from agriculture (smooth brome, orchard grass), restoration projects (prostrate summer-cypress, burnet), or home gardens (peppermint). Six GSENM non-native species are listed as Utah state noxious weeds (whiteweed, Russian knapweed, bindweed, quackgrass, Scotch thistle, and Johnson grass).

Vegetation

The vegetation of GSENM can be subdivided into five major zones that roughly correspond with elevation, parent material, and precipitation or proximity to perennial water sources. Low elevation upland sites on fine-textured clay or sandy soils with annual precipitation less than 7 inches are vegetated by dry desert shrub and grasslands dominated by members of the goosefoot family (Chenopodiaceae). Desert shrub stands are especially well-developed along the lower slopes and mesas of the Kaiparowits Plateau. Shadscale tends to be the most prevalent species in shrub stands on well-drained alkaline clay sites, while mat saltbush predominates on clay barrens of the Tropic Shale near the Paria River. Sandy or stony loams with a shallow subterranean hardpan (formed of leached calcium carbonate hardened into a stony layer impervious to water) support stands of blackbrush (a member of the rose family). Fourwing saltbush mixed with green Mormon tea, sand sagebrush, purple sage, and Indian ricegrass replace other vegetation on deep sandy soils. Finally, greasewood dominates in poorly drained alkaline clay soils with a high water table. Unfortunately all of these community types are becoming infested with aggressive, annual exotics (especially red brome, cheatgrass, halogeton, and Mediterranean barley) which make the stands more prone to fire (formerly a rare event). Livestock grazing has also reduced the cover of edible shrubs and native perennial grasses in favor of less palatable subshrubs (especially broom snakeweed) and warm season grasses (blue grama and galleta) and more annual exotics.

Vegetation dominated by Big sagebrush or other sagebrush species replaces desert shrub at higher elevation sites with annual precipitation over 7 inches.

Sagebrush stands are characterized by a sparse to dense shrub canopy of *Artemisia* interspersed with other shrubs, biological soil crusts, perennial or annual grasses, and forbs. Basin big sagebrush is the typical form along washes and valley bottoms and in sites with rich, sandy-loam soils. Wyoming big sagebrush is also frequent, especially in clay-rich or gravelly sites and mountain big sage occurs sparsely at higher elevations on the Skutumpah Terrace. Historically the grass understory of sagebrush communities consisted of a mix of cool season (needle-and-thread, Indian ricegrass, muttongrass) and warm season (blue grama, galleta) perennial bunchgrasses, but grazing and droughty climates have shifted the balance to less palatable warm season species as well as annual weeds and unpalatable subshrubs like broom snakeweed. Because sagebrush does not resprout or accumulate a long-lived seedbank, fire can eliminate or reduce sagebrush stands in favor of perennial or exotic annual grasslands.

Rocky sandstone slopes and tablelands tend to be dominated by pygmy woodlands of two-needle pinyon and Utah juniper. Pinyon-juniper woods cover over 770,000 acres of GSENM, making it the monument's most widespread vegetation type. Based on historic records, pinyon-juniper woodlands appear to be expanding over the past century. This "invasion" can be attributed to reduced fire frequencies due to removal of fine fuels by grazing, cessation of Indian-caused wildfires, warming climates, and recovery of woodlands from extensive cutting for fuel and building material following white settlement in the 1880s. Historically, these woodlands probably had a more open appearance but have become denser and woodier from prolonged fire exclusion, making the woods more prone to major fire. Pygmy forests are often replaced by Gambel oak woodlands on sandy benches with high fire frequencies (oaks will readily re-sprout) or on slopes with deep snow accumulation or frequent landslides.

Forests of ponderosa pine and Douglas-fir prevail on the highest mesa tops or in deep, shady canyons of the monument. In the past, ponderosa pine forests typically had an open, savanna-like understory dominated by greenleaf manzanita and bunchgrasses adapted to acidic soils produced from the abundant needle duff. These open conditions were maintained by periodic, low-intensity ground fires that eliminated other trees and woody vegetation but did not harm the mature, thick-barked pines. Fire suppression has made these stands denser and more susceptible to outbreaks of mountain pine beetles or catastrophic crown fires. Mountain brush communities of Utah serviceberry, mountain snowberry, and chokecherry often replace pine forests on moister slopes, while brushy stands of alder-leaf



Examples of the diverse geology of Grand Staircase Escalante. Photos by Tarpley for the U. S. Bureau of Land Management. Many others may be found in the BLM "Visual Art Show" album here: <https://www.flickr.com/photos/blmutah/albums/>

mountain mahogany, cliffrose, and greenleaf manzanita prevail on rockier or less fertile sites. Moist sites with deep, loamy soils associated with springs or with a high water table support aspen forests in scattered sites on Fifty Mile Mountain. Aspen is a clonal species with individual tree boles surviving for 100-150 years and new sprouts forming from root suckers. Regeneration can be hampered by heavy grazing by deer, elk, or livestock or by competition from shade tolerant conifers if periodic disturbances (such as fire, wind-throw, or disease) do not create the open canopy conditions favored by aspen sprouts.

The most species-rich plant communities are associated with rivers, streams, springs, or ephemeral wetlands. The main stem of the Escalante River and its more northerly tributaries are characterized by deep, shady canyons and perennial flows that support riparian woodlands and shrublands dominated by Fremont cottonwood, narrowleaf cottonwood, coyote willow, box-elder, and water birch with a rich understory of herbaceous species. Flooding events frequently reshape the stream channels, scour existing sand and gravel bars, and deposit new sediments. These disturbances can leave the river systems vulnerable to invasion by non-native species, especially tamarisk and Russian olive. Streams in the Kaiparowits Plateau and Paria, Kanab Creek, and lower Escalante drainages have been especially hard-hit by tamarisk and Russian olive. Dewatering and changes in grazing management have also favored replacement of native willows and cottonwoods with less palatable shrubs and herbaceous plants, such as copperweed, rubber rabbitbrush, and Baltic rush.

Desert springs and seeps occur sporadically across the monument, especially along contacts between porous sandstones and less permeable shales. Large springs are often mini-oases of Fremont cottonwood and coyote willow, while smaller seeps on alkaline soils are often dominated by Baltic rush, scratchgrass, threesquare bulrush, or desert saltgrass. Protected seeps associated with shady alcoves or cliffs that maintain cool temperatures support especially lush hanging garden vegetation of maidenhair fern, helleborine orchid, alcove columbine, panicgrass, golden sedge, and nearly 40 other species.

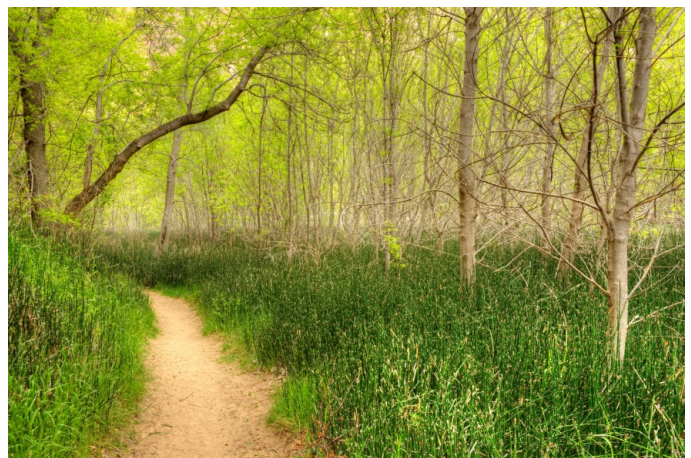
One of the more unusual wetland communities of the monument are sand seeps associated with sandy swales carved from sandstone bedrock. Sand springs originate from melted snow or precipitation of the current season, rather than from perennial water sources, and so are present only in wet years, such as 2005. When present, the sand springs support communities dominated by uncommon annual or biennial forbs and graminoids,

including hairy mimetanthus, cottonbatting cudweed, religious daisy, and minute rush. On GSENM, sand seeps are most prevalent in deep Navajo blowsands topping the Vermilion Cliffs east of Johnson Canyon, but also occur frequently in the Sand Hills near Coral Pink Sand Dunes just west of the monument.

The flora and vegetation of GSENM contribute significantly to the region's natural beauty and its importance as habitat for wildlife and humans seeking recreation, adventure, or solitude. More importantly, the monument's native plant species have intrinsic value, especially those restricted to GSENM or unprotected elsewhere. These botanical riches were specifically protected in the Presidential proclamation of 1996 and GSENM's 2000 management plan. But protections are only as strong as their enforcement. Budget cuts, political pressure, and shifts in BLM priorities have since undermined GSENM's stated management objectives. It is up to everyone who cares about these lands and their botanical denizens to make sure that the promise of the monument proclamation to future generations is kept.

References

- Fertig, W. 2005. Overview of the vegetation of Grand Staircase-Escalante National Monument. Moenave Botanical Consulting, Kanab, UT. 31 pp.
- Shultz, L.M. 1997. The flora of the Colorado Plateau: What do we know? BLM-GSENM Science Symposium Proceedings 1997, Learning from the Land, Biology Section. 203-209.
- Welsh, S.L. & N.D. Atwood. 2002. Flora of Bureau of Land Management Grand Staircase-Escalante National Monument and Kane County, Utah. Brigham Young University, Provo, UT. 166 pp.



Greenery in the Grand Staircase Escalante. Photo by Tarpley for the U. S. Bureau of Land Management.

Bears Ears Revisited

by Bill King

In early 2016 the Bears Ears Intertribal Coalition petitioned President Obama to create a 1.9 million acre National Monument under the Antiquities Act. In May of that year the Board of Directors of the Utah Native Plant Society authorized sending a letter of support to President Obama for the new National Monument. President Obama responded on December 28, 2016, in his final days in office, by issuing a proclamation declaring Bears Ears National Monument, containing 1,351,849 acres. On December 4, 2017 President Trump, through executive order, reduced Bears Ears to 201,876 acres which consisted of two smaller non-connected sections. In October 2021, President Biden, again through executive order, restored Bears Ears to its previous Obama level of 1,351,849 acres.

In 2006 Walt Fertig and Jason Alexander completed their comprehensive article “The Utah Native Plant Society Rare Plant List.” It was published in the *Calochortiana* May 2016, which is the Research Journal of the Utah Native Plant Society. Walt and Jason were assisted by Robert Fitts and Tony Frates and many other UNPS members. The article and list are still online and can be



The Bears Ears of Bears Ears National Monument. Photo by Bob Wick for the U. S. Bureau of Land Management.

accessed through a link on the UNPS website.

We took the Fertig and Alexander list and scanned it for rare plants in San Juan county that could well be inside the original 1.9 million acre proposal. We also consulted the *Utah Flora* and the *Atlas of Vascular Plants of Utah* as well as other standard works for additional information such as elevation and habitat requirements. Many maps were also used. We excluded a number of rare species that grow near Moab and in the LaSal Mountains but are unlikely in the new monument boundaries. This created a list of over 100 rare species that were likely in the new



Bears Ears National Monument. Photo by Bob Wick for the U. S. Bureau of Land Management.



monument and we incorporated them into our letter to Obama in May, 2006. See the letter below.

When the Grand Staircase-Escalante National Monument was first designated some 20 botanists, biologists and ecologists were hired and set about to comb the new park and make a comprehensive list of the flora and fauna. The mammoth job took more than two years to complete. See the reprint of Walt Fertig's article about the undertaking in this project. Unfortunately no such study has yet been started in Bears Ears and it is nearly five years old already.

The UNPS grant committee is accepting proposals to conduct a demonstration survey of Bears Ears in any limited but important area of botanical concern. We have also had a member who has shown interest in providing additional funds for the survey. The deadline for small grants is April 15, 2022. For more information see the UNPS website. Additional donations dedicated to a grant for a botanical survey of Bears Ears National Survey are welcome and appreciated.



All photos this page by Bob Wick for the U. S. Bureau of Land Management. Others may be found in the BLM "Bears Ears National Monument" album here: <https://www.flickr.com/photos/blmutah/albums/>

Utah Native Plant Society

May 5, 2016

William H. King
Chair, Utah Native Plant Society
1564 S. Wasatch Drive
Salt Lake City, Utah 84108
801-582-0432
mzzzyt@aol.com

President Barack Obama
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500
RE: UNPS Support for the proposed Bears Ears National Monument.

Dear Mr. President,

The Bears Ears Inter-Tribal Coalition has written to you requesting the designation of Bears Ears National Monument, San Juan County, Utah under the 1906 Antiquities Act. Their primary reason for the request is to protect some 100,000 archaeological sites as well as sacred lands.

The Utah Native Plant Society (UNPS) Board of Directors has voted to support the designation of Bears Ears as a National Monument. In addition to protecting the 100,000 archeological sites and sacred lands, Bears Ears would make a wonderful reserve, provide additional protection and collaborative management for the many rare plants, animals and fish that live within the proposed National Monument.

There are nearly 900 species of plants within the proposed monument borders of which over 100 are on our UNPS Rare Plant List including one Federally listed as a Threatened species, *Carex specuicola*, Navajo Sedge. In addition, there are 7 plant species of high conservation concern and 34 species on our Watch List. See the list below. Additionally, there are more than 50 plant species of medium conservation concern in the proposed park borders.

The Department of Natural Resources, State of Utah, in a letter to us dated April 5, 2016 has identified 20 recent records of species of animals and fish that are near or in the borders of the proposed National Monument that they identify as sensitive, species of concern: Allens big-eared bat, American three-toed woodpecker, big free-tailed bat, bluehead sucker, burrowing owl, Colorado pikeminnow, desert night lizard, flannelmouth sucker, great plains toad, greater sage-grouse, Gunnison's prairie-dog, northern goshawk, razorback sucker, roundtail chub, southwestern willow flycatcher, spotted bat, spotted owl, Townsend's big-eared bat, Yavapai mountainsnail and yellow-billed cuckoo. They also have a historical record occurrence for common chuckwalla.

The proposed National Monument rises from desert plateaus of 3,700 feet to a nearly alpine level at Abajo Peak of 11,368 feet. There are many underlying geological substrates and unique habitats such as hanging gardens, which sustain diverse and rare species. This is a spectacularly beautiful part of the Western United States, the kind of wide open vistas and endangered habitats that should be preserved for future generations.

The Utah Native Plant Society was formed in 1978 out of a concern for imperiled rare plant species. We operate as a non-profit under IRS section 501(c)3. We have more than 300 members including professional botanists and ecologists, Federal and State agency employees and just plant lovers of all kinds.

Thank you for considering the designation of Bears Ears National Monument.

Sincerely,

William H. King

Utah Native Plant Society Rare Plant List for Proposed Bears Ears National Monument

Calochortiana February, 2016 Number 3 (in process)

Extremely High Priority Species:

Carex specuicola Navajo Sedge

High Priority Species:

Xylorhiza glabriuscula, Moab woodyaster

Lepidium moabense, Moab pepperwort

Astragalus cutleri, Cutler's milkvetch

Sphaeralcea janeae, Jane's globemallow

Aliciella latifolia ssp. *imperialis*, Cataract gilia

Eriogonum racemosum var. *nobilis*, Bluff wild buckwheat

Krascheninnikovia lanata var. *ruinina*, Ruin Park winterfat

Watch List:

Adoxa moschatellina, Moschatel

Oxypolis fendleri, Fendler's cowbana

Arida parviflora, Small-flower aster

Baccharis viminea var. *atwoodii*, Atwood's seep willow

Erigeron religiosus, Religious daisy

Helianthella parryi, Parry's little sunflower

Layia platyglossa, Coastal tidytips

Pectis angustifolia var. *angustifolia*, Narrowleaf pectis

Perityle specuicola, Alcove rock-daisy

Symphotrichum ericoides var. *pansum*, White heath aster

Atriplex obovata, New Mexico saltbush

Carex curatorum, Canyonlands sedge

Cladium californicum, Saw-grass

Astragalus monumentalis, Monument milkvetch

Astragalus naturitensis, Naturita milkvetch

Astragalus piscator, Fisher milkvetch

Pediomelum aromaticum var. *Tuhyi*, Tuhy's breadroot

Nama hispida, Hairy nama

Nama retrorsa, Howell's nama

Allium geyeri var. *chatterleyi*, Chatterley's onion

Plantanthera zothecina, Alcove bog-orchid

Andropogon glomeratus, Bushy bluestem

Imperata brevifolia, Satintail

Phlox lutescens, Yellowish phlox

Eriogonum cernuum var. *psammophilum*, Sand Dune nodding wild buckwheat

Eriogonum scabrellum, Westwater wild buckwheat

Portulaca halimoides, Dwarf purslane

Dodecatheon pulchellum var. *zionense*, Zion shooting star

Primula specuicola, Cave primrose

Trautvetteria caroliniensis, Carolina tassel-rue

Ceanothus vestitus var. *franklinii*, Franklin's desert lilac

Geum aleppicum, Erect avens

Potentilla nivea, Snow cinquefoil

Rubus neomexicanus, New Mexico thimbleberry

Firewise Landscaping

by Diane Ackerman, Castle Valley, UT
UNPS Board of Directors
Membership Committee

I was impressed recently when the Utah Native Plant Society chair Dave Wallace reported to the board his weed eradication hours—volunteer hours he and others tallied while pulling, digging and spraying noxious weeds this year. This is nothing new, as Dave organizes the UNPS Invasive Species Committee. He and his volunteers have had an annual Weed Day in and around Logan Canyon the past few years.

I've also been tallying my hours eradicating weeds lately. We built our house on a 5-acre property in Castle Valley seven years ago. Many of us refer to living in this landscape as "living in paradise." Surrounded by scenic vistas of the Red Rock country and the native vegetation is profoundly beautiful.

A closer look at current vegetation tells the history of our valley. It was a working ranch. Cattle grazed the bottom of the valley where today there is little native vegetation surviving and lots of invasive cheatgrass and native rabbit brush and four-wing saltbush. However, not a quarter of a mile up from this altered landscape on the flanks of the valley floor where we live are fairly healthy native plant ecosystems. Our soils are sandy with pockets of clay and this mix is illustrated on the surface by the diverse plants we see growing. We are surrounded by primarily a blackbrush community punctuated by occasional juniper. While we are blessed with Indian rice grass and galleta grass, there is only an occasional stand of needle and thread grass. I can count on one hand the number of spiny hopsage and greasewood on our property. My husband has inventoried the dis-

persed pods of native cacti and we have great numbers of prickly pear cacti as well. I look forward to the self-planted orange of the common and small-leaf globemallow, the wooly and Preuss' astragalus and delight in the return of a *gilia* species each year.

To better understand disturbed plant communities, one needs to know that all native plants behave differently in how easily they repopulate. Once the native crust and plants are disturbed, both non-native and native plants race in to fill the void. We are fortunate to be surrounded by native vegetation, therefore, our challenges are different from the valley floor. While we deal with cheatgrass and an occasional puncture vine and Russian thistle, it is rabbit brush and four-wing saltbush and two grasses—Indian rice grass and various species of *Sporobolus* that populate areas near our house. My anxiety grew when I learned how dangerous this situation was with extended drought and long periods of no rain.

Early this summer my concern heightened when two wildfires in our valley and one south of us in the nearby Manti-La Sal Mountains around Moab puffed up. I was not alone. Everyone was on edge about how vulnerable we were surrounded by all these plants. When you live in natural settings as we do, you are more prone to wildfire dangers because of the amount of fuels surrounding your house. There is a name for and a knowledge-based science about living in these areas. I learned my house was located in the *wildland-urban interface (WUI)*. WUI's are described as spaces where human activity meet and intermingle with wildland or vegetative fuels.

Castle Valley Fire Department volunteers are not only trained to fight fire. Their training does not stop there. They have become ambassadors of Utah Department of Natural Resources, Division of Forestry, Fire & State Lands (FFSL) firewise program, <https://ffsl.utah.gov/>



New to the program this year, Castle Valley fire crew performed firewise property assessments for property owners living in the valley. Our first wildfire property assessment occurred in July. They met us early one Saturday morning and we walked around our property. We considered solutions to when trees were planted too close to our house and the importance of a deck underpinning. It was explained that all property owners were advised to work on vegetation thinning, tree branch trimming and removal of vegetation. In addition, we were taught how important the width and turn-around potential of our driveways are to accommodate fire-fighting equipment.

We strive to incorporate all of the suggestions listed on the wildfire assessment form and in the booklet, "Utah Firewise Living, Utah Living with Fire" (2008) given to us at the end of this visit. Colorful diagrams and photographs provide information on how to create defensible spaces around your house and other structures. I like to share this information with neighbors and friends because wildfire knows no boundaries.

We have learned getting ready for wildfire season is a year-round endeavor. With the cooler temperatures, I am happy to spend time outdoors pruning, weeding, chipping and sometimes burning debris. The Utah FFSL has a helpful program that rewards communities that are actively involved in preparing their properties for wildfire.

Property owners tally their hours spent preparing for wildfire season and turn them in to our fire department. In return for these hours, we can schedule for the FFSL to come to our properties with their chipper and chip woody debris piles for free.

Understanding and learning how to live safely in a WUI gives me a degree of comfort. With support and cooperation from local and state entities, Castle Valley is developing community responsibility not only for maintaining trees and shrubs for wildfire safety, but also for shade and beauty. I know we have heard this a lot lately, but "we are all in this together."

Utah Native Plant Society 2021 Annual Meeting

by Cathy King

The 2021 Annual Meeting of the Utah Native Plant Society was held on Saturday, October 23 at 1:00 pm via Zoom. Once again it was deemed not safe enough to meet in person this year because of the Covid-19 pandemic, hopefully next year we will be able to resume regular in-person meetings.

Dave Wallace, chairman of the board of directors, called the meeting to order at 1:00 pm and welcomed the members and participants. He informed everyone the meeting was being recorded and would be available to view again later on the UNPS YouTube channel.

Dave explained that normally we would have had a "New World Potluck," featuring main and side dishes created from foods from the harvest, which is obviously not possible in a virtual meeting. But the members of the board suggested that it would be nice to share the recipes of the dishes that we would have shared with

each other had we been able to have the potluck. Those recipes can be emailed to the UNPS secretary, Cathy King, at cathy.king@gmail.com. They will either be posted on the unps.org website or printed in the *Sego Lily* newsletter and if we eventually collect enough recipes we could even create our own UNPS cookbook.

The main purpose of the Annual Meeting, according to the by-laws of UNPS, is to elect the board of directors. Dave Wallace presented the slate of nominees for 2021-2022:

Morgan Abbott
Diane Ackerman
Ron Bolander
Marc Coles-Ritchie
Robert Fitts
Susan Fitts
Allison Izaksonas
Bill King

Cathy King
Wayne Padgett
Amber Rasmussen
Bill Stockdale
David Wallace

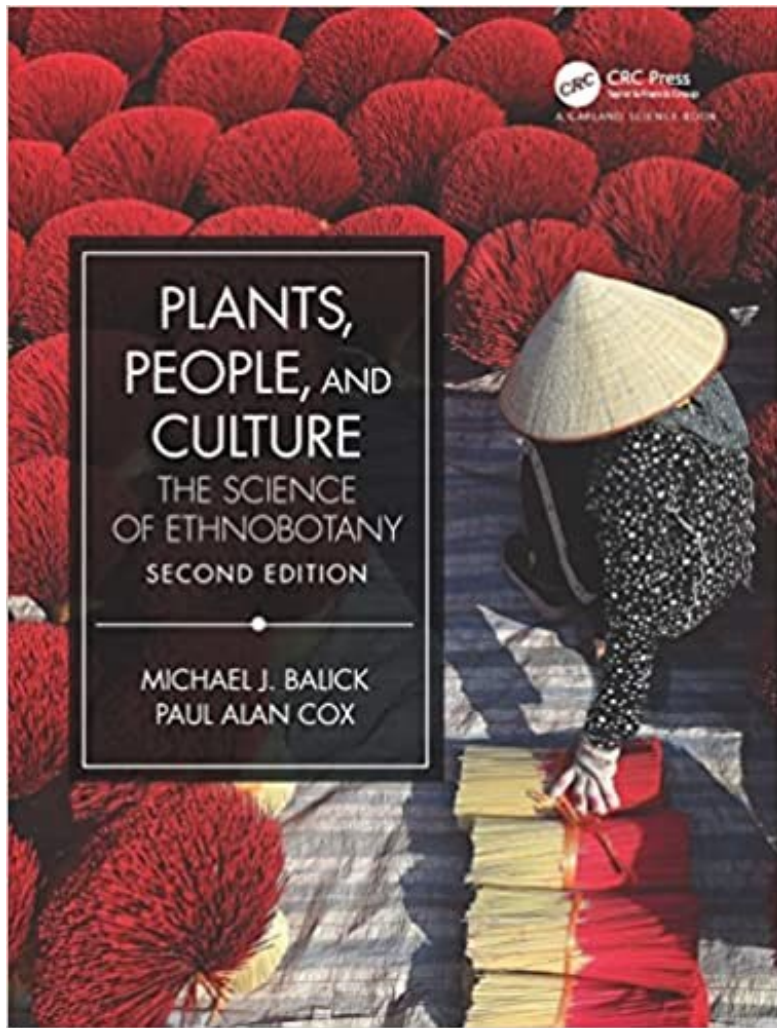
Those present who were current members of UNPS were asked to vote “yes” in the chat box if they were in favor of the slate. The slate of nominees was approved.

The next order of business was the presentation of the “Ty Harrison Service Award,” an award that was created in honor of its namesake for his many contributions to the UNPS organization. Cathy King was honored to present the award for 2021 to Bill Gray (see accompanying article).

Keynote speaker, Paul Cox, was introduced by Marc Coles-Ritchie. Ethnobotanist Paul Alan Cox has lived in remote island villages searching for new medicines. He was awarded the Environmental Prize, sometimes known as the Nobel Prize of the Environment and was named one of *Time* magazine’s eleven “Heroes of Medicine” for his discovery of a new HIV drug candidate. He founded the island conservation foundation, Seacology, which has set aside over 1.5 million acres of rainforest and coral reef in 65 different countries. At the Brain Chemistry Labs in Jackson, Wyoming, he is focused on finding new treatments for ALS and Alzheimer’s disease.

His presentation on *Plants, People, and Culture: Ethnobotany and the Discovery of New Alzheimer’s Drugs* discussed the patterns of illness and wellness among indigenous peoples, new understandings of Alzheimer’s, ALS, Parkinson’s, and how other neurodegenerative diseases are emerging. These ethnobotanical insights have led to advanced clinical trials for new drugs.

He described his experiences with an elderly basket weaver from the Goshute tribe in Utah and moved on to his many other interactions with indigenous peoples from around the world bringing his observations back to Utah and the potential hazards of algal blooms and toxic cyanobacteria in our own backyard in Utah Lake.



His presentation will be available on the UNPS YouTube channel.

Also recommended is the book *People, Plants and Culture: The Science of Ethnobotany* by Michael J. Balick and Paul Alan Cox, updated second edition now available, 2021 CRC Press, Boca Raton, FL.

'Balick and Cox's new edition of *Plants, People, and Culture* is both a superb ethnobotanical resource for students of the discipline, and a thoroughly good read for any and everybody interested in knowing more about the ancient and enduring relationship between plants and people. Balick and Cox continue to set the standard for what a great ethnobotanical text should be, and this 2nd edition can only enhance *Plants, People, and Culture's* iconic status.'

-- Dr Nigel Chaffey, *Botany One*

Bill Gray “Ty Harrison Service Award 2021”

by Cathy King



Three years ago after Ty Harrison passed away, the board of directors of the Utah Native Plant Society established the Ty Harrison Service Award to honor his memory of outstanding service to the organization. This year we are pleased to announce Bill Gray as the recipient of the Ty Harrison Service Award for 2021.

Bill Gray came to the United States in 1964 as a post-doctoral student after earning his Ph.D. in molecular biology at Cambridge University and then worked as a research fellow at Caltech for a few years. He and his wife Sylvia eventually settled in Utah when he accepted an assistant professor position in biology at the University of Utah. During his 27 year career at the U, Bill taught both biology and chemistry, researched proteins and retired in 1997 as professor emeritus of biology.

This is when Bill’s fascination with wildflowers and

native plants really kicked into high gear, developing his amazing Cyberflora program that features over 2500 plant photos along with descriptions, keys and a glossary of terminology. Proceeds from the sale of the CD have been donated to various organizations including UNPS.

The Utah Native Plant Society has been the beneficiary of the many talents of Bill Gray. He went to work reviving the Salt Lake Chapter which is still thriving today. He served on the board of directors. The membership list was in dire need of refurbishing and organizing and Bill was just the person to get it back in order. He has been a featured speaker for many UNPS meetings and has written a number of articles for the *Sego Lily* newsletter.

A good number of UNPS members have been fortunate to participate in the countless field trips led by Bill. His trips are always educational, fascinating, and downright fun, not only leading directly to very special native plants but encouraging the participants to discover more on their own. The professor in him has not faded over the years as he continues to be involved in citizen science.

And what a photographer, the images he has shared with the accompanying detailed information is nothing short of amazing. Which brings us to the “Life Went On” series that Bill created and shared with his rather large email list during the pandemic. What a life saver, or at least it helped us maintain our sanity during the darkest times of Covid. Again, he compiled this collection and offered it for sale at a small donation to benefit the organizations that he constantly supports.

But he also encourages the photographer in all of us and his annual “UFO” (for “Unidentified Flowering Object”) presentation for the Salt Lake Chapter meeting is always a hit where UNPS members submit photos of plants that are challenging to identify.

There are also special projects of interest that seem to revolve around native trees or shrubs such as the hybrid oaks around the U of U campus, some unusual Mexican cliffroses growing above the Avenues and a significant ancient juniper forest growing in the sand dunes in the west desert.

Bill Gray exemplifies what it is to be of service to the Utah Native Plant Society, an outstanding choice as recipient of the Ty Harrison Service Award 2021 for “over 20 years of fostering the goals of the Utah Native Plant Society through leadership, education and science.” Many thanks for all he has done and continues to do.

3rd Annual Weed Day, May 22, 2021

by David Wallace, UNPS

COVID-19 considerations derailed the 3rd Annual Weed Day for Logan in 2020, but we were able to pull it off in 2021. Sponsored by the Logan Ranger District of the Uinta-Wasatch-Cache National Forest, Bridgerland Audubon, Utah Native Plant Society and Logan City, the event was advertised on Facebook, announcements were distributed over email lists and notices placed at nearby trailheads.

About a dozen enthusiastic volunteers showed up that Saturday morning at Logan's Canyon Entrance Park (also known as "First Dam"), a good place to meet because of nearby public lands and hiking trails. Trish Winn, Forest Service Botanist and Dave Wallace of the UNPS Invasive Species Committee, provided weeding tools, information about the "target" weeds and weeding advice. The volunteers split into several groups and headed out to their designated locations.

The event lasted only a half day, but a lot was accomplished:

- A pair of volunteers managed to weed burdock and houndstongue along nearly 1.5 miles of the River Trail, from US-89 to Second Dam. This trail has benefitted from persistent weeding efforts over the past few years and they were able to make good progress as a result.
- A few volunteers went to the nearby Highline Trail, where weeds have invaded the trail corridor along this recently established route. Here they chopped Scotch thistle and uprooted dyers woad, and they also found and removed a couple of myrtle spurge plants. The discovery of myrtle spurge is a concern since this is only the second known occurrence of this noxious weed in the Logan Ranger District (a few more plants were subsequently found and dug out).
- Other volunteers weeded dyers woad as they traveled north on the Bonneville Shoreline Trail.
- The rest of the group tackled dyers woad and Scotch thistle on the slope north of Canyon Entrance Park, creating an impressive pile of weeds for Logan City crews to pick up.

It has been a pleasure working with the volunteers and the organizations sponsoring this event, and it has been gratifying to see the results. We hope to continue in 2022 with a 4th annual Weed Day, and who knows, perhaps someday weeds here at the mouth of Logan Canyon could be reduced to the extent that we would be obliged to move to a different area.



Learning about dyers woad and other weeds of concern.



A real weed killer, going after dyers woad and Scotch thistle.



Piles of Scotch thistle and dyers woad for City crews to pick up.

Invasive Species Committee, 2021

by David Wallace, Committee Chair

The UNPS Invasive Species Committee has been actively combating weed in Cache County for much of 2021. A summary of our major effort on the Logan Ranger District is summarized below (it helps to be a retired person with time to spend on projects like that). Brief descriptions of other actions follow.

Weed Control on the Logan Ranger District: Since 2019, Dave Wallace of the UNPS Invasive Species Committee, has been authorized by the Uinta-Wasatch-Cache National Forest to conduct chemical weed control on Forest lands in Logan Canyon. This involves a formal agreement with the Logan Ranger District and UWC Botanist, detailed recordkeeping, and complying with Forest Service procedures and policies, and working with the Forest Service weed crew. "Spot treatment" methods are followed, where a selective herbicide is applied directly to individual invasive plants. Manual methods (digging or clipping) are used when water is nearby, when the invasive plants have already developed seeds, etc. In 2021, this effort got off to a relatively late start because the Agreement was not completed until the last week of May. As a result, weed control was more difficult as dyers woad was already in full flower and houndstongue was bolting (it's much better to get these plants while they are in the rosette stage).

Weed control was started on trails at the mouth of Logan Canyon in an effort to control these lower-elevation weeds before they matured. Entire trails (and trail corridors) were treated from end-to-end in many cases, especially where trails were heavily traveled. For other trails, control efforts began at trailheads and continued until the weed population had significantly diminished. After the trails were completed, a few campgrounds and picnic areas were treated to keep weeds from dispersing onto nearby trails:

- Trails completely weeded: Highline, River, Riverside Nature, Bridger Lookoff, Crimson, Wind Cave, and Right Hand Fork Logan River
- Trails partially weeded: Spring Hollow, Mill Hollow, Steel Hollow, Willow Creek, Old Juniper, and White Pine - Bunchgrass Canyon
- Campgrounds: Bridger, Spring Hollow, and Preston Valley
- Picnic areas: Dewitt, Card, and Chokecherry
- Total: More than 200 hours of weeding and 25 miles of trail



Burdock burrs with dog hair, on the snow of the Riverside Nature Trail, 1/13/2021.

Burdock Bur Harvesting: While hiking along a snowy trail in Logan Canyon, we saw burrs from burdock, <https://www.eddmaps.org/species/subject.cfm?sub=5140>, *Arctium minus*, scattered on the snow, including many that were embedded in clumps of dog hair. To prevent those human and animal trail users from dispersing burdock seeds, two UNPS volunteers made a couple of trips to "harvest" burrs from fruiting burdock plants along trails in the Spring Hollow and Gus Lind Flat areas.

Adopt-A-Trail: The Invasive Species Committee hosted a table at the "Adopt-A-Trail Party" at the Fairgrounds (Cache County, <https://trails.cachecounty.org/>, has partnered with the Forest Service in organizing the Adopt-A-Trail program in our area). Our table featured information about trail weeds along with weeding tools and actual plant samples for identification and demonstrations (we had trouble keeping the burdock and houndstongue burrs from hitching rides on people). We also took advantage of the opportunity and adopted the Crimson Trail, something we have done for many years as part of our ongoing battle with a myrtle spurge outbreak on that trail.

White Bryony: An invasive vine, white bryony, <https://www.eddmaps.org/species/subject.cfm?sub=5191>, *Bryonia alba*, can completely cover a host plant, blocking sunlight. We keep finding more of this plant in Cache Valley. Other than reporting it on <https://www.eddmaps.org/>, we have done little else. However,



Our informational table at the Adopt-A-Trail Party, 5/1/2021.

we did destroy a group of white bryony plants on Logan City property (the “Deer Pen”) and we also did a little experimentation on possible ways of combating it. We expect to be more involved with this white bryony in 2022.

Myrtle Spurge: Myrtle spurge, *Euphorbia myrsinites*, is found in Cache Valley, but unlike areas along the Wasatch Front, it has not yet infested the nearby foothills. For a decade, UNPS volunteers have worked to locate and control myrtle spurge plants in the valley to reduce the risk of this noxious plant spreading into the hills. In 2021, several previously identified myrtle spurge sites in Logan were revisited and retreated, and a few more myrtle spurge locations were found (as usual, these locations were reported on <https://www.eddmaps.org/>). Myrtle spurge also was weeded from the two known locations in Logan Canyon. The Crimson Trail site has been manually weeded at least twice each year since 2012 and the spurge has almost been eradicated there.

Cutleaf vipergrass: While working on the River Trail, we discovered an infestation of cutleaf vipergrass, *Scorzonera laciniata*. This is high on Utah’s noxious weed list, having a Class 1B, Early Detection Rapid Response (EDRR) rating. This is not an actual grass, but a biennial member of the sunflower family, similar in appearance to western salsify (which is why it also is known as “false salsify”). We manually weeded it, but it certainly will return. Many of the flower heads had already dispersed, and it was very difficult to find the first-year plants due to their grass-like appearance.

Houndstongue on the White Pine - Bunchgrass Canyon Trail: In fall 2020, we found a major houndstongue, <https://www.slco.org/health/weeds/noxious-weeds/houndstongue/>, *Cynoglossum officinale*, infestation on 3 miles of a newly realigned section of the Bunchgrass



White bryony roots dug from Logan’s Deer Pen property, 5/3/2021.



Two of the four myrtle spurge plants discovered along the Highline Trail, 6/1/2021



Eight small myrtle spurge plants were found along the Crimson Trail on 9/23/2021 (four others had been found on 5/26/2021).



Cutleaf vipergrass, from the River Trail, 6/10/2021.



Houndstongue rosettes regrowing along a previously weeded trail section, 9/19/2021.



YCC workers weeding and bagging houndstongue along the Bunchgrass Trail, 6/26/2021.



Houndstongue plants revealed by cattle grazing, 9/19/2021.

trail. Most of those plants were in the first-year rosette stage, but we knew this would be a big problem in the coming year.

The Forest Service offered a crew of Youth Conservation Corp, <https://www.fs.usda.gov/working-with-us/opportunities-for-young-people/youth-conservation-corps-opportunities>, workers to help with weeding at a location of our choice, so we made arrangements for bunchgrass. These high-school age YCC members made fairly quick work of digging and bagging the flowering/fruiting houndstongue at the trailhead and the first 1.7 miles of old trail, but things really slowed when they reached the heavily infested area of the realigned trail section, especially when it was time to haul out the heavy bags.

Fortunately, we were able to get more help. Cache County organized an evening volunteer event where a dozen enthusiastic trail users weeded, bagged and hauled houndstongue from another mile of the new trail. The Forest Service arranged for help by Dedicated Hunters, <https://wildlife.utah.gov/hunting/dedicated-hunters.html>, and with much (over 27 hours) of additional manual and chemical weed control by UNPS, weed work on the bunchgrass trail corridor was finally completed.

This effort must continue for a few more years, since the bunchgrass houndstongue infestation is far from over. We recently observed houndstongue regrowing in previously weeded areas of the new trail, and due to revegetation by grazing cattle, we were able to see a lot of houndstongue that had been hidden by vegetation along the older trail section (cattle avoid eating this poisonous plant).

Your Membership

Your membership is vital to the Utah Native Plant Society. It is important that your information is correct and up to date for notifications and the delivery of The Sego Lily newsletter.

Any questions about your membership, Contact Tony Stireman, tstireman@gmail.com.

Winter is coming soon... It is time to consider another issue of the Utah Native Plant Society *Sego Lily* which relies mostly upon articles from the society's membership. Please submit articles of your native plant stories and photos from hikes and field trips, conservation activities... whatever might be informative and interesting to fellow members.

The *Sego Lily* editors can use most any text format for articles (**PDF is troublesome**). Photos are always best submitted in original resolution and as individual files separate from text. You can indicate desired positioning within a document. We are looking forward to hearing from you. For submissions and/or questions: newsletter@unps.org or cathy.king@gmail.com.



Utah Native Plant Society

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

To contact an officer or committee chair write to:

Webmaster: unps@unps.org

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Website: For late-breaking news, the UNPS store (posters, etc.), the *Sego Lily* archives, Chapter events, sources of native plants, the digital Utah Rare Plant Field Guide at unps.org.

Webmaster inquiries at unps@unps.org

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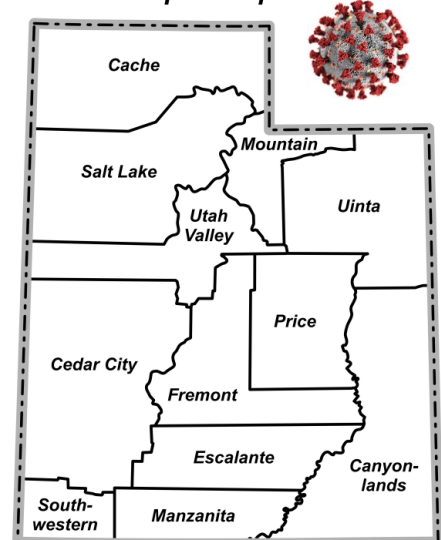
Sego Lily Editors: John Stireman jstireman@outlook.com
Cathy King cathy.king@gmail.com

Submit articles to Cathy King:
cathy.king@gmail.com

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UNPS Chapter Map





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PO Box 520041
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