



Sego Lily

Newsletter of the Utah Native Plant Society

Summer 2015
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Green joint-fir (*Ephedra viridis*) is one of five species or varieties of *Ephedra* native to Utah. The pioneers steeped the green, leafless branches in hot water to make a revivifying (but foul-tasting) tea, earning the plant its alternate common names of Mormon tea or Brigham tea. Joint-firs and their relatives in the Ephedraceae have a mix of characteristics typical of both gymnosperms (naked seeds) and angiosperms (comparable wood anatomy and reproductive features), leading some authorities to suggest that the family might be the “missing link” in the origin of the flowering plants. More recent evidence, however, suggests the joint-firs are distant cousins rather than actual ancestors. Steve Hegji took this photo of flower-like staminate (“male”) cones of *E. viridis*. For more information, see the article on page 5 of this issue.

Utah Native Plant Society



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Sego Lily Editor: Walter Fertig (waltola64@gmail.com). The deadline for the Fall 2015 *Sego Lily* is 25 October 2015.

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Utah Native Plant Society Chapters

Unidentified Flowering Object

This month's UFO was photographed by Steve Hegji on Delano Peak in the Tushar Range in July 2015. The family ought to be easy to recognize, but the genus and species is tricky without fruits or leaves. Any guesses?

The Spring Unidentified Flowering Object was Engelmann's gentian (*Gentianella heterosepala* or *G. amarella* var. *heterosepala*). This species can be recognized by the frilly blue hairs that line the rim of the corolla and the unequal calyx lobes. It is widespread in Utah, including the canyons of the Wasatch Range where Bill Gray took the photo.

Have a UFO to share? Send it in! - *W. Fertig*

Bulletin Board

2015 Annual Members Meeting: The Utah Native Plant Society's annual membership meeting will be held on Saturday, 7 November 2015 from 1-5 PM at the Rose House at Red Butte Garden (300 Wakara Way, Salt Lake City). Mary O'Brien of the Grand Canyon Trust will be the guest speaker and discuss the impacts that recently introduced mountain goat herds are having on the rare plants and ecology of the La Sal Mountains in eastern Utah. The meeting will include our traditional "New World" -themed potluck. For more information on the meeting, consult the calendar page on the Society website (www.unps.org).

UNPS Grants-in-Aid and Scholarship Program: The application deadline for the 2015 UNPS Grants/Scholarship program has been extended to 15 November 2015. The Society has \$500 to fund one worthy project this year (another call for proposals will occur in 2016). The intent of the UNPS program is to assist students or citizens with research or educational projects that promote native plants and ecosystems of Utah. Interested applicants need to provide a 2-3 page narrative describing the purpose and objectives of their proposed project. This overview should also list any organizations or agencies that are involved (such as a university or land management agency) and a budget that explains how UNPS funds will be used. Additional information should include a one-page biographical sketch of the applicant, and contact information. See the "Grants in Aid" section on the UNPS home page for complete rules and requirements (www.unps.org). The winner will be announced in December.

Recent winners of UNPS grants and scholarships include Magdalena Eshleman in 2015 (\$1000 for studying the importance of seed source for restoring native plants), Jeffrey Rose (\$500 for a study of the evolutionary biology of *Polemonium*), Robby McMinn (\$500 for work on the conservation biology of the rare Ownbey's thistle), and Wayne Whaley (\$500 for studying *Lomatium grayi* varieties and caterpillars). Funds for the UNPS scholarship come from UNPS members and sales of items in the UNPS online shop.

Revitalizing Chapters: Starting a new chapter can be a lot of work, as is keeping an existing chapter running. Too often, the success of a chapter is dependent on the enthusiasm and energy of one or two individuals, and if they move or get burned out, a chapter may become dormant or even disband altogether. If you have time and interest, please consider volunteering for your local chapter— either to help out the existing chapter officers, or become an organizer yourself. If you can't be a chapter leader, at least consider volunteering to lead a hike or present an evening program—or coerce one of your friends to do so!

Recently, there has been interest in revitalizing the Canyonlands Chapter. If you live in Grand or San Juan counties and would like to have more local activities, Diane Ackerman is interested in getting the Canyonlands Chapter going again. Please contact her at dianeackerman13@yahoo.com if you would like to be on the mailing list for upcoming events, or would be willing to help lead a wildflower hike or give a presentation.

Calochortiana # 2 coming in October! The second edition of the UNPS technical publication *Calochortiana* will be available in October. Articles include the updated UNPS list of rare plants of Utah (based on recent revisions made at the annual UNPS-Red Butte Rare Plant Conference) and a key to the flora of Zion National Park. *Calochortiana* is available only as a free downloadable pdf over the UNPS website. The first edition, published in 2012, includes articles from the 2009 Southwest Rare Plant Conference, hosted by UNPS and the University of Utah in 2009.

Have a botanical meeting or chapter event to publicize? Send announcements to the editor.

In Quotes: "If I could remember the names of all these particles, I'd be a botanist."
- Enrico Fermi (1901-1954)

2015 Penstemon Festival

By Janett Warner and Brent White. Photos by Sveva Young

South central Utah is home to a diversity of landscapes that range from the red rock formations of Capitol Reef National Park to the 12,000 foot peaks of the Tushar Mountains to the west. This diverse landscape unites native plants (including penstemons) from all parts of the state.

When planning the Penstemon Festival, we try to outguess the weather patterns so the penstemons will be at their peak bloom. We were outguessed again because the three scorching days of hot weather confused us all, especially the penstemons. But we managed to survive the 100+ degree temperatures at the end of June to have an informative and fun festival.

This year the Penstemon Festival was held at three south central Utah nurseries: Brooklyn Gardens in Elsinore, Great Basin Natives in Holden, and Wildland Nursery in Joseph. This gave visitors an opportunity to see the wide variety of drought resistant and native plants available at the nurseries.

Our festival commenced at Great Basin Natives on Friday afternoon, with Dr. Robert Johnson of Brigham Young University on hand to share his wisdom and love of native plants. Saturday morning started early at Brooklyn Gardens with Bill Varga, the esteemed native plant expert from Utah State University. We were privileged to have Bill come and share a very small part of his boundless information on the value of native plants. A surprise guest speaker was Richard Anderson from the Utah Botanic Center in Kaysville who discussed his latest research on selecting and naming native plants to introduce into the nursery industry.

Ross Murdock from Southern Utah University was our afternoon speaker. He showed us photos of some of his favorite penstemons and shared his experience as a greenhouse manager and performer at the SUU Shakespeare Festival.

We finished the day up Monroe Canyon, where the die-hard native plant lovers willing to brave the heat took a drive up the canyon to partake of an extra bit of Bill Varga's expertise. Lucky for the hikers it was 15 degrees cooler at the top of the mountain. Meantime, the rest of us sat in the shade at the picnic area anxiously awaiting dinner. At mealtime, Bill treated us to his wit and humor dressed in his full Mountain Man outfit and accompanied by talented local musicians.

The Penstemon Festival was a big success thanks to the valuable information presented and the opportunity to share our unique, amazing landscape with other plant lovers. As co-chairs of the Fremont Chapter, we would like to thank the members who volunteered their help to make the festival successful. Special thanks to Rosalie Gunnell our treasurer; Maggie Williams for spreading our posters all over Utah; Hans White for designing a stunning poster; Beth Leusden for donating the thank-you gifts; Darin and Maggie Toone for scouting out the wildflower drive; Kent Runolfson our Master of Ceremonies; Lynda Mishmash for the delicious dinner; Shelly Mason, musician; and Bill Varga, Mountain Man.



Utah Plant Families

The Mormon Teas (Ephedraceae)

By Walter Fertig

Traditionally, taxonomists split the seed-bearing plants into two groups based on whether their seeds were exposed at maturity or embedded in protective tissues. Those plants with their seeds on the surface of woody cone scales were classified as gymnosperms (“gymno” meaning naked in Greek, as in gymnasium), and plants with seeds enclosed in a fleshy or dry fruit were called angiosperms (“angio” for vessel).

But, as so often happens in nature, not all plants are so easily pigeon-holed. Junipers, for example, have their seeds in fleshy or mealy-textured berries, but are considered gymnosperms because their “fruit” is actually comprised of fleshy cone scales that become fused at maturity. Birches and alders, both members of the Betulaceae, are angiosperms in good standing, yet produce papery or woody cones with scales subtending one-seeded fruits that superficially resemble pine cones and seeds.

Even more problematic are the Mormon teas (*Ephedra*) and their relatives *Gnetum* and *Welwitschia*. Collectively known as “gnetophytes*”, these three genera all have seeds exposed at maturity like good gymnosperms. They resemble angiosperms, however, in several important anatomical and morphological traits. Gnetophytes have straw-like vessel cells in their wood for more efficient transport of water (like angiosperms), rather than the spindle-shaped, perforated tracheids typical of gymnosperms. *Gnetum* and *Welwitschia* have broad, many-veined leaves that bear little resemblance to the narrow needle or scale-like leaves of most gymnosperms. The male (stamen-bearing) and female (ovule-producing) structures of gnetophytes are often colorful and have papery bracts that superficially resemble tiny petals, as in the flowering plants.

Most perplexing of all, however, is the presence of double-fertilization in some species of *Ephedra* and *Gnetum*, in which a second nucleus in the pollen tube fuses with a maternal nucleus cell in the developing ovule. Double fertilization was once thought to be a trait unique to the angiosperms.

*The ‘g’ in *Gnetum* is silent, so it is pronounced “neat-um”,



Above: Pistillate (seed-bearing) cones of Green Mormon tea (*Ephedra viridis*). Below: Flower-like staminate (pollen-producing) cones of Torrey's Mormon-tea (*E. torreyana*). Photos by Al Schneider from SW Colorado Wildflowers website (www.swcolorado.wildflowers.com)





Above: *Welwitschia mirabilis*, the sole member of the gnetophyte family *Welwitschiaceae* and endemic to the deserts of SW Africa. Although it appears to have many leaves, it actually has just two on either side of a raised dome with brown staminate or pistillate cones. The leathery leaves continue to grow from their base and become deeply frayed and cut by wind and abrasion. Photo from Wikimedia by Freddy Weber.

In flowering plants, the second nucleus from the pollen tube fuses with two nuclei from the developing ovule to form triploid endosperm. The endosperm continues to divide as the ovule matures and provides nutrients for the developing seedling embryo. In gnetophytes, double fertilization results in a second, redundant, diploid embryo rather than nutritious endosperm.

Because of their unusual mix of characteristics, taxonomists place the gnetophytes in their own separate division (the plant equivalent of a phylum in animal taxonomy), the Gnetophyta. For many years the gnetophytes were thought to be the “missing link” between the more ancient gymnosperms and the angiosperms. Nowadays, most systematists conclude that the gnetophytes are cousins to the flowering plants, rather than being direct, lineal ancestors.

Fossil gnetophytes are known from at least the early Cretaceous, and may extend back to the Permian or Triassic. The three surviving genera are only distantly related and are typically placed in their own individual families. The genus *Gnetum* (Gnetaceae) consists of approximately 30 species of evergreen trees and vines and are found primarily in wet tropical environments in South America, central Africa, and southeast Asia. *Gnetum* species are unusual in having broad, leathery leaves more reminiscent of a *Magnolia* than a typical gymnosperm. Some researchers believe *Gnetum* may have been one of the first plant species to be pollinated by insects based on the co-occurrence of fossil pistillate cones and scorpionflies.

Perhaps the strangest survivor of the gnetophytes is *Welwitschia mirabilis* (Welwitschiaceae), known today only from the harsh Namib Desert in southwestern Africa. *Welwitschia* produces a single pair of leathery, strap-like leaves that continue to grow from their base (like the hair on your scalp) for the life of the plant. The tips of these leaves ultimately become shredded or deeply split lengthwise by abrasion from blowing sand, and so can appear to be many leaves. Plants are dioecious (there are separate male and female individuals) and pollination is facilitated by insects (most gymnosperms are wind pollinated). The male and female cones are located on a raised crown at the center of the two leaves.

The only gnetophyte to occur naturally in North America is the genus *Ephedra*, also known as the joint fir or Mormon tea (Ephedraceae). Superficially, Mormon teas resemble the fern-like horsetails (*Equisetum*) in having fluted green, bluish-green, or yellowish stems interrupted by joint-like nodes of blackish or gray scales. Horsetails are never shrubby, however, and have hollow stems topped by cone-like reproductive structures that produce spores instead of seeds. Tiny leaves and green, photosynthetic stems are an adaptation for arid environments, where most joint-fir species occur.

About 40 species of *Ephedra* are recognized world-wide in the Mediterranean, north Africa, central Asia, western South America, and southwestern North America. Of these, 4-5 species (depending on one’s taxonomy) occur in Utah.

Green joint-fir (*Ephedra viridis*) is the most widespread species in the Beehive State and western North America. It can be recognized by its erect, broom-like clusters of green to yellowish-green stems, paired leaf sheaths, and sessile to short-stalked seed cones with two smooth, brown seeds. *Ephedra viridis* is the source of the beverage “Mormon tea”, a yellowish brew made by steeping young branches in hot water. Stan Welsh compares the flavor to “an old stocking.” What Mormon tea may lack in flavor, however, it compensates as a mild stimulant. Being non-caffeinated, early pioneers could drink the tea without violating their religious practices.

The chemical responsible for the mild buzz in Mormon tea is ephedrine (obviously named for the genus *Ephedra*). Many cultures across the globe have used ephedrine to treat allergies, colds, and asthma for centuries. Commercial ephedrine comes primarily from the Chinese

species, *Ephedra sinica*. Ephedrine is also commonly used as an herbal supplement and for weight loss. Recent clinical studies have found that ephedrine can increase the risk of psychiatric and gastrointestinal problems in some users, prompting calls for greater regulation (especially of the herbal supplement market). Ephedrine was implicated in the death of Baltimore Orioles pitcher Steve Bechler in 2003 (Bechler was using ephedrine as a diet supplement). A similar drug, pseudoephedrine, is a common ingredient in over-the-counter cold medicines and in the production of the illicit drug, methamphetamine.

The quantity of ephedrine in our native joint-firs is relatively low, and the plants are not harvested commercially. *Ephedra* species may be commonly browsed by deer, giving the plants a hedged appearance. Whether the deer are overly stimulated by this diet is poorly known.

Cutler's Mormon tea (*Ephedra cutleri*) is closely related to Green joint fir and often combined with it as a variety (*E. viridis* var. *viscida*). The two taxa differ primarily in the long-stalked pistillate cones of *E. cutleri* and the tendency for *cutleri* to have sticky stems. Often, *E. cutleri* has a lower growth habit and can be buried by moving sand, with only the tips of the stems emerging, like blades of grass. Staminate or vegetative plants can be nearly impossible to distinguish from typical *E. viridis*. For several years I had a plant in my yard in Kanab that I assumed was *E. viridis* until one spring it produced a bumper crop of long-stalked seed cones, and I realized it was actually *E. cutleri*!

An easier species to recognize is Torrey's joint-fir, *Ephedra torreyana*, which is the only species in Utah with leaves and bracts in whorls of three at each node. Torrey's joint-fir commonly grows on clay-rich soils and badlands, while *E. viridis* and *E. cutleri* are typical of rocky or sandy soils. The cones of *E. torreyana* are distinctive in having slightly wavy-margined scales that help disperse the 1-2 pale brown seeds through the wind. Most other North American ephedra species have small, dry cones that are readily transported and cached by rodents. One exception is *E. antisyphilitica*, a native of the southern Great Plains from Oklahoma to northern Mexico, that has red, fleshy cones to attract birds (an adaptation for many *Ephedra* species from the Old World).

Nevada joint-fir (*Ephedra nevadensis*) occurs widely over Utah but is not as common as *E. viridis* or *E. torreyana*. It can be recognized by its



Above: Pistillate cones of *Ephedra viridis*. Photo by Steve Hegji. Bottom: Vegetative branch of *E. viridis* by W. Fertig.

grayish branches that spread at nearly a right angle from the main stem and its deciduous leaf scales. The least common species in Utah is Mojave ephedra (*E. fasciculata*), which is restricted to Washington County at the northern limit of the Mojave Desert. It has pale greenish stems with opposite branches and leaves and pistillate cones with a single, wrinkled seed. Taxonomists in Arizona now contend that *E. fasciculata* is the same species as *E. aspera* of the Sonoran and Chihuahuan deserts, and since *aspera* is the older name, it must now be used.

Mormon teas are occasionally available as nursery stock (I planted some bare root plants several years ago that were provided by the state). They grow very slowly, and are prone to being nibbled by deer or rabbits. Once established, however, *Ephedras* are long-lived and drought hardy. They are a good "conversation piece" for the home garden, thanks to their long and interesting evolutionary history.



Grow This: Grasses

By Robert Dorn (Adapted from *Castilleja*, publication of the Wyoming Native Plant Society, May 2014)

Photos by Max Licher

Grasses can be classified as either cool season or warm season. Cool season grasses start growth in early spring and mature in late spring or early summer. Warm season grasses start growth in late spring or early summer and mature in late summer. Grasses are used mostly as specimen plants, accents, or for native lawns. Advantages of native grass lawns are that they need less water and less mowing. A disadvantage is that our best natives are warm season grasses, so they do not green up as early in the spring as non-native lawn grasses. The following five examples include three accent grasses and two native lawn grasses. Only *Elymus* is a cool season grass.



Above: Big bluestem (*Andropogon gerardii*) from Inscription House Canyon on the Navajo Reservation in northern Arizona.

Big bluestem (*Andropogon gerardii*) grows to 6 feet tall and 18 inches wide. The leaves turn reddish or russet in the fall. The inflorescence is a series of 3 to 6 narrow, elongate spikes each to 4 inches long and appearing from July to September. The plants occur on the Great Plains (extending to the Colorado Plateau in southern Utah), especially in moist depressions. Big bluestem prefers full sun



Above: Blue grama (*Bouteloua gracilis*) from Schnebly Hill Road, east of Sedona, Arizona.

and well drained loamy soils and are drought tolerant. It can be grown from seed and is also in the nursery trade.

Blue grama (*Bouteloua gracilis*) is popular for native grass lawns. It is rhizomatous but often densely tufted also. The flowering stems grow to 1 or rarely 2 feet tall. When not in flower, the plants are generally only 3 or 4 inches tall. The inflorescence is a comb-like spike to 2 inches long, with 1 to 3 flower clusters at the tip of each slender stem, appearing from July to September. The plants occur naturally in dry, open areas of the plains, basins, and foothills. They prefer full sun and dry, well-drained soils including sandy and alkaline soils. It does best below 7500 feet. Blue grama needs about 1 inch per month of moisture. It is drought tolerant becoming dormant and brown until moisture returns. Mow as infrequently as possible to maintain vigor. Seed for several cultivars is available commercially. Surface sow in mid to late spring. Lightly cover with soil to provide some protection against rodents and birds. For lawns use about 0.5 to 1 pound of pure live seed for 1000 square feet for a

thick initial stand. Custom harvested seed is usually not pure so more may be needed. Water regularly until well-established and control weeds. Plant plugs are also available.

Buffalograss (*Buchloe dactyloides*) is another popular grass for native grass lawns. It is usually a better choice for lower elevations. It spreads by stolons forming dense mats and grows to 4 or rarely 8 inches tall. The male inflorescence is a short spike to 1/2 inch long, 2 spikes per stem. The female inflorescence is a bur-like cluster of 2 or 3 flowers mostly hidden by the curly vegetative leaves. The flowers appear from May to July or August. The plants occur naturally in moist areas on the Great Plains [in Utah, populations have been introduced in the Salt Lake City area, Daggett County, and St. George]. Buffalograss does not do well above about 6500 feet elevation. It prefers full sun or light shade and moist (about 15 inches moisture annually or more), loamy or clayey soils. The plants are not salt tolerant and not as drought hardy as Blue grama. Mow infrequently. Seed is commercially available as are plant plugs and sometimes sod. Water and control weeds until well established. For lawns, use one pound of pure live seed (PLS) per 400 square feet. Cultivars may be mostly female plants.

Below: Staminate spikelets of Buffalograss (*Buchloe dactyloides*) from the Sedona Airport mesa, Arizona.



Above: Little bluestem (*Schizachyrium scoparium*) from Sedona, Arizona.

Basin wildrye (*Elymus cinereus* or *Leymus cinereus*) is a cool season bunchgrass that grows to 6 feet tall and forms large clumps to 3 feet across. The leaves turn tan in winter. The inflorescence is a narrow spike to 8 inches long at the stem tips appearing in June and July. The plants occur naturally in open areas, especially in gullies and other temporary drainageways that receive extra moisture, in basins, valleys, and plains. Basin wildrye prefers full sun and dry to moist, loamy, well-drained soils and is drought tolerant once established. Seed is commercially available. It can also be grown by rootstock division.

Little bluestem (*Schizachyrium scoparium*) is a bunchgrass with short rhizomes and grows to 2 or 3 feet tall. In winter the plants are various shades of reddish-brown, rust, or mahogany. The inflorescence is a series of narrow, elongate, racemes to 2 inches long on the upper part of the stems appearing from July to September. The plants occur naturally on dry, open, hills in the foothills, valleys, basins, and plains, often where gravelly [in Utah, Little bluestem is usually associated with rocky or wet areas, such as hanging gardens]. Little bluestem prefers full sun and dry, well drained soils and is drought tolerant. It does not tolerate mowing or clipping more than once a year. There are several cultivars in the nursery trade. It can be grown from seed or rootstalk divisions.

Fountain Grass (*Pennisetum setaceum*), An Invasive Weed Heading for Southern Utah

By Jason Alexander

When I was an undergraduate at the University of Nevada Las Vegas in 1995, I lived with my family in neighboring Henderson, Nevada. That spring, we noticed a new, very vigorous weed sprouting in our yard where run-off from watering the lawn or cacti pooled. At the time, the Las Vegas Valley Water District's program for removal of lawns in favor of water-wise landscaping was in its infancy. As a botany student, I collected the plant when it bloomed and keyed it to the genus *Pennisetum* (fountain-grasses). Not long after, I noticed that this species was planted in most of the new desert landscaping in shopping centers and road medians in Henderson. When the grass seed was mature, the light florets would fall off in clumps on the ground and collect in gutters. The wind storms would disperse these seeds into our yard, where they would repeatedly sprout. Monsoon rain storms would sweep these seed clumps into the washes draining into Lake Mead and the Colorado River. In the past two decades, it has spread throughout the region. From Laughlin to Lake Mead, you can hardly find a canyon or wash without seeing at least one large clump of this species.

Now, *Pennisetum setaceum* is a Category "A" weed in Nevada, or a species of limited distribution that is actively eradicated wherever found and is "actively removed from the premises of a dealer of nursery stock." However, the cultivars, *Pennisetum setaceum* 'rubrum' and *Pennisetum setaceum* 'cupreum' are still legal for sale in Nevada, being the sterile cultivars of this taxon. As both the fertile and sterile cultivars have florets and awns that turn reddish and a copper color as they mature, it is difficult to determine whether horticultural plantings are the invasive weed. Apparently, the invasive species have inflorescences that are more purplish-red, hence the common names Purple fountain grass or Crimson fountain grass.

Pennisetum setaceum is a native of Africa that was first noted as escaping into native habitats in Hawaii in 1914. By the 1970's, *Pennisetum* created a major infestation in Hawaii Volcanoes National Park, where it would be the first invader in new lava flows, interrupting the natural course of successional processes. Controlling the infestations



Above: Fountain grass (*Pennisetum setaceum*) a beautiful invader, marching north along Interstate 15 in the Virgin River Gorge in NW Arizona. Photo by J. Alexander.

proved difficult, so by the 1980's, park employees started hand pulling satellite populations instead. Once outlying populations were under control (through a combined search effort by ground crews and helicopter patrols), the main infestations were hit with various herbicides. Velpar (Hexazinone) proved the most effective at killing established individuals and preventing seedling germination. Such methods are prohibitively expensive in an area as large as the Sonoran and Mojave Deserts, so controlling the spread of this species is reliant primarily on manual pulling of individuals when seen, preferable before the current-year's florets have matured and dispersed (<http://www.Hawaiiiforest.org/files/EcolContofFountainGrass.pdf>).

In Arizona, this species was first noted to escape from horticultural plantings into native canyons in the Santa Catalina Mountains around Tucson in the 1940s. By the 1960s it had spread into native habitats in the Phoenix area. It and its sister species, buffleggrass (*Pennisetum ciliare*) are a persistent threat to the native habitat in southern Arizona, outcompeting native grasses and increasing the threat of fires (for more information see: http://www.desertmuseum.org/invaders/invaders_fountaingrass.php).

Pennisetum setaceum is currently planted in southwestern Utah, but it has not yet been observed to escape in washes, springs, or runoff areas in the St. George vicinity or in wetlands along the Utah section of the Virgin River. It may be that by the time nurseries were selling this species in Utah, they were selling mostly the sterile cultivars. Despite this, the threat of this species invading Utah is high.

On my many trips through the Virgin River Gorge over the past 25 years, I have never seen individuals of this species past Mesquite, until the fall of 2010. While returning from the annual Nevada Rare Plant Workshop, I noticed a couple unusual clump grasses along the roadside northeast of the Cedar Pockets Exit of I-15 in the Virgin River Gorge (Mohave Co, Arizona). At the time I did not recognize the significance of this observation. Later I spent time investigating the distribution of this species in SEINet and on state weed maps for Arizona and Nevada, and did not find any reports of this taxon escaping in northern Mojave County or Washington County, Utah. Between 2011 and 2012 while I was passing through for meetings and collecting trips in Nevada, I observed this plant in several different locations on the north and south-bound roadsides of the interstate between the Black Rock Exit and the mouth of the Virgin River Gorge. However, only in one spot has it apparently become established and persistent.

In December of 2013, I stopped at the pull-out at the top of the hill about one mile northeast of the Cedar Pockets Exit and walked along the south side of the road back down the hill toward the exit ramps. I found at least ten plants - a mixture of individuals of varying age groups, from seedlings to large, mature individuals (see the image and the specimen voucher information below). In 2014, I only observed individuals in this location. The construction along the freeway from the Cedar Pockets Exit to the mouth of the gorge made it difficult to survey for this taxon. I have not spent much time hiking along the river in the Virgin



Above: Close up of the feathery inflorescence of Fountain grass (*Pennisetum setaceum*). Photo by Liz Makings.

River Gorge, however, I suspect that this species can be found in scattered populations along the river there also. I also have not seen individuals along the roadside or in washes along the interstate between the Black Rock Exit and St. George. Due to the high-level of invasiveness of this species, these areas should be monitored to document the spread of this taxon. It has yet to be documented as an invasive species in Washington County. However, it is now established in the Virgin River Gorge and the southern Beaver Dam Mountains and it could easily spread northward.

Voucher Data: Arizona. Mojave County: Virgin River Gorge, ca. 1 mile NE of the Cedar Pockets Exit, along the south side of I-15, plants found on the slope adjacent to the dirt road berm of a pull-out at the summit of the hill northeast of the Cedar Pockets Exit and along the slope on the south side of the interstate, Associates: *Chrysothamnus paniculatus*, *Stephanomeria*, *Aristida purpurea*, Elev. 735 meters, 36° 57' 33.13" N, 113° 46' 22.79" W, Jason Andrew Alexander 3073, 02 December 2013 (UVSC, duplicates to be sent to ASU, RSA, UTC).

Utah Native Plant Society



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Return Service Requested



If you have a smart phone you can now access the UNPS website via the QR at left. If you do not, you might enjoy staring at the square to see the hidden image. At the UNPS website you can access the *Sego Lily* in living color, download previous issues, read late breaking UNPS news, renew your membership, or buy wildflower posters, cds, and other neat stuff at the UNPS store.

Utah Native Plant Society Membership

- New Member
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Name _____
 Street _____
 City _____ State _____
 Zip _____
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Chapter _____ (see map on pg 2)

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

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

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