



Sego Lily

Newsletter of the Utah Native Plant Society

Summer 2023 Volume 46 Number 3



Frasera speciosa on Display	2
Old Pinyon/Juniper Woodland...	4
UNPS Board Members Wanted ...	8
Collomia of Utah	9
La Sal Native Seeding Effort	11
Zach Coury's Rare Plants	13
Utah Rare Plant Update	14
Grow Native Fire Chalice	15
Botanical Breaking News	16
Steve Hegji's Camera	17
Small Grants Awards 2023	20
Thank You Bill Stockdale	20
Dave Wallace's UNPS Booth	21
Where to Buy UNPS Poster	21

A Sight for the Ages: *Frasera speciosa* is on Display in the Northern Wasatch Canyons!

by Tracey Footer,
Senior Scientist, Eastern Research Group, Inc.

Ah, the mountains! Our typical escape when the valleys heat up. However, delayed this year due to unprecedented snowpack and the long thaw that followed. My family eagerly awaited news that our first campground this year in Big Cottonwood Canyon would open in time for our early July 2023 reservation. Miraculously, it did with only a couple of weeks to spare!

The first thing we noticed when we arrived and started to explore the woods was the lush vegetation that surrounded us. Everything was green, happy, and on display. However, none were more spectacular than the arrival of the blooms on the elusive Green Gentian (*Frasera speciosa*, see cover photo), and if you were lucky enough to see them you know what I am talking about. I am petite at a short 5 feet 3 inches and the enormity of these specimens literally slapped me in the face! Indeed, it was hard for my taller husband to ignore, and it totally engulfed our pint-sized toddler in a showy fairy landscape. Once you see them, you cannot unsee. The discovery of the first specimen led to the pleasure of observing an entire field of blooming green gentian, as this species of plant likes to coordinate its blooms regardless of the age of the plant.

As a biotechnician at Mount Rainier National Park over 20 years ago, I saw my first native gentian species and was in awe. In the wet subalpine meadows between



Giant Frasera, Elkweed (*Frasera speciosa* syn. *Swertia radiata*), Gentian family (Gentianaceae). Near Three Creeks Reservoir, Tushar Mts, Beaver County, Utah.
Photo by Andrey Zharkikh

about 4,000 and 8,000 feet are these deep blue to indigo blooms of the Mountain Bog Gentian (*Gentiana calycosa*) standing tall on a single stalk. I was captivated and this discovery was the beginning of my love of photographing (and identifying) the native flowers in locations I lived. It is fitting that another “gentian” be the subject of my first *Sego Lily* article. But why is this native flower species so unique and prized? It comes down to their biology.

Table 1. Comparison between *Frasera speciosa* and *Agave americana*.

Characteristic	Green Gentian (<i>Frasera speciosa</i>)	Century Plant (<i>Agave americana</i>)
Family	Gentianaceae	Asparagaceae
Average Life span	30 to 40 years	25 to 30 years
Bloom periodicity	20 to 80 years	10 to 30 years
Bloom height	Up to 8 feet tall	20 to 30 feet tall

Cover photo: *Frasera speciosa* in a mountain meadow of the Wasatch Front. Photo by Tracey Footer.

Green gentian (aka, Monument Plant, or Elkweed) in bloom is rarer than that of a century plant and the similarities of these two species is striking, regardless of the taxonomic distance between the two (they have only the kingdom Plantae in common). Both species are monocarpic, meaning that they grow for many years, flower just once, and then the plant dies. The century plant blooms once every 10 to 25 years on a stalk, whereas the green gentian can go 20 to 80 years. The century plant was given its name because it was believed that the plant bloomed once every hundred years. However, the bloom time of the green gentian is on a time frame even longer than that of the century plant. Table 1 illustrates the similarities and differences of the two plant species. In addition to a longer periodicity, the populations of multiple specimens of green gentian will bloom in a community-wide event, regardless of the individual plants age. And, as reported by Jeff Minton in a 2019 article on a similarly striking display witnessed in Colorado, one green gentian plant can produce 600 flowers and 66,000 seeds. Also noted in his article, the seeds of this species do not disperse far, but fall close to the ground where they are later nourished by the decaying body of the parent plant.

The first known specimen of green gentian was collected in the 1830s around the Spokane area of Washington state and studied extensively starting in the 1960s with the research of botanist Dr. David Inouye. It was Dr. Inouye's observations that lead to the discovery that green gentian plants will coordinate their bloom times in the same immediate area, effectively increasing genetic diversity by allowing for cross-pollination of many different plants even though the flowers of the green gentian are capable of cross-pollinating other flowers of the same plant. The most fascinating discovery of Dr. Inouye's research is the catalyst for initiating the long growth process of these behemoth flower stalks. The irony is that the incredibly epic snowfall experienced across the mountain west this winter has nearly nothing to do with the dazzling display of green gentian out now in the mountain meadows of Big Cottonwood Canyon. However, according to Dr. Inouye, it may help to kickstart similar displays 3-4 years from now. This is because a wet July and August will start the slow growth of the basal leaves and most of this plant underground. It takes about 3-4 years for the non-flowering plant to emerge, but it will take decades for the flowering event to occur before the plant goes to seed and dies. Dr. Inouye has hypothesized that the height of the flowering green gentian is proportional to the age of the plant, with the taller plants representing the older specimens. But it is not known yet what causes a synchronized flowering event across plants of different ages. Also unknown is the impact that climate change will have on the populations of this stunning plant.



Frasera speciosa. Photo by Tracey Footer.

Beyond the simple math of the rareness of their appearance or the height of their blooms, it is the flowers themselves that bring you back to the stillness of the macro world. Numerous whorls of flowers are attached to a central raceme to create one large bloom on a solitary stalk. Bright purple spots accentuate the green flowers to draw in pollinators. The flower structure is also notable with a proud green pistil surrounded by four stamens and set off by the showy, cross-shaped petals. Keep your eyes peeled for this beauty out there in the mountain meadows. Another community bloom can be years to decades more in the making.

References:

- Mitton, Jeff. 2019. "Green gentians live for decades, but flower only once." *Colorado Arts and Sciences Magazine*, University of Colorado Boulder, August 16, 2019. Last accessed from <https://www.colorado.edu/asmagazine/2019/08/16/green-gentians-live-decades-only-flower-once> on July 30, 2023.
- Inouye, David W. 2019. "Spectacle in the meadows." *Crested Butte News: RMBL notes*, June 28, 2019. Last accessed from <https://www.swcoloradowildflowers.com/PDF/Frasera%20speciosa%202019%20June.pdf> on July 30, 2023.

An Old Pinyon-Juniper Woodland Breathes Again

by William R Gray
Professor Emeritus, University of Utah
Submitted to *Sego Lily* August 2023

Last summer (2022) Marc Coles-Ritchie asked my opinion about some Utah Junipers (*Juniperus osteosperma*) he had visited in the Henry Mountains. They were in the Indian Springs area where BLM was proposing a vegetation "treatment" which would involve shredding (literally) about 900 acres of pinyon-juniper woodland and reseeding with grass and forbs. The site is on the south slope of Mount Hillers with amazing views out towards Navajo Mountain (Figure 1). The State of Utah partnered with a similar proposal for another 100 acres of state lands at a combined cost of half a million dollars.



Fig 1. Threatened Indian Springs area. View towards Navajo Mountain, 50 miles to the South. The forested central promontory descends about 900 feet in two miles.

BLM's policy has long encouraged the removal of pinyon-juniper woodlands that are replacing sagebrush habitat, with a guideline of 150 years to delimit pre-settlement conditions. Marc's concern was that some of the junipers appeared to be mature older trees and not part of an ongoing expansion. He had taken many photographs in the area and shared them via Flickr. Could I judge something about their age?

Life stages of old junipers

Because of my work on old "dunipers" in the West Desert, and on younger trees from near Nephi, I knew that size alone is a poor criterion for judging age. In

harsh conditions a juniper may take 1000 years to achieve one foot in diameter, while some of those near Nephi grew to two feet diameter in a tenth of that time (Figure 2)!

A better guide is the general form of a tree. Utah Junipers usually start out as a shrub with multiple branches from near the ground and along the stem. Time takes its toll, branches break off or die. Extended drought conditions can cause the crown to die back: all subsequent growth is then concentrated in the lower limbs. Especially in tough conditions trees stop growing taller but spread, creating thicker and much heavier branches. The sheer weight of these stimulates extra growth on the lower sides leading to a tear-shaped cross



Fig 2. Fast and slow growth in Utah Juniper. Trees show extreme variation in growth rate according to conditions. Background slab is a 100-year-old tree from near Nephi. Sitting on the surface are a pair of 750-year-old slices from trees in the West Desert and the Wasatch Mountains.

section with the oldest wood near the top. In time the shrubby form may be lost entirely when a few of the lowest limbs get so big as to hijack most of the root system, starving the original center. In the extreme there may be just one or a few massive stems upright or sprawling along the ground, with smaller branches rising at their ends.

A (short) historical record

Marc's photos included a number of trees that had reached the middle stages where several short thick trunks carry all of the living branches. Visually I estimated some were likely to be 500 years old. Equally telling was a detailed look at the proposed treatment area on Google Earth, one very useful feature of which is the ability to look back in time to older aerial images. What we found was very striking. Between 1993 and 2019 there was no detectable change in vegetation, with an exact match between almost every shrub and tree! Far from being invasive it was a stable pinyon-juniper woodland of long standing. The most notable change seen in aerial images was between 2006 and 2009 when it appears that BLM cleared a secondary road along the main promontory and established half a dozen dispersed camping areas. That road was later decommissioned by BLM.

At all times the woodlands were notable for having a sparse understory with individual tree canopies well separated, both factors that limit propagation of wildfires

As a result of these preliminary findings I managed to submit my concerns just in time to meet the deadline for comments on the proposed treatment. Naturally I urged a halt to the whole proceedings. Marc, through Grand Canyon Trust, submitted his objections also. Just inside the deadline the UNPS Board of Directors sent their letter of opposition. Getting those comments in at that point, even though the data were preliminary, put us in standing to protest should the agencies persist with their plan.

Site visits

The next step was to gather on-site data about actual ages of the trees. This requires obtaining cores or slices of wood for which I have a permit through my work in Mitch Power's laboratory at the Garrett Herbarium. On a brief solo visit I couldn't reach Indian Springs because of poor road conditions, but was able to check out similar woodland within a mile or two. Our suspicions were confirmed when a slice of an eight-inch thick limb from a medium-sized tree showed 450 growth rings.

To help me access the Indian Springs site Marc organized a visit with colleagues from Grand Canyon Trust and Kya Marienfeld from SUWA. Personnel from the local BLM offices were invited to participate but were unable to take part. We stayed overnight at the beautiful Starr Springs Campground and navigated the bad road successfully the next morning. It was immediately clear that the woodland was relatively sparse with little understory to propagate fire. Tree or shrub density in the main area is about 100 per acre as measured on Google Earth. My aim was to collect samples from trees

representing the main stages of growth, from juvenile to very mature. All types were readily found and samples collected. The woodland in the main site is heavily biased towards Utah Juniper while uphill from the site Pinyon Pine (*Pinus edulis*) increases.

On my way back from the trip I visited Sue Fivecoat, manager of the Henry Mountains Field Station for BLM, and learned more about their range management priorities. Prevention of major wildfires is very high on the list, especially after the catastrophic Bulldog Fire of 2003 which burned more than 30,000 acres and left large areas prone to erosion. I told her of my preliminary impressions of Indian Springs and that I would report in more detail when we had aged the trees.

What we found on the ground

Back home I flattened, sanded and polished the wood samples in order to make high-resolution photographs of the very fine growth rings that go along with difficult growing conditions.

Table 1 summarizes our findings. One thing to emphasize is that growth rings cannot simply be equated to years. In harsh conditions junipers in particular may fail to make any detectable outward growth: there are always some missing rings that can only be accounted for by cross-referencing many trees. So counting rings usually provides an *underestimate* of age.

On the South slope of the Henry Mountains life is clearly in the slow lane, requiring an average of about 60-70 years to add an inch of radial growth. This was true both for relatively young trees and for the oldest. The earliest stages seem to be even more difficult. What appeared to be a little seedling just a few inches tall (Figure 3), turned out to be a pair of 40-50 year olds! The same has been found in the very harsh conditions of the West Desert where growth is even slower than in the Henries. Figures 4 through 6 show photographs of plants at different life stages, from small shrubs to gnarly multicentennial trees.

Representing the oldest category is JUOS 08 (Fig. 7, found on page 8), chosen for having multiple heavy branches developed into sprawling horizontal limbs and no central trunk. It is never comfortable to cut into old living wood but there was always the thought that by *not* cutting one tree all the others would be shredded by default. Increment cores, which do almost no harm, are of very limited use with juniper. By cutting a full section from one large branch we held the best hope of an accurate count and still left most of the tree alive. The photos show a classic teardrop-shaped cross-section with the topmost rings, the original center, eroded away. We were able to measure close to 780 rings so the tree



Fig 3. JUOS 01 Spiky juvenile type foliage on “seedling” (top) actually a pair of 40-year old plants (bottom).

itself is almost certainly more than 800 years old.

Two pinyon pines were sampled by coring, both of them about ten inches in diameter. One was over 200 years old, the other more than 300, with growth faster than that of the junipers.

Follow-up with BLM

In November I shared these results with Marc and others of the UNPS board, and submitted a brief summary report to BLM. Cathy King also sent a follow-up letter on behalf of UNPS urging that the proposal be cancelled. Sue Fivecoat assured me they would be forwarded to the team working on the project. Early in March Marc learned the good news that BLM had



Fig 4. JUOS 04 Small shrub, 42" tall, two inch diameter at ground. About 80 years old.



Fig 5. JUOS 05 Classic mature shrub form. About 10 feet tall and 100 years old. Growing next to road at uphill end of site.



Fig 6. A few younger junipers within a largely old-growth area. Smallest shrub on left (JUOS 02) is at least 50 years old, while mature trees are several hundred. Note the few heavy trunks/branches and almost complete absence of ground cover.

cancelled the project – but left the door open for a smaller-scale treatment. In June it was confirmed that the project is dead for the foreseeable future and the funding request was not carried over.

On one hand it is depressing that there is still a strong

mindset that Utah Juniper is merely a trash tree that should be kept severely in check. On the other, it is encouraging that BLM from the highest level down is actively reviewing this outlook and trying to bring it into line with a broader view of pinyon-juniper woodlands in general. It would be naïve to think that our efforts alone saved this patch of old-growth junipers from destruction, but hopefully the dialog we had with BLM staff played some role. Any glimmer of hope is a good one and the trees can breathe more easily again.

Acknowledgements

Thanks go to Marc Coles-Ritchie for introducing me to these wonderful old trees, and for his constant vigilance in working on behalf of the ecosystems of the Colorado Plateau, an ongoing priority with Grand Canyon Trust. It was a special pleasure to join Marc and Kya Marienfeld of SUWA in the field to experience the habitat firsthand. Special thanks to Sue Fivecoat of BLM who shared her knowledge and love of the Henry Mountains. For the past several years I have been fortunate to work with Dr. Mitchell Power at the Garrett Herbarium, Natural History Museum of Utah – it has been a really stimulating environment.

<u>Name</u>	<u>Field Number</u>	<u>Location¹</u>	<u>Rings</u>	<u>Path (cm)</u>	<u>Rings/cm</u>
JUOS 01	220929-12 root	Eastern	46	0.42	109.5
JUOS 01	220929-12 shoot	Eastern	22	0.28	78.6
JUOS 02	220929-06 stem	Upper central	52	1.4	37.1
JUOS 03	220929-10 branch	Eastern	66	2.8	23.6
JUOS 04	220929-04 stem	Upper central	80	2.8	28.6
JUOS 05	220929-08 branch	Upper central	92	3.2	28.8
JUOS 06	220929-05 stem	Upper central	97	6.0	16.2
JUOS 07	220929-01 stem	Upper central	530	15.5	34.2
JUOS 08	220929-03 stem	Upper central	783	24.5	32.0
PIED 01	220929-11 core	Eastern	208	12.0	17.3
PIED 01	220929-11 dead branch	Eastern	174	3.4	51.2
PIED 02	220929-07 core	Upper central	294	12.5	23.5

Table 1 Summary of measurements on samples of Utah Juniper (*Juniperus osteosperma*) from Indan Springs area of Henry Mountains, Utah. Growth rings were counted on a transect of the longest radius, representing the fastest unimpeded growth. 1 general location within treatment area.



Fig 7. JUOS 08 Serious old age. Above, the central trunk is long gone, as is most of the living tissue from remaining branches. The heaviest limb (foreground, 11" thick) still had a few active growing ends; cut end of branch shows teardrop-shaped growth with a small arc of living tissue at base. Original center would be at top but has already been lost to erosion.

New UNPS Board Members Wanted

Nominations Now Open for UNPS Board of Directors 2023-2024

The UNPS nominating committee is looking for new board members to serve for the coming year. There can be as many as 20 people on our board of directors or as few as 10. Board members must be currently paid up UNPS members.

This volunteer position helps decide on UNPS policies and how to allocate our resources.

The board meets on Zoom or in person about 8 times a year for 1-2 hours. In addition, as a working board, members are encouraged to serve on committees or projects of their choosing as long as they further the goals of UNPS.

UNPS members can nominate themselves or be nominated by others but anyone nominated must agree in advance to serve on the board.

The nominated persons will be voted on at the UNPS Annual Meeting this fall, details to be announced.

UNPS is a 501(c)(3) non-profit organization dedicated to the appreciation, preservation, conservation and responsible use of the native plant and plant communities found in the state of Utah and the Intermountain West.

Anyone interested in serving please contact Cathy King, UNPS Nominating Committee chair at: cathy.king@gmail.com.

Collomia of Utah

by Steve Hegji

The Phlox (Polemoniaceae) Family produces some of the most beautiful wildflowers in Utah. One of the genera, *Collomia*, has just fifteen species scattered across North America and the southern end of South America. Four of those species are native to Utah. The genus name is derived from the Greek “kolla” (glue), because the seeds of some of the species become mucilaginous when wet. Common names for the species tend to include the word “trumpets” or “mountain trumpets” – which perfectly describes the flower shape of our species. The flowers consist of five petals, fused for most of their length and forming a long narrow tube, then flaring at the unfused end to show the five separate petals.

Collomia tenella is the baby of this group of four and it takes a diligent eye to spot it. *C. tenella* is an annual, up to 6-8 inches tall and freely branching, the one or two white or pinkish flowers form at the forks or leaf axils. It is found in UT, WY, ID, NV, OR, CA, WA, and Canada - where it is listed as endangered. The author has seen this plant only once, in the Sheeprock Mountains west of Vernon, Utah.



Collomia tenella. This and other photos in this article by Steve Hegji.

Collomia linearis is another slender annual but can grow up to 24 inches tall, but is usually half that height. The specific epithet, *linearis*, refers to the leaves, which are long and narrow near the base, becoming broader above. It may have a simple single



Collomia linearis.

stem with a terminal flower cluster, or it may have some axillary branches that also terminate in a flower cluster. The flower clusters contain up to 20 white and pink flowers, not all blooming at the same time. The calyces, glandular leafy bracts, and upper leaves crowd together at the terminal cluster giving the flowers the appearance of rising up out of a green cloud. This plant is broadly distributed, and is found in the northern and western tier of US states, and Canada. Look for it in drier soils of lightly wooded areas.

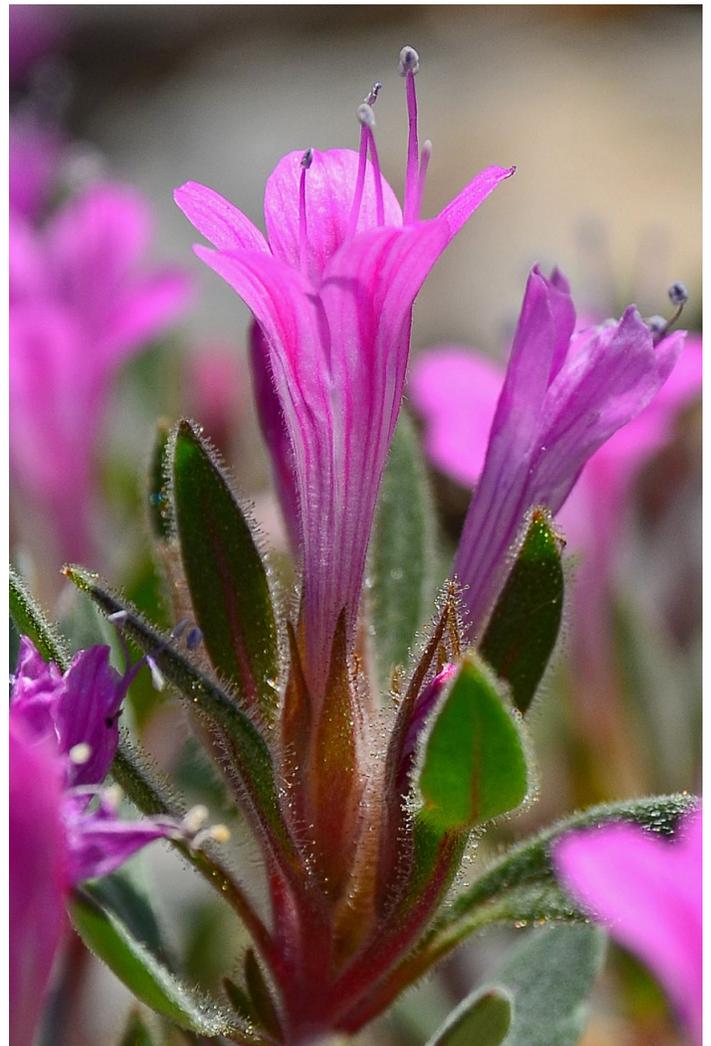
Collomia grandiflora is similar to *C. linearis*, but with some noticeable differences. It tends to be a taller, more robust plant, with broader leaves; and the flowers are lovely shades of yellowish, apricot, and salmon – often on the same flower cluster. The pollen on the anthers is bright blue, which is a wonderful contrast to the pastel shades of the flowers. Not as broadly distributed as *C. linearis*, it is found in the western quarter of the US, from AZ north to MT, and west to CA and up to WA. *Collomia grandiflora* was named from plants grown from seeds collected by David Douglas, a Scottish collector sent to America on three separate occasions by the Horticultural Society of London. He introduced over 200 species of American plants to Europe. Our Douglas Fir was named after David Douglas, who discovered it during his 3rd expedition.

Collomia debilis is the lone perennial in this group of four, with a deep taproot and many sprawling branches that form a much larger plant than the other three species. It is found on talus or rocky slopes at high elevations in UT, WY, ID, MT, and west to WA and south to northern CA and NV. The flowers form in



Collomia grandiflora.

terminal clusters of one to a few flowers, but the many branches give the appearance of a plant covered in many blossoms. In our area these flowers are a deep pink, and the anthers have blue pollen, and the herbage is hairy and glandular. *Collomia debilis* is an amazing sight to see growing in clumps on otherwise barren talus.



Collomia debilis.

Editor: Steve Hegji, is an amateur botanist, an avid hiker, and a superb wildflower photographer.

Successful Post-fire Native Seeding Effort in Southeast Utah's La Sal Mountains

by Mary Moran, UNPS member, Canyonlands Chapter



Flowers and field trippers. Photo by Mary Moran

Members of the Canyonlands Chapter of the Utah Native Plant Society, other seeding volunteers, and interested botanizers accompanied Barb Smith, biologist for the Manti-La Sal National Forest, on two plant walks the last week of June. The walks were in the foothills of the La Sal Mountains near Moab, in a pinyon-juniper vegetation community. The group started among live trees, but soon reached a burned area within the perimeter of the wildfire of June, 2021. Almost 9,000 acres burned. Many in the group had been involved in hand-seeding efforts in November, 2021, or supplemental 2022 seeding efforts. All were interested in seeing what plants had germinated, and in what abundance.

The seeding effort followed planning by Barb to target areas most likely to benefit from hand-seeding. The burn started in the Pack Creek picnic area, near the site of the recent field trips, but progressed to the northeast and uphill as far as timberline. Barb knew that the aspens, understory plants and eventually some conifer trees would likely return without hands-on management in the upper elevations, but natural restoration would be much more limited and slower in the pinyon-juniper community. The targeted area for seeding had few understory plants before the burn, and the pinyon and juniper trees do not germinate readily or grow quickly.

Canyonlands Natural History Association, a non-profit partner with Southeast Utah's National Forests, National

Parks, and Bureau of Land Management, provided funding for native grass and forb seeds. These are not inexpensive! Barb chose seeds with pollinators in mind, and aimed for species with a variety of flowering seasons and those that had long-flowering seasons. That said, she chose some species choices based on availability; seeds for many native species are difficult to obtain. Some of the species that she chose are found growing nearby in the La Sals; others are native to the region but hadn't previously grown in this exact area. Because it is difficult to know which seeds will germinate quickly, or at all, due to factors including unpredictable weather and varying seed germination triggers, it is a general practice in vegetation restoration to choose a large variety of species for seeding. Given all of those factors, Barb obtained seeds of 16 species that we used in the seeding efforts within the targeted burned pinyon-juniper area.

The recent field trips did not disappoint. Barb handed out lists of the species that had been seeded to guide the group in our searching. Common plants we saw included showy Palmer's penstemons, Lewis flax, annual sunflower, and Indian ricegrass. Almost all of the seeded species were found, in varying abundance. (See the accompanying list for seeded plants and which were observed on one of the recent field trips.)



Rare Utah endemic, *Astragalus isleyi*. Photo by Diane Ackerman.

Notably, the search also found many plants that had moved into the burned area on their own, without seeding. These included native Colton's milkvetch (*Astragalus coltonii*), stemless woollybase (*Tetaneuris acaulis*), roseheath (*Chaetopappa ericoides*), smallhead sunflower (*Helianthus petiolaris*), and galleta (*Pleuraphis jamesii*). Non-natives included smooth brome (*Bromus inermis*), and lambsquarters (*Chenopodium album*). As a bonus, the group saw several patches of the native sensitive Conservation Agreement species *Astragalus isleyi*, both

inside and outside the burned area.

But besides the seeding in the field trip area, there were other seeding efforts. A sub-group of the November, 2021 volunteer group hand-seeded along the Pack Creek riparian terraces, using a different mix of native riparian or semi-riparian forbs and grasses. While some of these terraces were seriously flooded in the summer of 2022, the higher seeded terraces were less disturbed. And Barb reported that shortly after the wildfire, partner agency Utah Division of Wildlife Resources, with funding through the Utah Watershed Restoration Initiative, aerial-seeded higher pinyon-juniper swaths that had been previously disturbed by chaining back in the 1950s or 1960s. USGS-Southwest Biological Science Center Ecologist Rebecca Finger-Higgins has been monitoring that area and will have results in the near future. Finally, the Bureau of

Land Management Seeds of Success program has two interns who will be collecting native seed in the La Sal Mountains this summer, for future efforts.

A few houses completely burned in the Pack Creek Ranch area, near where the human-caused wildfire started two summers ago. Much of Moab felt devastated for our mountains, as the fire continued to burn for a few hot, windy, dusty weeks. Access to our refuge mountains was limited through that summer. But the fire was spotty, and only a very small part of the burned area had severely burned soils. On the recent field trip days, a new house could be seen going up where one had burned to the ground. As field trip participants meandered through a variety of blooming wildflowers and abundant grasses, we felt hopeful.

Pack Creek fire seeded area plant species (seeded fall 2021 and fall 2022) Observed on June 29, 2023

Scientific name	Common name	seeded	observed
<i>Achnatherum hymenoides</i>	Indian ricegrass	X	X
<i>Bouteloua gracilis</i>	Blue grama	X	X
<i>Cleome serrulata</i>	Rocky Mtn beeplant	X	X
<i>Hedysarum boreale</i>	Northern sweetvetch	X	X
<i>Achillea millefolium</i>	Western yarrow	X	X
<i>Helianthus annuus</i>	Annual sunflower	X	X
<i>Heliomeris multiflora</i>	Showy goldeneye	X	X
<i>Lupine argenteus rubicaulis</i>	Mountain lupine	X	a couple, tiny
<i>Oenothera pallida</i>	White evening primrose	X	
<i>Linum lewisii</i>	Lewis blue flax	X	X
<i>Penstemon palmeri</i>	Palmer's penstemon	X	X
<i>Penstemon strictus</i>	Rocky Mtn penstemon	X	X
EXTRA CREDIT			
<i>Leymus cinereus</i>	Basin wildrye	X	
<i>Nicotiana attenuata</i>	Coyote tobacco	X	X
<i>Calochortus flexuosus</i>	Winding sego lily	X	maybe?
<i>Purshia tridentata</i>	bitterbrush	X	
<i>Astragalus iselyii</i>	Isely's milkvetch		X
<i>Asclepias cryptoceras</i>	Pallid milkweed		X
<i>Asclepias asperula</i>	Spider milkweed		X

Zach Coury's Rare Plant Photos



Hesperidanthus argillaceus
Uintah County, 9 June 2023



Cycladenia jonesii
Uintah County, 11 June 2023



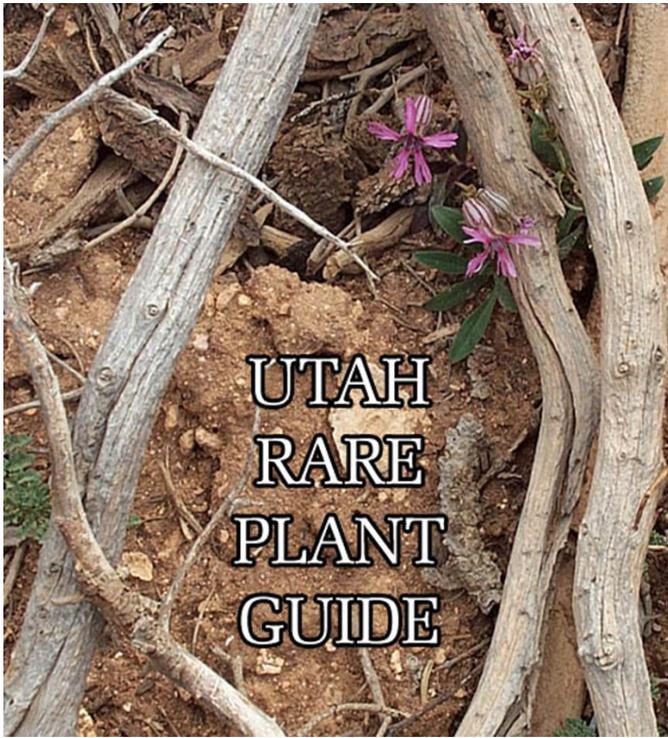
Opuntia chlorotica
Washington County, 25 June 2023



Erigeron kachinensis
San Juan County, 29 July 2023

Utah Rare Plant Guide Update

from Tony Frates



Since being first available towards the latter half of 2003 with the "first edition" having been published on the web by late February of 2004, updates to the Utah Rare Plant Guide continue. Funded in part by BLM grants in 2003, work continues on the guide on a volunteer basis by the [Utah Native Plant Society](#) primarily to add pictures and drawings for taxa that were not previously available and to update the guide as appropriate for taxa previously missed, to make text changes, taxonomic changes, etc.

New in 2023

4/18/23: *Draba maguirei* subsp. *stonei* has finally been named and *Draba maguirei* "var." *maguirei* is now being treated as a subsp. (Windham et al., 2023). Originally it was thought that "var." *stonei* was going to be published in 2005. So, in 2003 a rare plant page was prepared and updated in 2004 with that expectation. However, when that did not occur, in 2010 the *Draba maguirei* page was updated to mention that there were two taxa involved

and that there was a higher elevation "form" as well as a lower elevation form. The 2023 publication now finally allows us to separate the taxa and make corresponding updates.

4/23/23: More updates to the *Draba maguirei* subsp. *stonei* treatment.

7/12/23: The recently named *Cirsium tukuhnikivatzi-cum* (published June 23, 2023 by JR Ackerfield), endemic to the La Sal Mountains, has been added to the rare plant master list for future review.

7/21/23: Adding the 2023 Ackerfield (see above) reference to the acknowledgements page, *Cirsium virginense* comments updated on the species page plus on the master list (will be changed to *Cirsium mohavense*) which also references the 2023 Ackerfield publication where it is discussed, adding *Erythranthe verbenacea* to the master list, along with other updates to the master list.

7/24/23: Adding Summit Co. to the distribution of *Spiranthes diluvialis*.

8/7/23: Moving *Corydalis caseana* subsp. *brachycarpa* to the Papaveraceae family.

8/11/23: *Opuntia basilaris* var. *heilii* has again been validated as a taxon and has been moved along with var. *longiareolata* to the level of subspecies. Taxonomy changes have therefore been made to the rare plant list for all three *O. basilaris* that occur in Utah plus some county distribution and other updates. See <https://doi.org/10.3390/plants12142677>. Full names with authors: *Opuntia basilaris* subsp. *heilii* (S.L. Welsh & Neese) Majure and *Opuntia basilaris* subsp. *longiareolata* (Clover & Jotter) Majure.

There have also been many changes/updates (no ranking changes have yet been made) to the 2016-2023 UNPS Utah Rare Plant Master List, the link for which is at: https://www.utahrareplants.org/rpg_species.html

Grow Native—*Epilobium canum* ssp. *garrettii*

(synonym *Zauschneria garrettii*)

by Cathy King, President UNPS

Chances are you already know *Epilobium canum* ssp. *garrettii* (synonym *Zauschneria garrettii*) and there is a good reason for it. Not only is it a Utah native plant with showy orange flowers that blooms for a long period well into the late summer months, but it is also an excellent water-wise selection for your garden.



Epilobium canum ssp. *garrettii* growing in a typical dry landscape in Kamloops, BC, Canada. Photo by Jay Akerley.

Known by the common name fire chalice or hummingbird plant, this is a low-growing long-lived perennial about 8-12" tall that can serve as a ground cover once established in the garden as it slowly increases in size by sending out rhizomes. Offered in a wide variety of selections and cultivars, the color can vary in shades of orange to scarlet reds. As the late, great David Salman from High Country Gardens put it "this colorful group of herbaceous perennials are a requirement for any self-respecting western garden." *Zauschneria garrettii* 'Orange Carpet' is a David Salman selection that he introduced through High Country Gardens in 1996. It is a 2001 Plant Select winner as well.

Plant it on a hill or sloping location where the brilliant flowers can cascade over rocks or raised beds. It is hardy to Zone 3 and blooms best in a sunny location. Although it is a water-wise plant, moderate water will encourage more flowers.

According to Stephen Love from the University of Idaho, fire chalice grows naturally in almost all the states in the West except for Washington, Montana and Colorado. Its



Garrett's fire chalice, *Epilobium canum* ssp. *garrettii* (syn. *Zauschneria garrettii*), Evening Primrose family (Onagraceae). Elbow Fork in Big Cottonwood Canyon, Utah. Photo by Andrey Zharkikh.

natural "habitat is typically open, steep, dry and rocky, and is accompanied by sagebrush, mountain scrub, grasses, and other small wildflowers."

You will find it in all of our public gardens in Utah. And you should be able to find it for sale pretty easily in most Utah retail nurseries when you go shopping for plants. You might run across another subspecies in a nursery, *E. canum* ssp. *canum*, which is the California variety of the species and listed for Zone 8 and above.

Sources:

Native Plants for the Landscape Utah State University "Firechalice in the Landscape" Stephen Love, University of Idaho https://cwelwnp.usu.edu/westernnativeplants/plantlist_view.php?id=52&name=zauschneriagarrettiepilobiumcanum

Plant Select, Orange Carpet, hummingbird trumpet <https://plantselect.org/plant/epilobium-canum-subsp-garrettii-pwwg01s-zauschneria-garrettii-pwwg01s/>

David Salman, High Country Gardens, *Zauschneria Orange Carpet*. <https://www.highcountrygardens.com/content/gardening/pour-on-the-orange-planting-zauschneria-for-hummingbirds>

Botanical Breaking News: *Newly Named Cirsium*

by Cathy King, President UNPS

There are run-of-the-mill thistles or weedy and invasive thistles and then there are spectacular thistles such as *Cirsium tukuhnikivatcicum*, recently described by Dr. Jennifer Ackerfield, associate director of biodiversity research and head curator of natural history collections at Denver Botanic Gardens and published in the scientific journal *Systematic Botany* this past June of 2023.



Cirsium tukuhnikivatcicum in La Sal Mts. Photo by Sarah Topp.



Two photos by Andrey Zharkikh.

Here is the link to the journal *Systematic Botany* where you can read the abstract for the nine page journal article but full access does require a subscription:

<https://bioone.org/journals/systematic-botany/volume-48/issue-2/036364423X16847773873170/Cirsium-tukuhnikivatcicum-a-New-Species-of-Thistle-Endemic-to-the/10.1600/036364423X16847773873170.short>

Jennifer Ackerfield gave a terrific presentation to UNPS on a “Tour of Utah’s Thistles” in January of 2022. You can watch it on our UNPS YouTube channel:

https://www.youtube.com/watch?v=O4yZck_xFq4&list=PLLv26qEbGIKG4azqOv8juRmHKIHn5xB6R&index=4

And one more YouTube presentation of interest is the “Thistle be a Mess: Untangling the Taxonomy of Utah’s Native Thistles,” a short presentation Dr. Ackerfield gave at the 2021 Rare Plant Conference in Salt Lake City:

<https://www.youtube.com/watch?v=WWx12shYV78&list=PLLv26qEbGIKJdvhyzLXh6FCpSqWraO9f&index=3>

This is a great opportunity to learn that not all thistles are created equally. Some are pretty special indeed.

The tongue-twisting specific epithet of the cirsium is named after Mt. Tuhnikivatc where it can be found growing in high alpine meadows in the La Sal Mountains outside of Moab, Utah. It is a narrow endemic, meaning it only grows in this one small area and nowhere else, although there is a healthy population. Tuhnikivatc is a Southern Paiute word for “place where the sun shines longer” and Ute word for “where the sun sets last.” Read more details in this link to an article in the *Moab Times Independent* from July 13, 2023:

<https://www.moabtimes.com/articles/new-thistle-species-is-rooted-literally-in-the-la-sals/>

Steve Hegji's Camera

Editor: Steve Hegji has, for many years, shared photos and details of his many hikes, finding enjoyment in the native flora and natural landscapes. His readership has been the many subscribers to his email posts. Now, we are going to try a regular column, taken from Steve's emails.

Yesterday, [August 6, 2023] I did a 150 mile loop - car botany. On my way south from Lehi [Utah] I exited at 1400 N in Springville and drove back north a bit along the frontage road on the west side of I-15. Then I wandered around in the drier areas of the wetland, basically trying not to step in water above my boots, or falling in a sink hole.



Lactuca pulchella left. *Heliotropium curassavicum* right.



Castilleja exilis.



Teucrium canadense.



Verbena hastata.

From where Sheep Creek Road intersects Highway 6 in Spanish Fork Canyon, yesterday I drove up that road, following the signs to Strawberry Reservoir. These photos are from the drive up to the ridgeline (at 8600') from Highway 6. This is the west facing side of the ridge. UDOT paved this road in the last couple of years, but they didn't leave very many areas to pull out and explore. It's also open range, so you must play the sport of cow dodging.



Eriogonum heracleoides.



Ratibida columnifera.



Achillea millifolium. Clearly not the small, white indigenous form, var. *lanulosa*.



Orthocarpus tolmei. ID by Andrey Zharkikh.



Chrysothamnus viscidiflorus ssp. *latifolius*.

From the ridgeline down to Strawberry Reservoir I stopped where a creek crossed under the road. The area was very wet. I don't see these very often so it was a treat.



Clockwise: *Delphinium occidentale*, *Polemonium occidentale*, *Gentiana affinis*, *Sidalcea candida*, and *Hypericum scouleri*



Great Blue Heron photographed by Steve Hegji during his 150 mile loop—car botany.



Many thanks!

Bill Stockdale, our UNPS state treasurer, has resigned after 6 years of service. He has donated more than 300 hours total in gathering information, liaison with our chapters, keeping our books, filling out forms and improving our accounting system.

He has also been a member of our board of directors and of our small grants committee. He recently oversaw the reprinting of our popular wildflower poster. Our thanks go out to him for his many years of service.

Photo by Andrew McLean, The Wasatch Straight Schuter.

UNPS Small Grants Awards 2023

by Bill King

We are pleased to announce that the UNPS board of directors voted on May 11, 2023 the award of three \$2,000 research grants to the following:

Project Eleven Hundred/ Mary O'Brien, researching the dependence on pollinators and exposure to mountain goats on the La Sal *Senecio fremontii* var. *inexpectatus*. Thomas Meinzen, a graduate student at Montana State University, will be the primary field researcher.

Shannon Lencioni, a graduate student at Northern Arizona University, using phytochemical diversity to assess browsing impacts on Arizona Willow (*Salix*

arizonica). *Arizonica* grows in Utah, New Mexico and Arizona and is a Forest Service Sensitive species. UNPS has had a long interest in *Salix arizonica*. The late Duane Atwood wrote an article in our *Sego Lily* in 1995 entitled "Where have all the Arizona Willows gone."

Ava Brinkley, a graduate student at Northern Arizona State University, using field work morphometrics and DNA extraction, will take a closer look at the *Astragalus newberry* complex, especially *A. loanus* and *A. welshii*.

UNPS grant recipients are asked to submit an article to the *Sego Lily* or give a talk at our Rare Plant Meeting and inform us of the outcome of their research.

If you would like to see more research grants next year, please donate on our website at unps.org.



Dave Wallace at the Cache Valley Gardeners Market, familiarizing the public with the Utah Native Plant Society.

Where to buy the UNPS Wildflower Poster

The Utah Native Plant Society Wildflower Poster pictured here is a perennial favorite and we ship it from our website at unps.org. However, the cost of packing and shipping the poster has gotten expensive and you can save a lot of money on shipping if you live close to one of the retail store locations where the posters are sold locally. These retail store locations do not ship, if you want a poster shipped to you, order from unps.org.

The Wildflower Poster makes a great gift for your friends and family and of course, for yourself! Here is where you can buy the UNPS Wildflower Poster in retail store locations:

Salt Lake City:

Natural History Museum of Utah
The Museum Store
301 Wakara Way
Salt Lake City, UT 84108
801.581.6927

Red Butte Garden Gift Shop
300 Wakara Way
Salt Lake City, UT 84108
801.585.0556

REI

3285 East 3300 South
Salt Lake City, UT 84109
801.486.2100

Ogden:

Rainbow Gardens Gift Shop
1851 Valley Drive
Ogden, UT 84401
801.621.1606

Springdale:

Zion National Park
Visitor Center
Springdale, UT
435.772.3256



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 Segó Lily newsletter.

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

Fall is coming... It is time to consider another issue of the Utah Native Plant Society *Segó 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 *Segó Lily* editors can use most any text format for articles (**PDFs can be 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

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Webmaster: unps@unps.org

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Website: For late-breaking news, the UNPS store (posters, etc.), the *Segó 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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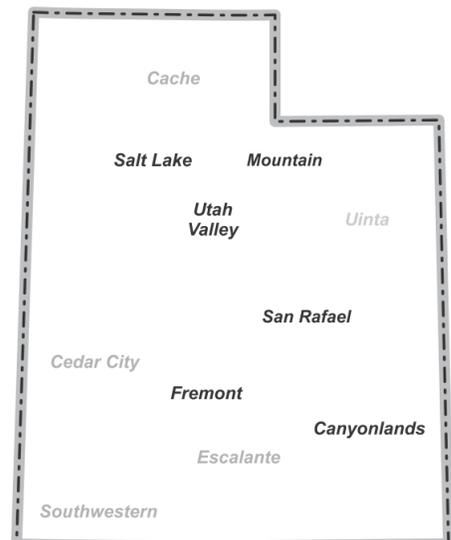
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