



Segolily

Newsletter of the Utah Native Plant Society

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Small-leaf globemallow

(*Sphaeralcea parvifolia*) is one of the most common of Utah's 15 species of *Sphaeralcea*. It can be recognized by its palmately veined maple-like leaves and orange blossoms that occur in groups of 2 or more at each node of an elongated inflorescence. Like other globemallow species, *S. parvifolia* is cold and drought hardy and thrives in full sun. Globemallow fruits are hard and may persist ungerminated for several years. Germination can be facilitated by nicking the fruit with a razor blade or sandpaper (scarification). For more on globemallows and the mallow family in general (and the prominent role of one species in the settlement of southern Utah) see the articles on pages 6 and 8 of this issue.

Illustration by W. Fertig



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Utah Native Plant Society

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Articles, photos, and illustrations from members are welcome and encouraged. The deadline for the March 2007 Segó Lily is 15 February 2007.

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

For more information on UNPS:
Contact Bill King (582-0432) or Susan Garvin (356-5108), or write to UNPS, PO Box 520041, Salt Lake City, UT, 84152-0041 or email unps@unps.org

President's Corner:

What does UNPS stand for?

Easy answer: "Utah Native Plant Society". But what does the *Utah Native Plant Society* stand for? Our charter says we are "a charitable organization dedicated to the understanding, preservation, enjoyment, and responsible use of Utah native plants."

There are many ways we can do this, from the very simple to the very ambitious. I like to think of them all as coming from the same perspective: that the plants are not mere adjuncts to our pleasure, but are worthy of our respect *in their own right*. A rare cactus should not be dug out of its remote nook in the desert just so that more humans will be able to appreciate its beauty ("Full many a flower is born to blush unseen . . ."). It's OK in its own little corner, even if *nobody* gets to visit.

How have we gone about our mission in the past year?

"Understanding" Last Spring we awarded a research grant to Ashley Egan, a BYU graduate student, to conduct research on a rare plant (Paria Breadroot, *Pediomelum pariense*). Ashley is studying how much genetic interchange occurs between the small, isolated populations of this species and how this might affect its long term survival. Information like this is crucial for deciding how best to protect rare species. Other individuals continue

their work of describing species and understanding how they contribute to the big picture.

"Preservation" Some of our work is direct, some indirect. Our Conservation committee, chaired by Tony Frates and Bill King, has been very busy again, trying to track actions that affect our rare and endangered plants. This can be a nightmare in an era when governmental edicts may pit political expediency against science-based judgment, sometimes placing impossible burdens on agency personnel. We have joined formal petitions on actions to

- preserve particular species and habitats
- oppose the Washington County land bill
- support the continued designation of roadless areas within National Forests.

Conversely, we have declined to join other petitions where we have felt the evidence is not so convincing.

A surprising number of our members are professional botanists, working with governmental agencies, universities, conservation organizations, or environmental consulting companies. What do they do in their spare time? Many of them donate hours to projects concerned with protecting native plants. For example, this Fall we were contacted by The Nature Conservancy of Utah (one of our most treasured partners in conservation work) to see if UNPS could help with plant surveys of an area in Cache Valley that was being considered for a conservation easement. Several members of the Cache chapter gave their professional services to this project.

In addition to these professionals many other members have participated in plant surveys, weed pulls, letter writing, and other ways of counterbalancing threats to our native species. A big "Thank You!" to all our members who participated in these efforts.

"Enjoyment" I hope that every member has been able to get out and enjoy some of the splendid displays of our wildflowers and other plants. Chapters have organized many wildflower walks and field trips, at elevations from the southern deserts to almost 12,000 feet in the Uinta Mountains. This is a tremendously important activity, especially when shared with people who need some guidance about what they are seeing – not just names of plants, but how they fit together. Just walking with someone can help them see things in a different light. Thank you, all who have participated in this way, sometimes showing our plants to visitors from out of state who will have gained a deeper sense of what Utah has to show the world.

"Responsible use" The obvious context is that of using native plants in landscaping. From the plant's perspective, we need to be thoughtful, and ensure that this does not deplete natural populations. UNPS has been active in promoting local plant propagation workshops in which people learn to grow native plants from seed. It is equally important to *avoid* plants such as Myrtle spurge that can escape and threaten native habitats like the foothills of the northern counties. We are working with nurseries to recommend the best plants for use in water-wise gardening.

Perhaps the founders of UNPS felt that these four headings covered the most important ways in which we should work. I like to turn it around and think that they are all closely linked to another theme, which is that of **EDUCATION**. We are very limited in our resources of time, energy and money. We'll do more by sowing seeds than by transplanting shrubs, and the most fertile ground is that of young minds. In all the activities listed above we are in parallel trying to educate others, mostly adults. Just today the board of directors voted to award an educational grant to Michael Yardley, an elementary school teacher in the little town of Enterprise, west of Cedar City. Mike will have the children plan and script two videos on native plants as part of their 4th grade curriculum. What a way to get them involved in the natural world! The actual shooting will be done by professionals, making for a product that will be available for other schools through the Utah educational network.

The Coming Year. My biggest hope is that we shall get more people involved in UNPS activities. First, but by no means the easiest, is to get existing members doing a wider range of things. And for that the impetus has to come from within the chapters – talks, walks, weed pulls, plant sales, beautification with native plants. You are on the spot, and the only ones who know the local scene. Chapter presidents

sometimes have a very hard time getting people to participate: they are listed on page 2, so contact them and offer to help.

Second is to recruit more new members. Use the Gift cards available through the website (or contact me directly). They are only \$10 for a year's membership including the Segó Lily. A broader membership base leads to more active programs, more funds for giving grants, and a larger pool of volunteers.

Third, closely connected with the last, we want to establish chapters in places where there is a big enough population base. Two chapters are in the planning stage: Fremont, organized by Maria Ulloa, will serve the Richfield area, and a Cedar City chapter will be organized by Winnie Washburn. We would love to see another in the populous area along the east shore of the Great Salt Lake – let us know if you are interested.

Have a wonderful year, enjoy our plants, and share the fun with others. – *Bill Gray, UNPS President*

State Board Report

At its meeting on Nov. 30th the board appointed Richard Jonas to its vacant position and elected the following officers for the 2007 year: President, Bill Gray; Vice president, Bill King; Treasurer, Celeste Kennard; Recording Secretary, Richard Jonas.

Chairpersons were appointed for 3 of our standing committees: Conservation, Bill King, with Tony Frates; Horticulture, Maggie Wolf; Invasive Weeds, Susan Garvin. We did not yet appoint chairs for Education and Communication.

We also agreed that UNPS should hold a statewide Spring Conference each year, hosted by one of the southern Utah chapters (see reminder below).

An invitation to serve: if you have interest in helping with any of the above committees, please contact Bill Gray (801-532-3486; cyberflora@xmission.com). – *Bill Gray*

First UNPS Spring Conference

When: May 17-19 2007

Where: Kanab and vicinity

The Manzanita Chapter will host the first UNPS Spring Conference. Our aim is to get members together to enjoy Spring in the desert. We'll have some talks, some walks, some thinking about our future, and lots of socializing. We hope this will be the first of many get-togethers in which we focus on what UNPS has done and where it is going.

More details in the March Segó Lily

UNPS Annual Members Meeting

Oct 21, 2006, Logan, UT

Buffet tables loaded with colorful and delicious dishes of sweet potatoes, tomatoes, beans, corn, squash, pumpkins, peppers and other foods native to the Americas greeted UNPS members and guests as they arrived at the annual Meeting of the Members, held this year in Logan. Among the specialty dishes were spicy chili with beans and bison, green tomato pie, quinoa salad and squash soup. Plenty of roast turkey provided a final touch to this fine spread.

Hosted by the UNPS Cache Chapter, the meeting was held in one of Logan's older buildings. Originally built in 1887 as an LDS meetinghouse, the expanded and remodeled facility has been in private hands for the past 30 years. Now it houses a private school and is the venue for Audubon meetings and other events.

After the buffet thinned out a bit, Susan Garvin, Chairperson of the 2005-6 UNPS Board of Directors, began the meeting. Everyone was introduced and given the opportunity to talk about their food dish. Some people came all the way from Richfield, and others had taken advantage of their trip to northern Utah to do a little hiking in Logan Canyon.

The main item of business was the election of the Board of Directors for 2006-7, in accord with UNPS Bylaws. Members unanimously approved the 19 people proposed for the Board (see complete list on page 2). 2005-6 Board Members Tony Frates and Gene Schupp retired from the Board, and Ty Harrison, Maggie Wolf and Loreen Woolstenhulme were newly elected.

Bill Gray, 2005-6 Co-President with Mindy Wheeler, will stay in the President's chair for the coming year. He plans to focus on membership and chapters to strengthen the Society's base. Bill also announced Walt Fertig's new role as Seago Lily newsletter editor. Susan Garvin, retiring Chair of the Board, was presented with a gift certificate to Amazon.com in appreciation of her years of service in top positions at UNPS.

After the business portion of the meeting, everyone moved to a nearby room for Dr. Leila Shultz's presentation "Three Hot Spots for Rare Plants in Utah", but first we were treated with a glimpse into some little-known aspects of her past when Robert Fitts introduced his "major professor" from his student years at Utah State University.

There are 250 to 300 Utah plant species deserving protection, according to Leila. Utah has a convergence of eco-regions, with subsequent plant hybridization and isolation that resulted in many plants endemic to particular geological formations. The three "hot spots" she emphasized were the Uinta Basin oil shale country, the area around Logan, and Washington County's White Dome.



Above: Maguire's primrose (*Primula maguirei*) by Kaye Thorne from the *Utah Rare Plant Field Guide*.

Leila's photographs of the Uinta Basin oil shale of Parachute Creek featured a landscape of white weathered rocks with black oily material inside. Rare plants of this area include *Penstemon grahamii*, *Sclerocactus wetlandicus*, *Glaucocarpum (Schoenocrambe) suffrutescens*, *Cryptantha grahamii*, *Cryptantha barnebyi*, *Cryptantha rollinsii*, *Astragalus lutosus*, and *Cymopterus duchesnensis*. The current energy development boom is threatening this area, as evidenced by her dramatic photo of a land scarred by a network of roads and gas wells, taken a few days earlier through the window of an airplane.

The Logan area has a number of rare endemic plants, presumably due to a convergence of geographic regions. Examples include *Primula maguirei*, *Penstemon compactus*, *Viola frank-smithii*, and *Orthocarpus tolmiei* var. *holmgreniorum*, a pink-purple version of the more familiar yellow owlclover. Leila emphasized the need to pay more attention to these rare plants, otherwise, "who will know if they disappear?"

The proposed White Dome Nature Preserve is Leila's third "hot spot" where the Dwarf bear-claw poppy (*Arctomecon humilis*) lives in gypsum-rich soils. Other rare plants in the area are *Pediocactus sileri* and *Astragalus holmgreniorum* along with rare reptiles and insect pollinators.

Leila also mentioned one of her projects, the Digital Atlas of the Vascular Plants of Utah, at earth.gis.usu.edu/plants/. Here you will find an interactive Utah map showing locations for nearly 3300 plant species.

Finally, Joan Degiorgio of The Nature Conservancy told the audience about the Utah Heritage Program and the Uinta Basin Rare Plant Forum, a proactive effort to better protect plants threatened by oil and gas development.

- Dave Wallace

Chapter News and Events

Cache: The Utah Native Plant Society-Cache Chapter and Master Gardeners of Cache Valley will be holding three sessions of their native plant propagation workshop: Saturday March 3rd (9 to 11 AM and 1 to 3 PM) and Thursday March 8th (6 to 8 PM). Cost is \$15 for UNPS or Master Gardener members and \$20 for everyone else. Pre-registration is required - for information call (435) 752-6263. The workshops will be held at the USU Teaching Greenhouse at 1389 North 800 East, Logan, UT (Corner of 800 East and 1400 North). New plants this year include *Linum kingii*, *Sporobolus cryptandrus*, *Arcostaphylos nevadensis*, and others. – *Steve Ripple*

Escalante (Garfield County): On November 9 Walt Fertig came up from Kanab to give a presentation on the native plants of Cedar Breaks National Monument. Chapter founder Winnie Washburn, who recently relocated to Cedar City, was able to join us for the meeting and celebrate the 50th anniversary of her 38th birthday. We shared Winnie's special day with birthday cake and other snacks.

On November 30, we did a clean up of the Main Street plant garden project with volunteers from the local school.

Starting in January, we will hold meetings on the 2nd Tuesday of the month instead of on Thursday. A program for January is yet to be arranged. Carolyn Shelton of the Kanab Chapter will provide us with an engaging program on plant reproduction in February. – *Allysia Angus*

Manzanita (Kane County): Mark Miller of the USGS Biological Resources Division gave a presentation on "My friend the Shivwits milkvetch" at our December meeting. Mark and his crack research team have been investigating the soil and habitat characteristics of the Endangered *Astragalus ampullarioides* in Zion National Park and elsewhere in Washington County, as well as studying effects of herbivory and weed competition. Larry Baer kicked off our Christmas party by presenting samples of his State Fair-winning jams and preserves. The results of our November board elections were announced, with Walter Fertig elected umbrella leader, Jana de Peyer vice president, Anne Mejia treasurer, Steve Dahl secretary, and Peggy Stone, Mark Miller, and Carolyn Shelton board members "at large". – *Walter Fertig*

Salt Lake: The Salt Lake Chapter will be co-hosting a Potluck Social with the Wasatch Rock Garden Society on January 17th at 7:00pm. The event will be held at the Tracey Mill in Liberty Park and will feature a slide show and dinner.

Chapter meetings will be moved to our new location in the Wasatch Board Room at REI on 3285 East 3300 South beginning February 7th. This location is easily accessible from I-215 and I-80. Tony

Frates will be the featured speaker and will discuss the status of several threatened and endangered plants in Washington County and the Uinta Basin.

– *Kipp Lee*

Southern (Washington County): The Southern Chapter will hold their annual Propagation Workshop on Feb. 3. We will have many new locally collected species to work with, including a number of flowers, several nice grasses, and a shrub or two. It will be taught by Rick Heflebower. Co-sponsored with the Zion Canyon Field Institute; cost is \$20. Sign up or get further info at www.zionpark.org or call (435) 772-3264 or 1-800-635-3959. ZCFI will also have several other related workshops: Native Plants and Xeriscaping taught by Lisa Ogden and Organic Gardening taught by Aviva O'Neil.

– *Margaret Malm*

Utah Valley (Utah Co): At our November Quarterly meeting we found out that the Central Utah Water Conservancy has accepted Utah Valley Chapter's proposal for a Native garden on their site (yahoo!). The garden will be front and center immediately off the main parking for the gardens. Bitsy Schultz designed the garden and we have been working with their (CUWCD'S) new Horticulturalist Megan Guenter and Nancy Hardman their Conservation Programs Coordinator on plans for maintenance and installation.

Our meeting that night seemed like an event that was in the making for many years. I seem to recall sitting at the Utah Native Plant Forum in 1997 at UVSC, that is located across the street from the Central Utah Water Conservancy District, and dreaming that the expanse of Kentucky Blue Grass at the CUWCD would one day become something more suited to the name that the agency's title proclaims... "Conservancy". We hope to be installing the garden Fall of 2007 and we would love to hear from any of you that would like to help.

February 16th will be our next Quarterly Meeting at the Federal Building in Provo 88 W 100 N. We will have a pot luck meal at 6:00 with a lecture starting at 7:00. The topic will be gardening related.

Also at the November 2006 Quarterly meeting we re-elected Celeste Kennard as President, Tamara Bahr as Secretary and Randall Nish as Treasurer. In April we are planning a plant sale and in May a Yard tour. – *Celeste Kennard*

UNPS Lifetime Member Update

Teresa Mareck of Salt Lake City, UT became our 26th lifetime member in July 2006 and Erin Robertson of Louisville, CO became our 27th in October 2006. Thanks to both for your support!

Utah Plant Families: The Mallow Family (Malvaceae)

By Walter Fertig

The Malvaceae is a relatively large plant family with more than 1800 species in 110 genera. Mallow diversity is greatest in the tropical and subtropical parts of the world, especially Central and South America. In North America, the diversity of native mallows is highest in Mexico and the southern tier of US states, becoming progressively lower with increasing latitude. Two dozen native mallow species (in seven genera) are known or reported from Utah, with over half belonging to just one genus – the globemallows (*Sphaeralcea*). Another nine species in four genera are recent arrivals as garden escapees or weeds.

Compared to many families, members of the Malvaceae are easy to recognize. Most mallows have leaves that are palmately lobed or veined (like a maple leaf) and arranged alternately on the stem. Foliage and stems usually have star-shaped (“stellate” in botany-speak) hairs, a feature found infrequently in other families (though seen sporadically in the mustard, oak, goosefoot, euphorb, honeysuckle, and nightshade families). But the most diagnostic characteristic of the mallows is the structure of the flower. The stamens are fused by their basal stalks (or filaments) into an elongated tube with the pollen-bearing anther heads poking out along the side. The staminal tube encloses 3-40 styles which lead to an equal number of seed-producing carpels. At maturity, mallow fruits split along the boundaries of each carpel to form numerous wedge-shaped segments (technically each segment is a mericarp and the entire fruit a schizocarp or “split-fruit”). The size, shape, and ornamentation of the mericarps can be useful in differentiating among mallow species, particularly the globemallows (see photo on page 9).

Easily the most economically significant members of the mallow family are the nearly 40 species of cotton (genus *Gossypium*). Archaeological evidence shows that humans have been growing cotton and using its fiber-coated seeds for spinning cloth for at least 4000 years. Cultivation of cotton originated independently in India, Mexico, and Peru. Today cotton is the most widely grown non-food crop in the world. Besides the long fibers (“lint”) used for cotton thread, shorter hairs (“linters”) on the seeds are dried and bleached for use in smokeless gunpowder, cellophane, plastics, chewing gum, and dynamite. Cottonseed oil is used in the manufacture of margarine, cooking oil, and vegetable shortening (Crisco was first developed from crystallized cotton seed oil). Seed meal is used for animal feed, fish bait, and fertilizer. Unfortunately, the seed contains gossypol, a poisonous chemical that has to be removed. Breeders are attempting to develop gossypol-less strains that could be used for human consumption.



Above: Upland cotton (Gossypium hirsutum) is still grown as an ornamental or occurs sporadically as a garden escape on ditchbanks in and around St. George. In the 19th Century, mormon pioneers of the ‘cotton mission’ raised this species in Utah’s Dixie. Illustration by W. Fertig.

Commercial-scale production of cotton was initially hindered by the difficulty of separating the long fibers from the seeds. As all of us remember from 4th grade history class, this conundrum was resolved by Eli Whitney and the invention of the cotton gin, a mechanical device for removing lint from seed. This invention, and subsequent mechanical techniques for spinning cloth from cotton fibers, ushered in the industrial revolution in western Europe and the United States. Mechanization was much slower in coming to the planting and harvesting of cotton fruits (‘bolls’), necessitating a large human labor pool for production. This demand led to the expansion of the “peculiar institution” of legalized slavery in the United States in the late 1700s and early 1800s, one of the most shameful episodes of recent human history. Cotton’s grip on everyday life in the American South was finally weakened by the US Civil War, emancipation, mechanized harvesting, postwar economic diversification, and the boll weevil, a little beetle from Mexico that slowly but relentlessly overtook America’s cotton belt from 1892-1921.

Cotton also played an important role in the early history and settlement of southern Utah. Concerned about potential hostilities with the federal government and being cut off from cotton supplies in the south in the event of looming Civil War, Brigham Young sought to have the Utah territory be self-sufficient in cloth. In 1857 Young sent several dozen Mormon families from northern Utah to the Virgin River Valley 300 miles to the south (and in a more favorable growing climate) to establish communities dedicated to raising cotton – the so-called cotton mission. Though the area around St. George and Santa Clara was conducive to growing cotton (and

most anything else with proper irrigation), the cotton mission struggled for many years due to flooding, difficulties with native tribes, and the expense of shipping cotton lint to markets. Eventually the settlers converted to other crops (including grapes for wine) to feed the burgeoning mining camp at Silver Reef and cotton was abandoned as a cash crop. Utah's cotton country is known locally as "Dixie" for its cotton heritage (and southerly location). Upland cotton (*Gossypium hirsutum*) is still grown occasionally near St. George and occurs infrequently along roadsides and ditchbanks.

Several other non-native members of the mallow family have economic uses. Hollyhocks (*Alcea rosea*) and Rose-of-Sharon (*Hibiscus syriacus*) are among the more popular garden plants in the Malvaceae. The original source of marshmallows came from gelling agents derived from the roots of the European marsh mallow (*Althaea officinalis*). Today commercial marshmallows are mass-produced using egg whites, gelatin, gum arabic, and sugar or corn syrup (though vegan marshmallows can still be made using extracts from the marshmallow plant in place of eggs). Okra or gumbo (*Abelmoschus esculentus*) has a supposedly edible fruit pod. Velvetleaf (*Abutilon theophrasti*) was formerly grown as a fiber crop to make twine. In the eastern US it is a serious agricultural pest in corn and soybean fields.

Most of the cultivated species in the Malvaceae have not become problem weeds in the arid climates of Utah and the west. The common mallows of the genus *Malva* can be a minor nuisance of lawns and flower beds in suburban settings, but rarely become dominant. The fruits of *Malva* split into wedge-shaped segments resembling slices of cheese, giving the plant its common name of cheeseweed (though it actually has a nutty taste). Flower-of-an-hour (*Hibiscus trionum*) occasionally becomes established in gardens, fields, and other disturbed sites, including the "native" landscaping of the new visitor center at Arches National Park.

Most of our native mallow species have large, showy flowers and have good potential for use in native landscaping. Mountain hollyhock (*Iliamna rivularis*) resembles cultivated hollyhock in stature and leaf shape, but does require fairly moist soils since its natural habitat is along mountain streams. The three checkermallow species (*Sidalcea*) likewise are found in riparian habitats in the wild and fare best in wetter soils. The checkermallows superficially resemble the more widespread globemallows, but have white, pink, or purplish flowers and more deeply divided stem leaves. Desert five-spot (*Eremalche rotundifolia*) is one of the signature early spring wildflowers of the Mohave Desert and is characterized by a deeply bowl-shaped pink corolla with contrasting red or purple spots at the

base of each petal. It has recently been reported for Washington County, Utah in Volume 2b of the *Intermountain Flora*.

The largest and most conspicuous genus of Malvaceae by far in Utah are the orange-flowered globemallows (*Sphaeralcea*— see companion story on page 8). Four of our 15 reported species are widespread and often conspicuous along highways in spring and summer. Several others, however, are extremely rare and have limited distributions, often tied to unusual substrates. Among these is Tufted or Jones' globemallow (*Sphaeralcea caespitosa* var. *caespitosa*), which is restricted to shrub and grassland communities on dolomitic gravels in a small area of Millard and Beaver counties. This species combines low stature with some of the largest blossoms in the *Sphaeralcea* genus, and would make an outstanding horticultural plant in arid climates because of its tolerance of full sun and low moisture. As with all native wildflowers though, mature plants are best left intact in the wild and garden plants should only be grown from seed.

Below: Tufted globemallow (Sphaeralcea caespitosa var. caespitosa) by Kaye Thorne. The type locality of this species is "Wa Wa, Wah Wah Mountains, Beaver Co, Utah". The collector, Marcus E. Jones, must have had a great sense of humor.





Sphaeralcea grossulariifolia by Tyler Thompson.

Some Common Globemallows of Utah and How to Recognize Them

By Therese Meyer
Great Basin Research Center,
Utah Division of Wildlife Resources

There are 40 species of *Sphaeralcea* worldwide (all from North and South America). Fifteen species are found in the Intermountain region. Utah is approximately divided North to South as to species.

Of the 15 species in Utah, four are widespread and most commonly confused with one another (*coccinea*, *grossulariifolia*, *munroana*, *parvifolia*), four are restricted to a single county in Utah (*angustifolia*, *fumariensis*, *gierischii*, *digitata*), and seven are restricted to a few counties (*ambigua*, *caespitosa*, *rusbyi*, *moorei*, *leptophylla*, *janae*, *psoraloides*). Of all of these, six are endemics or near endemics (rare; restricted to a specific soil or formation) in Utah (*caespitosa*, *fumariensis*, *moorei*, *gierischii*, *janae*, *psoraloides*).

There are weak character differences among species which is further complicated by polyploidy and hybridization. Some general characteristics: they are annual or perennial; the plant has stellate pubescence; leaves are entire, deeply divided or compound; the inflorescence is a solitary flower or thyrsoid in the leaf axils or in terminal panicles; flowers are grenadine, lavender, yellow or white; fruit is a schizocarp comprised of several mericarps.

For identification of the four most common species in Utah, use the following characters:

Leaves: shallowly lobed, deeply lobed or not; length-to-width ratio.

Calyx: length, lobe length, gross shape.

Inflorescence: thyrsoid, paniculate or racemose; number of flowers per node*.

Flower stem: panicle length.

Pubescence: density; coarse or delicate.

Pubescence rays: slender or not, radiating in single or multiple planes.

Simplified Key

- 1 Leaves entire or shallowly lobed
 - 2 Leaves densely pubescent and noticeably stellate (leaves appearing gray-green) *S. parvifolia*
 - 2 Leaves moderately or sparsely pubescent (leaves appearing green) *S. munroana*
- 1 Leaves deeply lobed
 - 3 Inflorescence thyrsoid; mericarp higher than wide *S. grossulariifolia*
 - 3 Inflorescence a raceme; mericarp wider than high *S. coccinea*

More detailed descriptions of the four species keyed above:

Sphaeralcea parvifolia (Small-leaf globemallow)



Thick caudex, short side branches, all cauline leaves, leaves deltate ovate, stellate pubescence, palmate venation. Inflorescence is narrowly thyrsoid, pedicel 2 to 10 mm, calyx 5 to 8 mm. Densely pubescent.

Approximately 10 mericarps/schizocarp; 2.8 to 4 mm high, 2 to 2.3 mm wide. Utah: southern and eastern 2/3: Grand, San Juan, and also Cache County in the north. 750 to 2450 m elevation.

Sphaeralcea munroana (White-stem globemallow)

Thick crown, multi-stemmed or woody, short-branched caudex, less side branching or unbranched. Herbage more green, lighter pubescence. Papery-thin leaves; longer than wide. Veins not prominent as in *parvifolia*. Three flowers per node, narrowly thyrsoid-glomerate. Pedicels stout, mostly shorter than the calyx. Schizocarp ~ 10--12 (17) mericarps. This species has a more northerly distribution in Utah but also in Sevier Co., at elevations of 640--2400 m. There is one variety in northern Utah along the Wasatch Front, v. *subrhomboidea*, with 3 distinct lobes cleft about halfway into blade that may be derived from hybridization with *grossulariifolia*.

*Note: the thyrsoid or paniculate inflorescence will have 2 or more flowers per node, whereas the racemose inflorescence will generally have one (rarely 2 or 3) flowers per node: if in doubt, use an average of flowers per node.

Sphaerlacea grossulariifolia (Gooseberry-leaf globemallow)



Perennial thick woody crown, short-branched caudex, multiple stems, erect to ascending, un-branched or short-branched. Herbage greenish, moderate to sparse pubescence, heavy on stems, flattened against stem. Stems

are grayish with pubescence. Petiole is 1.5--5 cm. Blade is thin, and about as wide as long, deltate or broadly ovate, 3--5 lobes; deeply lobed. Inflorescence is relatively thyrsoid-glomerate, the pedicels are stout, shorter than calyx, sometimes longer at lower nodes. Calyx 5--11 mm. Lobes of calyx are ovate to lanceolate and acute. Mericarps 10--12, 2.5--3.5 mm high, 2--3 mm wide. There can be variation in leaf structure due to introgression or interspecific hybridization with other species with which it comes in contact. Distribution is wide throughout the intermountain area at elevations of 800--2300 m.

Sphaerlacea coccinea (Scarlet globemallow)



Smallest of the four species (UNPS considers this the most attractive for horticultural use for its compact habit). It has a highly branched caudex, and the roots often run sideways, can be rhizomatous and they

can form colonies. Branches are decumbent or ascending, usually un-branched or slightly branched. There is very little pubescence, giving the leaves a greener color. The pubescence is always (70% of the time) stellate and away from the plant surface. The blade is 3-foliate, wider than long, and finely dissected. Even lateral lobes are dissected and appear compound or pinnatifid. Inflorescence is a raceme, but in lower parts of the inflorescence there may be solitary flowers, and at upper nodes 1--2 flowers per node. Pedicels are stout and 2--10 mm long. The calyx is triangular at the tip. Schizocarps have height equal to width, and are very pubescent, but there is no pubescence on the seed, although the carpels are sometimes thick and leathery. Mericarps 10--14. Found throughout Utah, from the north to the south at elevations of (1000) 1375--2750 m.



Above: Globe-mallows are often locally dominant, forming large orange carpets that are readily observed from great distances or speeding automobiles. Photo by Therese Meyer.

This article is derived from a presentation given at the Seed Collectors Workshop at Snow College on 22 September 2005. Funding was provided by the USDI BLM Great Basin Restoration Initiative through the USDA FS Rocky Mountain Research Station. The dichotomous keys were prepared with the assistance of Dr. Michael Piep of the Intermountain Herbarium, Utah State University based on *Intermountain Flora: vol. 2, part B: Subclass Dillenidae*.

Below: *Sphaerlacea mericarps* showing the characteristic reticulations on the sides of each fruit segment. Photo by Therese Meyer.



Plants in the News



Above: Uinta Basin fishhook cactus (*Sclerocactus glaucus*) by Kaye Thorne.

USFWS to Investigate Status of Rare Uinta Basin Sclerocacti

On December 14, 2006, the US Fish and Wildlife Service issued two 90 day findings responding to petitions to both list and delist two rare *Sclerocactus* cacti from the Uinta Basin of NE Utah and NW Colorado. The first finding rejected a 1997 petition by the National Wilderness Institute* to delist the Uinta Basin hookless cactus (*Sclerocactus glaucus*). The petition claimed that the Service listed this species as Threatened under the Endangered Species Act in 1979 using erroneous data. In rejecting the motion, the US Fish and Wildlife Service found that the petitioners offered no new information to corroborate their claim.

The second finding found sufficient information exists to consider listing the Pariette cactus (*S. brevispinus*) as Threatened or Endangered. This finding came in response to a petition filed in 2005 by the Denver-based Center for Native Ecosystems and the Utah Native Plant Society. Although the second finding does not ensure that listing will occur, the US Fish and Wildlife Service has agreed to review the status of *S. brevispinus* and the related Ouray cactus (*S. wetlandicus*) within the context of a 5-year review of the protective status of *S. glaucus*, to be completed in 2007. If the Pariette cactus meets the Service's five listing criteria (present or threatened destruction, modification or curtailment of habitat or range, overutilization, disease or predation, inadequacy of existing regulatory mechanisms, or other man-made or

* Despite the green sounding name, the National Wilderness Institute is a Washington based "wise use" group that frequently sues USFWS over the Endangered Species Act.



Above: Pariette cactus (*Sclerocactus brevispinus*). Photo by Tony Frates.

natural factors affecting continued existence) it will be added to the nation's roster of endangered species and afforded greater protection on public lands and from private collection.

Sclerocactus brevispinus is restricted to the Pariette Draw area of the central Uinta Basin along the Duchesne/Uintah county line in NE Utah. It differs from *S. glaucus* in having a more spherical shape and in either having shorter central spines or lacking such spines altogether. The Pariette cactus was first named as a new taxon by German cactus enthusiast Fritz Hochstatter in 1993, under the name *S. wetlandicus* var. *ilseae*. Ken Heil and Mark Porter described the same taxon as a full species in 1994, giving it the name *S. brevispinus*. Genetic, morphologic, and common garden studies by Porter and colleagues since then have confirmed that *brevispinus* is distinct from *S. glaucus* and Hochstatter's other segregate taxon, *S. wetlandicus* (described from the same vicinity in Pariette Draw). Stan Welsh recognizes the Pariette cactus as a variety of *S. whipplei* (var. *ilseae*) in the third edition of *A Utah Flora*, but does not acknowledge *wetlandicus*. Traditionally, the US Fish and Wildlife Service has recognized all three segregate taxa as part of *S. glaucus* and all are afforded protection under the Endangered Species Act, though this interpretation could change following the proposed 5-year review.

The entire population of Pariette cactus is estimated at 3795 individuals within a global range of less than 15,000 acres. Over 90% of the plant's range is within active oil and gas fields, mostly on lands managed by the BLM. Impacts from mineral development in the Uinta Basin include direct mortality of plants, soil compaction, increased access by offroad vehicles and illegal collectors, and greater habitat fragmentation. The BLM considers *S. brevispinus* a Sensitive species and has designated the Pariette Wetlands Area of Critical Environmental Concern (ACEC) to protect 2384 acres of cactus habitat, though the ACEC does not impose any



Above: Ouray cactus (*Sclerocactus wetlandicus*) is considered a separate taxon by some, or a form of *S. glaucus* not warranting taxonomic recognition by others. Regardless of the outcome of this taxonomic debate, it should be agreed by all that 'wetlandicus' (for the Pariette Wetlands) is probably the most ridiculous Latin name ever concocted for a cactus (the plant grows on gravelly terraces, not in wetlands). Photo by Tony Frates.

No Surface Occupancy stipulations for ongoing drilling. Pariette cactus is further threatened by drought, hybridization with sympatric populations of *S. wetlandicus*, and other biological problems associated with small populations.

Genetic and morphological studies by Porter and colleagues have demonstrated consistent, albeit cryptic, differences between *Sclerocactus glaucus* populations in western Colorado and Utah. The Utah plants were given the unfortunate name *S. wetlandicus* by Hochstatter and differ from true *S. glaucus* (considered endemic to Colorado) in the ornamentation of the seed wall. Both *glaucus* and *wetlandicus* are more widely distributed and abundant (each estimated at about 10,000-16,000 and 7000-13,000 individuals, respectively) than *S. brevispinus*, though both still have relatively small global ranges. Both of these species are also under threats from oil and gas development, illegal collection, habitat fragmentation, and ORV recreation. The significance of these impacts will be assessed during the 5-year review to determine whether continued protection and listing under the Endangered Species Act is warranted for each of these species.

As part of the review process, the Fish and Wildlife Service is soliciting information and comments from the public for 60 days, ending on 12 February 2007. Specifically, service biologists are looking for new information on the distribution, abundance, trends, demographics, and genetics of these three cactus species, as well as data on habitat condition, threats, and recent conservation measures. Comments can be submitted to: Field Supervisor, Utah

Ecological Services Office, US Fish and Wildlife Service, 2369 West Orton Circle, Suite 50, West Valley City, UT 84119 or emailed to <mailto:fw6_sclerocactus@fws.gov>fw6_sclerocactus@fws.gov.

For more information, see US Fish and Wildlife Service 2006. Endangered and Threatened wildlife and plants; 90-day finding on a petition to remove the Uinta Basin hookless cactus from the list of Endangered and Threatened plants; 90-day finding on a petition to list the Pariette cactus as Threatened or Endangered. *Federal Register* 71 (240):75215-75220. – Walter Fertig

Celebrating Wildflowers Website: The US Forest Service's Celebrating Wildflowers website has been revised with new photos and links to recommended scenic hikes and wildflower viewing sites across the country. Take a look at <http://www.fs.fed.us/wildflowers/index.shtml>. Click on the Intermountain Region to locate sites in Utah's national forest lands.

Noteworthy Discoveries:

Golden tickseed (*Coreopsis tinctoria* var. *tinctoria*) new to Utah

Coreopsis tinctoria var. *tinctoria* is native to the Great Plains but has become widely naturalized in western North America as an escaped garden plant. I located a population of this yellow-rayed member of the sunflower family at Sand Spring on the eastern edge of Coral Pink Sand Dunes on 26 July 2006. *C. tinctoria* has not previously been reported for Utah or Kane County. The plants were found on moist sandy soil at the fringe of a wet meadow community bordering a small spring about 7 miles WNW of Kanab and 5 miles N of the Arizona state line. – Walter Fertig

Below: *Coreopsis tinctoria* from Sand Spring, Kane Co., Utah, 26 July 2006 (Fertig 22681 BRY, NY to be deposited). Photo by W. Fertig.





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