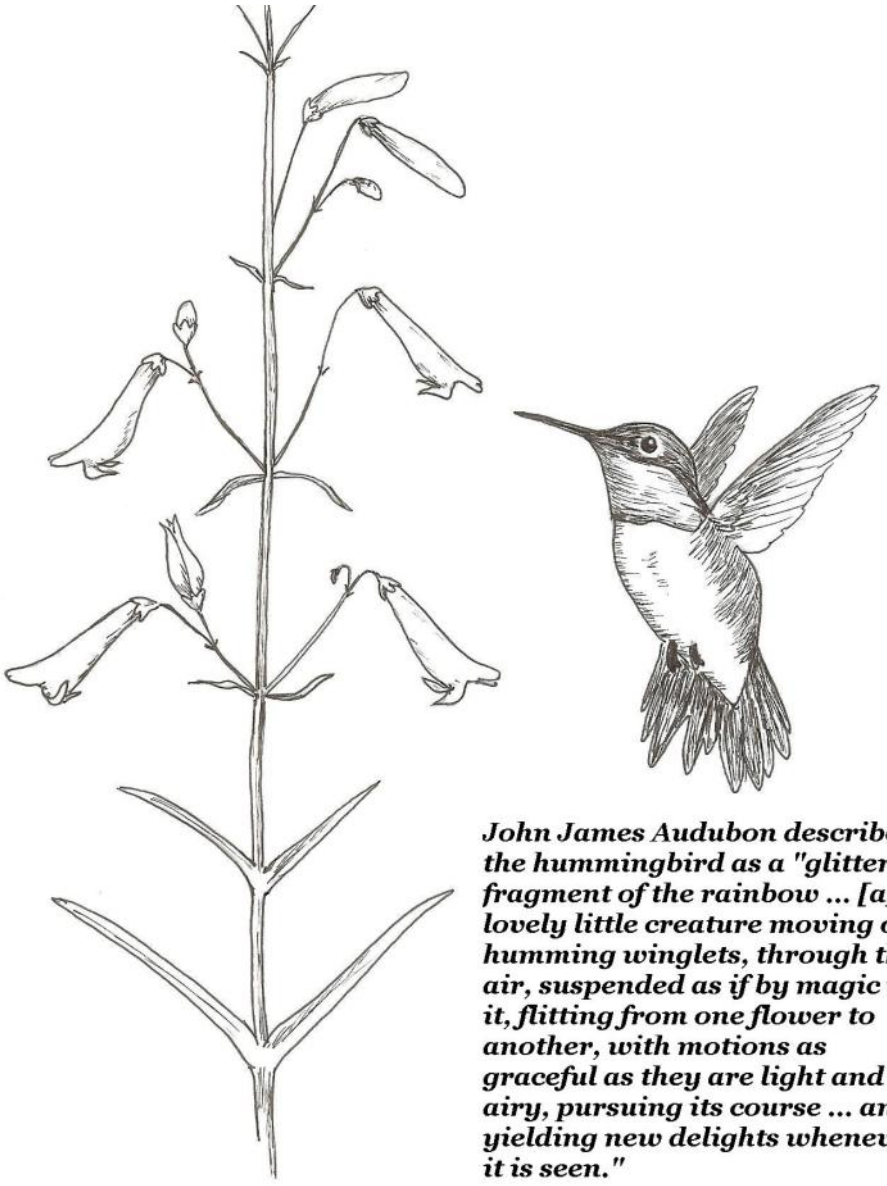
Sego Lily

Newsletter of the Utah Native Plant Society

Gardening for Hummingbirds



John James Audubon described the hummingbird as a "glittering fragment of the rainbow ... [a] lovely little creature moving on humming winglets, through the air, suspended as if by magic in it, flitting from one flower to another, with motions as graceful as they are light and airy, pursuing its course ... and yielding new delights whenever it is seen."

March 2009

Vol. 32, No. 2

In this issue:

Left: The red-flowered Firecracker or Beardlip penstemon (*Penstemon barbatus*) is native to canyons and mountains of southern Utah. Like many species with tubular, red flowers, Firecracker penstemon is pollinated by hummingbirds, such as this Rufous hummingbird, (*Selasphorus rufus*). Five hummingbird species regularly occur in Utah. Illustration by Walter Fertig.

Utah Native Plant Society

PO Box 520041, Salt Lake City, UT, 84152-0041. Email: unps@unps.org

Officers

President: Bill King (Salt Lake Co)
Vice President: Walter Fertig (Kane Co)
Treasurer: Charlene Homan (Salt Lake Co)
Secretary: Mindy Wheeler (Summit Co)
Board Chair: Dave Wallace (Cache Co)

UNPS Board: Robert Fitts (Utah Co), Susan Fitts (Utah Co), Bill Gray (Salt Lake Co), Marie Griffiths (Salt Lake Co), Ty Harrison (Salt Lake Co), Celeste Kennard (Utah Co), Kipp Lee (Salt Lake Co), Margaret Malm (Washington Co), Larry Meyer (Salt Lake Co), Therese Meyer (Salt Lake Co), Jeff Mitchell (Utah Co), Leila Shultz (Cache Co), Maggie Wolf (Salt Lake Co), Loreen Woolstenhulme (Utah Co).

Committees

Communications: Larry Meyer
Conservation: Bill King and Tony Frates
Education: Ty Harrison
Horticulture: Maggie Wolf
Invasive Weeds: Susan Fitts
Rare Plants: Walter Fertig
Scholarship: Bill Gray

Chapters and Chapter Presidents

Cache: Steve Ripple
Cedar City: Winnie Washburn
Escalante (Garfield Co): Harriet Priska
Fremont (Richfield area): Maria Ulloa
Manzanita (Kane Co): Walter Fertig
Mountain (Summit Co): Mindy Wheeler
Price (Carbon Co): Mike Hubbard
Salt Lake: Kipp Lee
Southern (Washington Co): Margaret Malm
Utah Valley (Utah Co): Celeste Kennard

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

For more information on UNPS contact Bill King (582-0432) or Susan Fitts (356-5108).

Sego Lily Editor: Walter Fertig (walt@kanab.net). The deadline for the May 2009 *Sego Lily* is 15 April 2009.

The *Sego Lily* is a publication of the Utah Native Plant Society, a 501(c)(3) not-for-profit organization dedicated to conserving and promoting stewardship of our native plants. We encourage readers to submit articles for potential publication. By submitting an article, an implicit license is granted to print the article in the newsletter or other UNPS publications for reprint without permission (in print and electronic media). When submitting an article, please indicate whether it has been previously published or submitted for consideration to other publications.

Chapter News

Cache: The next chapter meeting will be on Tuesday, March 3rd at 7PM in the Cache Valley Learning Center, 75 South 400 West, Logan. We will have a business meeting to discuss chapter goals and new officers, followed by Bill Varga talking about Native American Uses of Plants.

Our Native and Waterwise Propagation Workshop will be held on two days this year: March 20 (two sessions 9AM and 1PM) and March 25 (one session 7 PM). Some of the plants this year (depending on the success of pre-treatments) are: *Geranium viscosissimum (*sticky geranium), *Penstemon tubiflorus* (white wand penstemon—NEW), *Penstemon palmeri* (Palmer penstemon), *Cleome serrulata* (Rocky Mountain beeplant), *Pistacia vera (*Pistachio—NEW), *Acer grandidentatum (*bigtooth maple), *Spartina pectinata* (prairie cordgrass), *Eragrostis trichodes* (sand lovegrass—NEW), *Calamovilfa longifolia* (prairie sandreed—NEW), *Setaria leucopila* (streambed bristlegrass—NEW), and *Andropogon hallii* (sand bluestem). Also new this year will be hardy cacti and succulent seedlings. Several vegetatively propagated species will be available too, as well as instructions on how to do it yourself—*Steve Ripple*

Escalante (Garfield Co.): The Escalante Chapter met in January and elected Harriet Priska as their new president, succeeding Allysia Angus. Several new projects were discussed at the meeting, including publishing a large poster showing the native plants best suited for the area to post in a window downtown for local folks to see. A plant marking project was initiated to identify the native plants growing in the plantings along Main Street, as well as in city parks, schools, and private gardens. A walking tour of the native plant gardens will be printed for the Escalante Heritage Festival on May 23rd.

Our 10 February meeting featured Escalante native Elray Nixon, a retired botanist, who showed us his 2001 publication on keying out conifers in Garfield County and a book of photos of the Escalante Canyon area. Larry Glickman, park ranger with the Grand Staircase-Escalante NM, gave an excellent talk about the importance of pollinators and why they are disappearing. Our March 10th meeting will be presented by Terry Tolbert, biologist with GSENM who will speak on "Potato Valley Grasses". For our April 14th meeting, Allysia Angus will talk about what to do to effectively landscape a yard and how and when to plant. - *Harriet Priska*

Fremont (Richfield Area): Fremont Chapter will host Allysia Angus, Landscape Architect for Grand Staircase Escalante National Monument, on March 19, at 7:00 p.m. in the USU Extension Office in Richfield. Ms. Angus will give a hands-on presentation on the basics of planting design. Those in attendance will prepare a simple planting plan using the concepts shared.

In addition Fremont Chapter will host Lisa Ogden White on April 16 at 6:30 in the USU Extension Office in Richfield. Ms. Ogden works with the Zion Canyon Field Institute as Landscape Architect for the National Park Service and is Chairman of the Green Team Her presentation is entitled "Bloomin' Natives" and will focus on native plant use in landscaping design.

We recently completed our "Celebrate the Wild" 2009 calendar (see sample at right). Sales have been brisk, but we have a few left, so if anyone still wants a copy, e-mail me at jbnielson@sisna.com and I'll take care of the shipping and billing. We are particularly appreciative of those sponsors who so generously underwrote the project: BLM, Fremont Indian State Park, Great Basin Natives, Intermountain Native Plant Growers Association, Maria Ulloa and George Cruz, Rugged Plant Nursery, Sun Mountain Growers, USU Extention Services, Wildflowers Unltd, Wildland Nursery, and Xeriscape Design.

We are planning another calendar for 2010, hoping to have it ready the first of November. If any person or business wishes to sponsor a page, please e-mail Janett Warner (www.wildland nursery.com).

We'll be starting our annual yard clean-ups soon. Our chapter members meet at a home and rake, prune, trim, etc. for a couple of hours to raise funds for our yearly project. We'll soon be returning to Sam Stowe Campground at Fremont Indian State Park to continue work on our native plant garden. We're hoping that our carefully tended flowering

plants, shrubs, trees and grasses will begin to show off for the public. We also will continue to nurture the natives we planted around the Sevier County Administration Building last spring. All in all, it's going to be a busy season for Fremont Chapter. --*Janet Nielson*

Manzanita (Kane Co.): On Saturday, 28 February, we will hold our yearly plant propagation workshop at the Best Friends greenhouse. Becca Leiberg, horticultural specialist from Zion NP will be on hand to answer questions and help participants plant seed from 17 different native shrub, grass, and wildflower species. For more information, contact me at 435-644-8129 or walt@kanab.net. Tuesday, March 3, Larry Baer will present a talk on gardening in Kanab. Larry is head of the Master Gardener program in Kane County and purveyor of prize-winning produce at the summer farmer's market. Please note that this meeting will be in the basement meeting room of the old United Church (530 S Hwy 89) rather than our usual meeting site—*W. Fertig*.

Salt Lake: March Meeting: Wednesday, March 4th, 7:00pm at REI (33rd East and 33rd South, SLC). Our speaker will be Dr. Wayne Whaley, Professor of Zoology at Utah Valley University and a member of the Utah Lepidopterists Society. Dr. Whaley's research concerns the Indra Swallowtail Butterfly (*Papilio indra*), a beautiful species which occurs in Utah and other parts of the western US. Butterflies tend to be very picky about where they lay eggs because plants produce many chemical deterrents. As a consequence, serious lepidopterists necessarily become very familiar with our native plants.

April Meeting: Wednesday April 1st, 7:00pm REI - UNPS member Ellen Hartz will give a presentation on urban beekeeping. She will discuss life history, maintaining a hive, and ways to attract them to our urban gardens. She will also bring a demonstration hive with live bees! - *Kipp Lee*

Southern (Washington Co.): Our March 2 monthly meeting will feature Eric Lassance who will discuss Zion National Park's weed control—past, present, and future. The meeting will be at 7 p.m. in the Canyon Community Center, Springdale (435-772-0525 for info.).

Zion Canyon Field Institute (ZCFI) would like to invite you to attend their extensive selection of 2009 botany classes. As an added inducement, they are offering UNPS members a 10% discount on all ZCFI botany classes for 2009. These include: April 3 - 4: Lytle Preserve (Mohave Desert flora, geology, and great birding), April 10: Zion's Low Desert Wildflowers, April 18: Native Plants & Xeriscaping, April 25 Mojave Wildflowers, May 9 - 10 Zion 101 (natural history and geology of the park), May 15: Kolob Wildflowers, June 13: Hanging Gardens of Zion, July 11: Cedar Mountain Wildflowers, Oct17 - 18: Zion 101. Please note that if you are already a member of Zion Natural History Association you will NOT receive this 10% discount in addition to your 20% ZNHA discount. Register at the ZCFI website (www.zionpark.org) or call 435-772-3264 —*Barbara Farnsworth*.

New UNPS Chapter Sprouting in Cedar City

By Neal Smith and Winnie Washburn

On Wednesday, February 18th, the first meeting of the Cedar City Native Plant Chapter brought together an overflow of eager Cedar City and Valley gardeners, all with a common interest in water conservation and a desire to learn how to propagate drought-resistant native plants, shrubs, and trees. Over 55 attendees were present, requiring us to move to a larger room in Southern Utah University's Science building. Dr. Ron Martin, chairman of the Biology Department of SUU kindly acted as our mentor and arranged for the meeting place. Other distinguished guests included Dr. Al Tait, retired botany professor; Dr. Earl Mulderink, History Professor; Dr. Douglas Reynolds, who has organized the Cedar Breaks Wildflower Festival for the past three years, Christine Fletcher, of BLM, Candace Schaible, County Agent for Water-wise Horticulture; Tim and Denise McAlmond, of the Shadow Farm Nursery, and Cassie of the Big Tree Nursery. Our Pro-Tem Officers for the present (until a new slate is elected) are: Marguerite Smith, Treasurer; Alice Maas, Secretary; Joleen Wise, Hospitality Chairman; Neal Smith, P.R. Chairman; Dr. Ron Martin and Dr. Terri Hildebrand, University Mentors; and Winnie Washburn, Coordinator.

We currently have 45 paid UNPS members in the Cedar City area and expect to reach at least 60 members. Our Pro-tem officers have worked hard to let the community know of our goals to promote water conservation through the propagation of native plants and to use natives that attract pollinators for healthy, long-lasting gardens.

A great deal of knowledge and experience was shared at our first meeting. A seasoned nurseryman shared a tip for removing an unwanted lawn (the first step in preparing a wildflower garden) by covering it with cardboard and paper (so no grass gets light), then covering with soil, and lastly with mulch. The evening concluded with a short talk about pollinators and how these insects and birds are partners with plants. We learned how urgent it is to choose native plants that attract birds, bees, butterflies, and other insects so that we, the stewards of the Earth, can know how to partner plants with pollinators.

We have several programs planned this year. In March, Dr. Martin will help us learn to recognize a wide variety of native plants that not only grow well in the valley but are also attractive to pollinators. In April, Candace Schaible will help us to prepare our gardens and learn how to plant and water. In May our nursery friends, Tim and Denise, will help us to learn about drip systems and landscaping. Later in May we will have a plant sale with Janett Warner of Wildland Nursery and several other nurseries in the area, to be held at the University parking lot...only Native Plants will be for sale. In June we will have a hands-on study on recognizing weeds and how to get rid of them, done by Chad Reed, our County agent in charge of weed eradication. And we plan to visit local native plant gardens later in the month. In July we hope to meet with the four other southern chapters of UNPS up on Cedar Breaks as Walt Fertig guides us around the wildflower hollows during the Wildflower Festival.

Much more is planned, and we intend to have programs suggested by the members, based on a survey given during the meeting. We thank so many who have helped to support and share their enthusiasm for this important and urgent cause - to be knowledgeable stewards of this beautiful land.

New Life Members: Don Feener and Sylvia Torti of Salt Lake City and Renee Van Buren of Woodland Hills are our latest UNPS life members. Thank you !

Bulletin Board

5th Southwest Rare Plant Conference—March 16-20, 2009. There is still time to register for the conference, being held during spring break at the University of Utah. See the conference website (via the link on the UNPS homepage at www.unps.org) for the final agenda and details on housing, food, and other activities being sponsored by UNPS.

Uinta Basin Rare Plant Forum sponsors volunteer plant survey: On May 9-10, the Uinta Basin Rare Plant Forum (see more about this group on page 11) will lead a volunteer team to survey for the rare Horseshoe milkvetch (*Astragalus equisolensis*) (discussed in detail in the September 2008 issue of the *Sego Lily*). Currently, this plant has no official protection and oil and gas development is proposed in its habitat. It is important to better map the plant's habitat to protect it from being impacted by oil and gas development. The Uinta Basin Rare Plant Forum is also working to protect eight other rare plants in the Uinta Basin. Volunteers will be joined by experts from the Bureau of Land Management, Fish and Wildlife Service and others. After a full day of surveying we will camp and enjoy dinner together - *Joan DeGiorgio*.

Penstemon festival: Merrill Johnson, proprietor of Great Basin Natives nursery in Holden, Utah, has scheduled a Penstemon Festival at the nursery. It will start in the evening of June 5 with a dinner and program about the penstemons that are growing in Eastern Millard County. On Saturday, June 6, there will be one or more field trips to see the penstemons and other native plants. There will be a charge to cover the cost of the dinner and a few other incidental things. For more information go to: penstemonfestival.blogspot.com. *—Merrill Johnson*

Gardening for Hummingbirds

By Walter Fertig

Above: Red columbine (Aquilegia formosa*) is a typical hummingbird-pollinated flower with protruding anthers to deliver pollen to the bird's head as it probes for nectar deep in the five reddish-orange spurs. Photo by Bill Gray.*

It is hard to find anyone who doesn't like hummingbirds. What isn't there to like about a tiny, iridescent green, orange, red, or purple bird that can hover in mid-air or even fly backwards? Or that lays the smallest eggs of any bird and has, proportionally, the largest heart? Or that pollinates some of our prettiest wildflowers and consumes large quantities of pesky mosquitoes and gnats – all for free? Best of all, hummingbirds are not especially shy of people and will readily visit our suburban landscapes, so long as we provide for their basic needs.

Like all wildlife, hummingbirds need three basic things to survive: food, water, and a secure place to rest and nest. In nature, hummingbirds derive much of their sustenance from nectar. Produced by flowers as a bribe to attract pollinators to pick up and unload pollen, nectar is like a high-energy sports drink – loaded with carbohydrates. These carbs help power a hummingbird's rapid daytime metabolism and bursts of speed (in flight, a hummingbird strokes its wings up to 90 times per second and can attain top speeds of 66 miles per hour).

A well-balanced hummingbird diet also includes protein, which comes in the form of small insects and spiders. Hummingbirds perch on branches in wait of flying insects, much like a flycatcher, then take off to snatch their prey in mid-air. Slow motion photography shows that hummingbirds can spread their slender beaks open at a broad angle to create a larger-than-expected gape, perfect for sucking in bugs (not unlike their distant relatives, the swifts).

Hummingbirds have almost no sense of smell, relying instead on their exceptional vision to locate flowers for feeding. They are especially fond of red or orange flowers, but will also visit blue, pink, or white blooms (though they tend to avoid yellow). Flowers adapted to hummingbird pollination typically have elongate, cylindrical floral tubes and secrete precious nectar at its base or in a terminal spur or sac. Hummingbirds use their long beaks and tongues to lap up the nectar reward, and in the process get their heads liberally dowsed with pollen from anthers borne near the rim of the flower tube. This pollen then gets deposited on receptive stigmas of another flower when the hummingbird repeats the process. Hummingbirds may visit 1500 flowers in a day, so a lot of pollen is getting moved around.

To supplement their nectar diet, hummingbirds will also feed on sugar-water in specially designed hummingbird feeders. Some older gardening books recommend using a honey-water mix, but honey ferments quickly and can grow a fungus that is harmful to hummers. A four parts water to one part table sugar mixture that is either boiled or stirred until the sugar is completely dissolved works best. In hot weather, hummingbird juice can also go bad, so it is best to wash the feeder and refresh the fluid frequently to prevent spreading disease.

Water and secure nesting and foraging habitat can also be provided by the careful hummingbird gardener. Hummers will enjoy a birdbath, especially if there is somewhere they can perch with their ridiculously undersized feet. Alternatively, a mister or waterfall will allow them to drink while on the wing. Hummingbirds prefer relatively open areas for feeding, but also like a few scattered trees and shrubs for perching and nest-building (too much brushy cover, however, encourages their predators). Willows, thistles, dandelions, milkweeds, and other plants that produce fluffy or fuzzy down provide raw materials for hummingbird nests.

Even a modest yard can become a beacon for neighborhood hummingbirds, if the three basics of good habitat are provided. A number of native western wildflowers are especially well-suited for attracting hummers. These include (in no

*Above: Arizona thistle (*Cirsium arizonicum*), a showy, native thistle with carmine-colored disk flowers. Besides nectar, thistles provide nesting material for hummingbirds from their cottony pappus. Photo by Bill Gray.*

particular order):

Columbine (*Aquilegia* spp.). Columbine flowers are specially built for hummingbirds, with their 5 nectar-packing spurs. Several red-flowered species occur in Utah, of which *A. formosa* is the most widespread. Some forms are available as nursery stock, or columbines can be grown from seed sown in shallow, well-drained soil in the fall (allowing for at least 60 days of cold stratification). Wild plants transplant poorly, so should be left alone. Most columbines flower from late spring to late summer.

Arizona Thistle (*Cirsium arizonicum*). It might sound crazy for a native plant society to advocate planting thistles, but bear in mind that the vast majority of thistle species are actually native and not invasive. Thistles have large flower heads consisting of small, pinkish, tubular disk flowers that can be copious nectar producers. Hummingbirds also like thistles for the cottony pappus on each seed that can be used for lining nests. The carmine-flowered Arizona thistle occurs primarily in canyon country of southern Utah, though it is hardy in low elevation gardens over much of the state. It can be grown from seed in sunny, well-drained soils.

Indian Paintbrush (*Castilleja* spp.). The corolla of an Indian paintbrush is typically green, but is enclosed by brightly colored sepals or leafy bracts that have assumed the role of attracting pollinators. Paintbrushes are hemi-parasitic, meaning that they derive some (though not all) of their nutrition by parasitizing the roots of other plants. This can make them difficult to transplant from the wild (which we shouldn't do under normal circumstances anyway), though they can be grown from seed provided they are planted next to a potential host plant, such as sagebrush or rabbitbrush. Seeds require at least 30 days of cold stratification, and are best planted in the fall on the soil surface to facilitate light exposure. Wyoming paintbrush (*C. linariifolia*, the state plant of Wyoming) is an orange-flowered, leggy species that is hardy in a variety of settings and blooms from April to August. Narrowleaf paintbrush (*C. angustifolia* or *C. chromosa*) is considered a more attractive species and flowers from April-July.

Cardinal Flower (*Lobelia cardinalis*). In Utah, Cardinal Flower is restricted to hanging gardens and moist seeps in the souther tier of counties. The brilliant scarlet flowers have an unusual asymmetric shape, with spreading corolla lobes and an erect tubular anther column. This species can be cultivated over much of the state, but requires damp, humus-rich soil and full sun. It is available from nurseries or can be grown from stem cuttings or cold-stratified seed. Flowers are present from mid-summer to fall.

Desert Willow (*Chilopsis linearis*). Desert willow is a shrub with willow-like leaves and clusters of large, pinkish-purple trumpet-shaped flowers. In Utah, it is native only in the Mohave regions of Washington County. *Chilopsis* will thrive in direct sun and is drought tolerant (often shedding its leaves in late summer), but is not especially cold-hardy.

Scarlet gilia (*Ipomopsis aggregata* or *Gilia aggregata*). This biennial or short-lived perennial has long-flaring tubular flowers that are red, pink, salmon, or white and can grow in a variety of habitats. It can be purchased from a native plant nursery or grown from seed in sunny, well-drained sites. Once established, it readily re-seeds. The related Carmine Gilia (*Gilia sunbuda* or *Aliciella subnuda*) occurs commonly across the Colorado Plateau and blooms in mid

Below: Cardinal flower (Lobelia cardinalis) *belongs to a sub-family of the Campanulaceae that is more widely distributed in the tropics. Photo by Bill Gray*

spring (May-June) and often again in the fall. In its native habitat, this species prefers rocky, well-drained sites.

Hummingbird flower or California fuchsia (*Zauschneria latifolia* or *Epilobium canum*). With its inch-long, tubular, scarlet flowers and preference for dry, rocky cliffs and talus, most people will be excused for missing the similarity between *Zauschneria* and the common willow-herbs or fireweeds of the genus *Epilobium*, but the two genera share fruit traits and have recently been lumped together. This aptly named species is available from nurseries or grown from seed in the fall. It is well-suited for rock gardens and can grow in full sun, though does best with partial shade.

Penstemon or Beardtongue (*Penstemon* spp.). Though usually blue or purple flowered, four penstemons from Utah are red to scarlet-colored and very attractive to hummingbirds. Eaton's penstemon (*P. eatonii*) occurs widely across Utah and displays its red-orange flowers in late May through July. It can grow in full sun to light shade and on a variety of droughty or alkaline soils. Because of its size (growing to 3 feet tall) it makes a good background planting. Utah penstemon (*P. utahensis*) is a low-growing Colorado Plateau species that flowers in early to late spring (April-June). Bridges' penstemon (*P. rostriflorus* or *P. bridgesii*) occurs in basin and foothills habitats across the southern half of the state. It closely resembles Firecracker penstemon (*P. barbatus*) in having drooping, tubular flowers with the lower lip curved backwards instead of protruding as in most penstemons (this shape denies a ready landing platform for other pollinators). Firecracker is native to mountains and canyons of southern Utah, but is widely grown in cultivation.

One non-native of note is the Trumpet-creeper (*Campsis radicans*), a vine native to the southeastern US from the same family as the Desert willow (Bignoniaceae). Trumpet-creeper prefers deep, rich soil and requires a structure for support. It blooms over most of the summer and into fall. In Utah, Trumpet-creeper is found mostly in gardens at low elevations (below 5200 feet). Other non-native and cultivated species commonly grown in Utah that are attractive to hummingbirds include Red-hot poker (*Kniphofia uvaria*) from South Africa, several red-flowered sages (*Salvia*), and Balsam (*Impatiens balsamina*).

Ideally, a hummingbird garden should include a mix of species that flower over the course of spring and summer to provide an uninterrupted food supply.

For their size, hummingbirds are remarkably intelligent and can quickly learn where good habitat is located and return to the same spots year after year. Some gardeners worry that setting out sugar water and attractive plants may entice the birds to stay too long in the fall, putting them at risk from unseasonably cool weather. But not to worry – hummingbird brains are hard-wired to day-length clues, prompting them to begin winter migration well in advance of the first signs of bad weather. Brains and beauty: just two more admirable qualities of these tiny little birds. It really is impossible not to like hummingbirds!

Above: The aptly named Hummingbird flower (Zauschneria latifolia *or* Epilobium canum) *has the red color, long, tubular shape, and ample nectar rewards that are irresistible to hummingbirds. Photo by Bill Gray.*

Above: Bridges' penstemon (Penstemon rostriflorus) *is one of four red-flowered beardtongues native to Utah. Its tubular, drooping flowers are specially adapted for hummingbird pollination. Photo by Bill Gray.*

References:

Dorn, R.D. and J.L. Dorn. 2007. *Growing Native Plants of the Rocky Mountain Area*. Self-published. 252 pp.

Kress, S.W. 1995. *The Bird Garden*. DK Publishing, NY. 176 pp.

Kress, S.W. 2000. *Hummingbird Gardens, Turning your Yard into Hummingbird Heaven*. Brooklyn Botanic Garden, NY. 112 pp.

Tufts, C. and P. Loewer. 1995. *The National Wildlife Federation's Guide to Gardening for Wildlife*. Rodale Press, Emmaus PA, 192 pp.

Wish you could see the *Sego Lily* in color? Want to read more on native plant society news and chapter events? Need to buy a UNPS wildflower poster or cd-rom for that special someone? Go to www.unps.org. right away!

What's in a Name? Edwin James and *Jamesia*

By Walter Fertig

Native Vermonter Edwin James (1797-1861) trained to be a physician when in college, and like most doctors of his era received extensive training in natural history and botany. His botany instructors included Amos Eaton and John Torrey, two of the leading taxonomists of the day. James' training served him well in 1820, when he was selected to replace the late William Baldwin as botanist for the second year of the Stephen H. Long expedition, beating out the more experienced Thomas Nuttall largely on account of his medical background.

Originally, the Long expedition was to ascend the Missouri River and explore the Yellowstone country, but a series of setbacks and financial problems caused the mission to refocus on finding the headwaters of the Platte, Arkansas, and Red rivers in the southern Rocky Mountains. During 1820 the party explored much of the Colorado Front Range, but ultimately failed in finding the head of any of the rivers. James, however, enjoyed much personal success. Along with two companions, he was the first white explorer to reach the summit of Pike's Peak (previously considered unclimable by Zebulon Pike and his Native American guides) and the first botanist to explore the alpine tundra in western North America. Over the summer of 1820 James discovered nearly 100 species of plants previously unknown to science, such as Blue columbine (*Aquilegia coerulea*, eventually the state flower of Colorado), Limber pine (*Pinus flexilis*), Rocky Mountain maple (*Acer glabrum*), Narrow-leaved cottonwood (*Populus angustifolia*), Small-leaf geranium (*Geranium caespitosum*), Lance-leaved stonecrop (*Sedum lanceolatum*), and Streamside bluebell (*Mertensia ciliata*). Several of his new taxa would ultimately be named in James' honor by John Torrey or George Bentham, including a *Chionophila* (a genus in the Scrophulariaceae resembling *Penstemon*), *Cryptantha* (*C. cinerea* var. *jamesii*), *Eriogonum, Hilaria* (*Pleuraphis*), *Solanum*, *Stellaria* (*Pseudostellaria*), and *Telesonix* (*Boykinia*).

One of James' new species from the Colorado Front Range was a handsome shrub with reddish, shredding bark and white, slightly fragrant, rose-like flowers. This plant defied ready classification and remained unnamed for 20 years after its discovery. In 1840, Torrey and collaborator Asa Gray finally named the species *Jamesia americana* to commemorate its discoverer. *Jamesia* is one of 17 genera recognized in the Hydrangea family (Hydrangeaceae), a group closely related to the roses (Rosaceae) and saxifrages (Saxifragaceae)*. Commonly called cliffbush or cliff jamesia, members of this genus can be distinguished from other members of the Hydrangea family in having 8-10 stamens with uniformly flat, untapered filaments lacking a forked tip below the anther.

Unfortunately in 1897 Amos Heller discovered that the notorious Rafinesque** had already published the name *Jamesia* in error for a species in the pea family. Under taxonomic rules, a new genus name was needed. The clever Heller transferred *Jamesia* to *Edwinia*, a new genus that would still maintain the connection to Edwin James. In 1930 the genus name *Jamesia* was restored in a ruling by the International Botanical Congress, the Supreme Court of botanical taxonomy.

Fossils considered to represent an extinct *Jamesia*-like plant are known from the Oligocene age Creede fossil beds in southwestern Colorado. Today, only two species of *Jamesia* survive: the wide-ranging *J. americana* with five petals and *J. tetrapetala*, a four-petaled taxon restricted to the Highland, Grant, and Snake ranges in eastern Nevada and the House Range in Millard County, Utah. Although first collected by Carl Albert Purpus, *J. tetrapetala* was not formally recognized as a separate species for nearly 90 years, until named by Noel and Patricia Holmgren of the New York Botanical Garden in 1989.

The Holmgrens recognized four varieties of *Jamesia americana* in their 1989 monograph of the genus. The typical form (the one first discovered by Edwin James) occurs from the Medicine Bow Range in southeastern Wyoming through the Rocky Mountains of Colorado and New Mexico to the mountains of southeastern Arizona and northern Nuevo Leon, Mexico. Var. *americana* can be recognized by its shreddy bark, finely toothed leaves, and inflorescence of 15-35 white flowers. The other three varieties have much more restricted ranges, bark that splits into plate-like segments, and inflorescences with fewer flowers that may be white or rosy-pink. Variety *macrocalyx* with white flowers and small leaves is endemic to the canyons of the Wasatch and Deep Creek mountains of northern Utah. This form is replaced by var. *zionis* in Zion National Park and canyons west of Kanab in southwestern Utah. Var. *zionis* differs in having relatively large leaves (3-5.5 cm long x 2-4 cm wide) and grows in rocky hanging gardens. The third form, var. *rosea* combines the small leaves of *macrocalyx* with rosy-pink flowers and grows in granitic or limestone cliffs in the Sierra Nevada and desert mountain ranges of southeastern California and southern Nevada (but see sidebar on page 9).

Cliff jamesia is an attractive shrub that can be cultivated in most areas of the Southern Rocky Mountains, Great Basin, and Colorado Plateau. Plants can be grown from greenwood cuttings or seed that has been cold stratified for 1-2 months. *Jamesia* does best in partial shade and moist, well-drained soils and

*Welsh et al. follow tradition and place the Hydrangeaceae within an expanded Saxifragaceae in *A Utah Flora, fourth edition*. The two families differ in technical features of the carpel and in their growth habit, with the hydrangeas typically being shrubby and the saxifrages herbaceous forbs.

**See "Rafinesque and *Rafinesquia*" in the July 2008 *Sego Lily* for more on this character.

especially among rocks or boulders that simulate its natural habitat.

Following his return from the Long expedition, Edwin James published several of his new species, but left the bulk of the taxonomic work to his mentor, John Torrey. James wrote a popular account of his western travels in 1823 and a catalogue of his botanical collections two years later. He attempted one more expedition with Long in the 1820s, but missed his meeting date with the party and was left behind. He remained a surgeon with the US Army until the mid 1830s before settling on a farm in Iowa. In his last years James became involved in the abolition and temperance movements, and advocated for Native Americans and religious causes.

Aside from his botanical contributions and first ascent of Pike's Peak*, James may be best remembered for the name he and Stephen Long gave to the western Great Plains on the east side of the Rocky Mountain Front: the Great American Desert. This assessment was based on their own first hand observations of the area's limited timber and water, which they felt made the area poorly suited for agriculture or permanent settlement. Naturally, this did not sit well with boosters advocating western expansion. James' words slowed but did not prevent the ultimate settling of the region and its large scale conversion to irrigated farmland (thanks largely to the Ogallala Aquifer). The long-term accuracy of his assessment will be learned by future generations.

References

Holmgren, N.H. and P.K. Holmgren. 1989. A taxonomic study of *Jamesia* (Hydrangeaceae). *Brittonia* 41(4):335-350.

Williams, R.L. 2003. *"A Region of Astonishing Beauty", the Botanical Exploration of the Rocky Mountains*. Roberts Rinehart Publishers, Lanham, MD. 209 pp.

* Long attempted to rename Pike's Peak for James, but the name never took. There is a James Peak today in Colorado in the same mountain range with several other notable 19th Century botanists: Gray, Torrey, Engelmann, and Parry.

Jamesia americana var. *rosea*: New to Utah?

On July 30, 2008, Doug Reynolds and I were exploring the slopes above Tri-Story Canyon in a remote corner of Cedar Breaks National Monument, searching for a population of *Jamesia americana* var. *zionis* reported previously by Cathie Jean during her graduate research on the vegetation of the monument in 1989. We had failed to locate this species in two previous trips into the canyon in 2007, but this time we were exploring some different plant communities. While dropping off a steep ledge of hard, light lavender Claron limestone Doug and I simultaneously noticed a small shrub growing out of a shady crack and immediately knew we had found our elusive quarry. Or had we?

Doug took a series of photos and recorded the position of the plant with our hand-held GPS unit, while I took copious notes on the habitat and condition of the population and prepared a sample in my field press (we had a collecting permit from the National Park Service as part of our work on documenting rare species in the monument). The *Jamesia* plants were restricted to a distinct band of Claron that was much harder and less eroded than the typical white or orangish-red layers above and below (these readily erode into fine clay). Although the original patch was found in a partially open Douglas-fir/Limber pine forest, subsequent populations were found on cliff ledges in Bristlecone pine/cushion plant communities. The habitat contrasted with the mesic hanging gardens typically associated with var. *zionis* in Zion National Park.

It was not until a few days later when I opened my press that I began to question whether our plants really were var. *zionis*. Typical *zionis* has relatively large leaves and white flowers. The material we collected from Cedar Breaks National Monument and the adjacent Ashdown Gorge Wilderness Area on Dixie National Forest had much smaller and narrower leaves and small, rosy-pink flowers. I ran the specimens through the *Jamesia* key in volume Three, Part A of the *Intermountain Flora* and immediately went to var. *rosea*, a taxon previously known only from southeastern California and southern Nevada. I emailed Doug's photo to Noel and Pat Holmgren at the New York Botanical Garden for their opinion and they promptly wrote back saying that it indeed did appear to be var. *rosea*.

In early September, I hiked back to the bottom of Tri-Story Canyon from the Rattlesnake Trail on the north side of Cedar Breaks National Monument to collect additional specimens of the unusual *Jamesia*. In a more thorough search, I found several dozen plants growing along steep, south-facing cliffs of the same light lavender bed of Claron limestone, but alas, the plants were all in fruit. I plan to return again this summer to collect flowering material for positive confirmation.

If the Cedar Breaks population is var. *rosea*, it would represent a new variety for Utah (clearly making Utah the *Jamesia* capitol of the world, with 4 of the 5 named species and varieties present in the Beehive State). The population in Iron County is nearly 125 miles northeast of the nearest known occurrence in the Sheep Mountains of Clark County, Nevada. – *Walter Fertig*

Photo of Jamesia americana *var.* rosea *from Tri-Story Canyon, Cedar Breaks NM, Iron County, Utah, by Douglas N. Reynolds, 30 July 2008.*

Noteworthy Discoveries

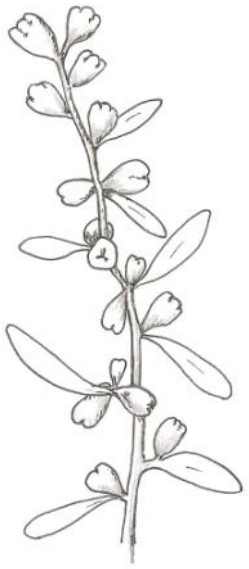
Suaeda linifolia (Chenopodiaceae) in Utah

By Noel and Patricia Holmgren

In September 1999 in Sweetwater County, Wyoming, Walt Fertig and Jim Glennon collected a *Suaeda* (Chenopodiaceae) unknown to them along the banks of the Blacks Fork of the Green River (*Fertig & Glennon 19011*, at NY!). Walt had a hunch that it might be exotic, perhaps from Russia. He contacted Noel, asking him to look at the specimen and suggesting that it might key to *S. glauca, S. linifolia*, or *S. paradoxa* in Flora USSR. Walt also told Noel that their collection was a good match for the one taken in 1985 in Elko County, Nevada, by Arnold Tiehm (*10013*, Tecoma Valley, about 7.5 air miles NE of Montello, seepages on SW side of Dake Reservoir, 27 Jul 1985, at Y!). Noel compared their specimen with Asian specimens of *Suaeda* in the New York Botanical Garden Herbarium and confirmed Walt's suspicion that they had collected the non-native *S. linifolia* Pall. (native to Kazakhstan and adjacent parts of western Siberia and NW China). Tiehm's collection and one by Bev Albee (*5786*, about 6.5 mi NE of Montello in Tecoma Valley, Elko Co., Nev., 18 Sep 1984, at UT!) were probably the first collections of this species in North America.

It seemed logical that *S. linifolia* should also grow in alkaline areas of northern Utah, so this became one of our goals this past summer. Success! We found a population in Box Elder County (*Holmgren & Holmgren 15881*, Bear River Valley, State Route 83, 0.16 km w. of the junction with State Route 102, 22 km air distance WNW of Corinne, 17 Aug 2008, at BRY!, NY!, RENO!, UTC!). Images of the Tiehm, Fertig & Glennon, and Holmgren specimens are viewable at http://sciweb.nybg.org/science2/hcol/intf/index.asp.

The habit of the non-native *Suaeda linifolia* (pin-leaf seepweed or flax-leaved sea-blite) resembles



Above: Inflorescence of Suaeda linifolia. *Flowers in this species are often fused to the floral bracts, making them appear as if borne on the bract surface, rather than its axil. Illustration by W. Fertig.*

that of the native *S. calceoliformis* (Hook.) Moq. (broom seepweed or horned sea-blite), and the two grow together, so it is easy to see why the specimens collected by Albee and Tiehm were originally misidentified as a native species. Both *S. linifolia* and *S. calceoliformis* are annuals with ascending branches, but they are easily distinguished with a hand lens. The small flowers of *S. linifolia* are borne on the apex of the bract petioles, and the calyx lobes are equal and rounded on the back. The flowers of *S. calceoliformis* are borne in the axils of the bracts, and the calyx lobes, in addition to having horn-like projections on the back, have the upper lobe larger than the others.

Other Chenopodiaceae found growing with *S. linifolia* include *Allenrolfea occidentalis*, *Atriplex dioica*, *Bassia hyssopifolia*, *Kochia scoparia*, *Salicornia rubra,* and *Suaeda calceoliformis*. Species in other families include *Helianthus petiolaris* (Asteraceae), *Spergularia salina* (Caryophyllaceae), and *Cordylanthus maritimus* var. *canescens* (Scrophulariaceae).

How did *Suaeda linifolia* get here?

All known populations of *S. linifolia* are relatively close to the transcontinental railroad, which suggests that the species may have been dispersed by trains (Schenk, personal communication). If so, additional populations of *S. linifolia* are expected in moist alkaline areas near the tracks and the old railroad grade across northern Nevada and northern Utah. The population found in Box Elder County is along the old abandoned railroad grade not far from the Golden Spike National Historic Site. This route has been abandoned since the 1940s, when the railroad trestle across the northern end of the Great Salt Lake was completed.

Would it be fanciful to think that the seeds may have been accidentally introduced to this country by Chinese immigrants, who labored mightily in building the western link of the transcontinental railroad from Sacramento to the low saddle in the Promontory Range between 1863 and 1869? Ambrose (2000) reports that the Chinese paid for their own food while working on the railroad, which enabled them to demand and receive an astonishing variety of foods, including vegetables, from Chinese merchants in San Francisco.

Is *Suaeda linifolia* likely to become invasive?

We recently learned that Dr. Jochen Schenk (http://biology. fullerton.edu/jschenk/), specialist in the genus *Suaeda*, identified the non-native *S. linifolia* in North America earlier than Walt and Noel, but his report of the discovery was not published until later (Ferren & Schenk 2003) than that of Fertig (2000). In 1997, Schenk saw a specimen of *S. linifolia* while studying the genus in the herbarium at the Natural History Museum in London. He could not believe his eyes when, only weeks after his European visit, he found a population of *S. linifolia*

near Wells, Nevada, in an area being used as an unofficial dump near the Union Pacific tracks. According to him, *S. linifolia* forms dense, monospecific stands, suggesting that it might be invasive and could have displaced native species. To test this possibility his student, Nicole Vearrier (2006) studied the ecology of the Wells population from 2003 to 2005. She noted that although the Nevada populations increased in size during the period of her study, they did not appear to be ruderal and did not spread into adjacent disturbed sites along roads. Helmut Freitag, who knows *S. linifolia* from his work in central Asia, reported to Schenk that this species is an alkaline wetland species with no ruderal tendencies in central Asia. According to Vearrier, plants of *S. linifolia* show high fecundity and a wide tolerance of salinity, soil characteristics, and temperatures, but the species appears to lack an effective long-distance dispersal mechanism. She suggests that it could become a local problem, but appears unlikely to become aggressively invasive. Vearrier returned to the Wells population in 2008 to make additional measurements, and she and Schenk are preparing a manuscript for publication later this year.

References:

Ambrose, S. 2000. Nothing like it in the world. *The men who built the trans-continental railroad. 1863-1869.* New York: Simon & Schuster.

Ferren, W. R., Jr., and H. J. Schenk. 2003. *Suaeda*. In: Flora of North America Editorial Committee. *Flora of North America north of Mexico* 4: 390-398. New York: Oxford University Press.

Fertig, W. 2000. Noteworthy collections from Wyoming. *Suaeda linifolia*. *Castilleja* 19(3): 7.

Vearrier, N. J. 2006. Ecology and potential invasiveness of *Suaeda linifolia* in the Great Basin desert, USA. M.S. dissertation. California State University, Fullerton. 54 pages.

Nitrophila occidentalis in Box Elder County, Utah

Noel and Pat Holmgren found a population of *Nitrophila occidentalis* (Moq.) S. Watson (*Holmgren & Holmgren 15861*, at NY) at the Rabbit Springs area in Box Elder County (about 9 mi. e. of the Nevada border along the old Central Pacific Railroad grade) on 15 Aug 2008. This represents a county record and northern extension of its distribution in Utah. The species has previously been known from Juab and Millard Counties, but Welsh (*A Utah Flora*, 4th edition) predicted that "the distribution undoubtedly extends north into Tooele County, and possibly to Box Elder County as well." The herbarium specimen is viewable at http:// sciweb.nybg.org/science2/ virtualherbarium.asp. - *Noel and Patricia Holmgren*

Uinta Basin Rare Plants – Can They Be Sustained?

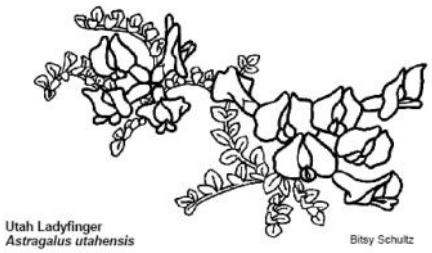
By Joan DeGiorgio, TNC

I was tempted to begin this story with lines like "a modern day David and Goliath – passionate plant lovers vs. well-supported energy industry", but instead took a hint from "no-drama Obama" and will just focus on the sobering-enough facts and the need for cooperation. The facts are these - the Uinta Basin in Utah's NE corner has become a focus of oil and gas production, and possibly oil shale development. This vast semi-arid landscape is also home to many rare plant species, including the Shrubby reed mustard and the White River penstemon that are found nowhere else on Earth. There is a real question if these, and 7 other at-risk plants, can be sustained while also advancing energy development and its associated problems: habitat fragmented via an extensive spider-web of roads and well pads, dust generated from these vehicles, improved access for poachers - to name just a few.

In the face of these uneven odds, three years ago a large group of stakeholders, including The Nature Conservancy (TNC), Bureau of Land Management, US Fish and Wildlife Service, Uinta County, Independent Petroleum Association of Mountain States, Utah Native Plant Society, Utah Heritage program, consultants, researchers and others formed the Uinta Basin Rare Plant Forum. The Forum's goal is to better understand what ecological conditions these plants need to survive, and to work with land managers and industry groups to find solutions to protect habitat and guide development.

As a way to work towards both enhancing the plants' viability and addressing threats to the species, the Forum has engaged in a planning process using TNC's conservation action planning tool (CAP). Mining the treasure trove of knowledge the Forum collectively possesses, the Uinta Basin Rare Plant CAP captures current and desired conditions for the key ecological attributes needed for plant survival. Threats to plant function are ranked and strategies identified for viability enhancement and threat abatement. The Forum is now at the stage of prioritizing its almost 70 strategies.

The CAP planning process has been open to everyone and its results and process have been 100% transparent. It has also been based on the best available science. While the Plan captured the known, it also made clear how little we know about how these plants function and what they need. A logical question arises: if we don't know what they need, how can we guide industry? Much of the plan is directed to answering these sustainability questions. It will take everyone working together to answer these critical questions and then apply the knowledge to best direct where and how energy development proceeds. Hopefully, the Forum represents a new version of an old story where David and Goliath sit down together and work out their differences using science as their guide. The Forum and its CAP is a start. [see related story, pg 4].



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

Utah Native Plant Society

PO Box 520041

Salt Lake City, UT 84152-0041

Return Service Requested

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

Utah Native Plant Society Membership

__ New Member
__ Renewal
__ Gift Membership

Membership Category

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

Mailing
____ US Mail
____ Electronic

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

Chapter _____

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

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

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

Join or renew on-line at unps.org