

ROCK GARDEN *Quarterly*



Volume 64 Number 1

Winter 2006

Front cover: *Gaillardia aristata*. Painting by Jean LeCluyse.

Back cover: Garden of William Ziff, Jr., Quaker Hill, Pawling, New York. Photo by Dianne Huling; first prize, Class 4, 2005 Photo Contest.

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ROCK GARDEN

Quarterly

BULLETIN OF THE NORTH AMERICAN ROCK GARDEN SOCIETY

Volume 64 Number 1 Winter 2006

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About the Artist

Jean LeCluyse is a graduate of the North Carolina Botanical Garden's Botanical Illustration Certificate program. She is president of the Guild of Natural Science Illustrators—Carolinas.

Her work was most recently exhibited at the 2005 Chapel Hill Women's Center Show, "Through Women's Eyes, by Women's Hands." Her entry was selected for the Juror's Choice Award. Her work has been exhibited at the Chapel Hill Town Center, the North Carolina Museum of Natural Sciences in Raleigh, the North Carolina Museum of Life Sciences in Durham, the Totten Center, and the Carrboro Arts Center. She has published drawings in the *North Carolina Botanical Garden Newsletter* and the *Rock Garden Quarterly*.

About botanical art, Jean writes: "Why does one spend hours trying to draw a flower? After all, it is already perfect and beautiful for anyone to see and for the camera to record. Yet I want to know the flower: How and where does the petal unfold, how is the leaf joined to the stem, what color is the leaf in shade compared to the same leaf in sunlight? To draw a flower is contemplation, meditation, and prayer. In a time when there seems to be so much violence and chaos, what better thing to do than draw a flower?"

Sampling the Bighorns

Iza Goroff

The Bighorn Mountain Range is a geologically fascinating outlier of the Rocky Mountains, separated from them by a desert valley, and east of the other Rocky Mountain ranges. The Bighorns, in northern Wyoming, are noted for a large number of spectacular alpine plants as well as for remarkable and photogenic rock formations. Many of these rock formations have been given evocative names and are marked with signs identifying each rock type and its age—some as much as 2.5 billion years old, containing very early fossil mollusks. If you use your imagination, you can see many castles; one formation is named “Fallen City.”

The Bighorns are crossed by two major highways: US 16, crossing the southern part of the range, and US 14, which splits into US 14 and US 14A from Burgess Junction in the middle of the northern Bighorns, with both highways continuing to the west. Although US 16 has beautiful scenery, access to the most interesting plants is from US 14 and US 14A. Improved but unpaved back roads get us closer to some of the major alpine plant areas, which can easily be reached without arduous climbing.

Shell Falls

Entering the Bighorns from the west, US 14 follows Shell Canyon, the route followed and formed by Shell Creek. Shell Creek makes two 90° turns, the first straight down (the “Falls”) and the second to its right, exposing many layers of rock. After patronizing the Forest Service bookstore and facilities, cross the highway (looking both ways) to see large *Castilleja* and other subalpine plants.

Toward the Ranger Station

Continuing east on US 14, at a sharp left bend of the road take a right turn onto Road 17 toward the US Forest Service Ranger fire station. Along the road is an

excellent assortment of subalpine plants, including a good form of *Campanula rotundifolia*, *Gaillardia aristata*, and the death camas, *Zigadenus elegans*. *Gaillardia aristata* (pictured on this issue's cover) is a very showy composite with a warm red center and trumpet-shaped yellow ray flowers. It blooms on a 15-inch (40-cm) stem above a neat 5-inch rosette of narrow gray-green leaves. It has proven easy to grow in a sunny, well-drained place in the rock garden. *Zigadenus elegans*'s popular name has nothing to do with superstition: it's not to be ingested. Its bulb produces a rosette of upright linear leaves, each about 0.4 inch (1 cm) across by 7 inches (17 cm) long, and an inflorescence, occasionally branched, with three to ten or more flowers. Its starry six-tepaled flower is about 1 inch (2.5 cm) across, with a green and/or yellow center and white tips.

Just before the ranger station there are several very large rocks, several of which have colonies of *Petrophytum caespitosum* (see the Plant Portrait and photo in the fall 2005 issue) densely covering large, almost vertical and soil-free areas of the rocks with its 1-inch rosettes. It is one of three microshrub members of the rose family present in the Bighorns, the others to be discussed later in this article. Just beyond the rocks is a large drift of *Calochortus gunnisonii*, a lovely mariposa lily whose white flowers have a hairy yellow center edged in green.

Unnamed Stream near Granite Pass

From the ranger station road, US 14 turns north. Just before reaching Granite Pass, turn left onto the east end of Hunt Mountain Road and drive 0.4 miles to an unnamed stream which crosses under the road. Walking to the right up a slow rise, follow the stream about 0.15 mile to its source, a series of closely spaced springs, and walk around and above the springs and down the other side of the stream. Along the way you will see at least twelve showy species in flower, possibly including *Castilleja pulchella*, *C. rhexifolia*, *C. sulphurea*, *Cryptantha celosioides*, *Eriogonum ovalifolium*, *Geranium richardsonii*, *G. viscosissimum*, *Mimulus guttatus*, *Parnassia fimbriata*, *Pedicularis groenlandica*, *Platanthera dilatata*, and *Saxifraga occidentalis*.

Castilleja pulchella is a lovely Indian paintbrush with showy ivory bracts, about 10 inches (25 cm) tall. *Castilleja rhexifolia* (photo, p. 19) is also beautiful, with showy pink to ruby-red bracts, a bit taller at about 12 inches (30 cm). *Castilleja sulphurea* is smaller and less showy, only about 5 inches tall, with very pale yellow bracts. All castillejas are root parasites, although some expert gardeners have succeeded in growing them apart from hosts by consistent heavy feeding with a complete fertilizer.

Cryptantha is a very large genus of the arid American West, quite decorative, with flowers and growth habit similar to those of its moisture-loving relatives, the forget-me-nots, yet it is largely unknown in cultivation. Its flowers differ from forget-me-nots in color: those of *Cryptantha celosioides* are white, while others of the genus may be white or yellow. The variety of *Eriogonum ovalifolium* found here is a large one (about 12 inches/30 cm tall), growing at least 10 feet from the stream next to sagebrush (*Artemisia tridentata*). The eriogonum has white flower heads,

fading to rose. *Geranium richardsonii* is a compact species (8 inches/20 cm tall) with dark green foliage and bright white flowers 1 inch wide, growing on the stream banks among dense foliage. *Geranium viscosissimum* is taller (to 16 inches/40 cm), growing among the sagebrush, with shiny green foliage.

Moving to plants of wet areas, *Mimulus guttatus* is pretty and short (5–8 inches/12–20 cm), a typical monkeyflower with yellow trumpets flushed red. It grows on hummocks in the stream and on the banks. *Parnassia fimbriata*, called “grass of Parnassus,” has nothing in common with a grass, other than chlorophyll; it’s a member of the saxifrage family. It has pretty fringed white flowers on 6-inch (15-cm) naked stems over a rosette of shiny olive-green, heart-shaped leaves. It grows at the water’s edge. *Pedicularis groenlandica*, the elephant head lousewort, has flowers whose upper lip is shaped like the head and trunk of an elephant. Its flowering spike holds many of these pink flowers above pinnate leaves. It has a wide distribution, at least from Greenland to Alaska, always in moist areas at high elevation. Species of the genus *Pedicularis* are also root parasites. *Platanthera dilatata* is an orchid, widely distributed in wet, cool places in much of North America. It is a ho-hum plant with a spike of small white flowers. *Saxifraga occidentalis* is a plant whose technical description would shout “uninteresting”—round flat leaves, small flowers widely spaced on a tall inflorescence—yet the tall flowering stems with purple petioles have the grace of a ballerina as they edge the stream.

Hyattville Road

In 1976 I took a road (the word “road” is an exaggeration) from the arid west into the Bighorns after asking a local who assured me the road was okay. It soon turned into two ruts with a large hump between. By driving our Plymouth Horizon with one side of the car on the hump and the other on the road edge, I was able to continue, encountering a showy phlox on the way. As we neared the mountains, we came to a stream which flowed over the “road.” I took a chance and forded it successfully. The road started to rise then, and the flora became fascinating. We noticed the most reflective silver plants I have ever seen, mostly *Astragalus* and *Oxytropis*, not in bloom but worthwhile for foliage alone. Continuing to higher elevations, between the edge of the woods and the road we found *Penstemon laricifolius* subsp. *exilifolius* in bloom—the white-flowered subspecies, with its $\frac{3}{4}$ -inch-long (2-cm) flowers on 6-inch (15-cm) flowering stems. It’s an excellent plant for the sunny rock garden, together with subspecies *laricifolius*, which has purple-pink flowers. The adventure was not complete until the Horizon conquered the loose sand on a steep grade which I wasn’t sure it could climb, especially after sliding back twice.

In 2005, during the most recent of four trips into the Bighorns, I was driving an all-wheel-drive Subaru station wagon, so I felt that I could try to retrace my previous route. A new map suggested that the 1976 route is what is now called Hyattville Road; this turned out not to be the case, but the latter road has its own attractions (and distractions). Starting from Hyattville and driving east,

the land is arid with scenic red rock formations. As the elevation rises, the plants seen are sagebrush and *Eriogonum jamesii*, a good foot-tall white to greenish-flowered wild buckwheat. Several locations had meadows hosting *Lupinus argenteus* (photo, p. 19) with silvery narrow leaflets and blue flowers—too large for the small rock garden. One large area was filled with deep blue *Delphinium nuttalianum*. Sky-blue *Penstemon cyaneus* blooms in fine-textured soil resembling clay; a rich blue *Penstemon* blooms in what looks like gypsum or ground limestone. Skirting the north edge of Center Canyon and growing in what appears to be limestone are *Petrophytum caespitosum* and *Arctostaphylos uva-ursi*, the bearberry, a supposed lime hater. Perhaps the rock isn't limestone, or perhaps it contains manganese, which has been hypothesized to protect ericaceous plants from high pH. This is the only site where I found *Petrophytum caespitosum* growing on the flat. Hyattville Road crosses a bridge over a creek before joining Forest Service Road 24, which takes one south to US 16. Near the junction of Hyattville Road and FS 24 are a few large monoliths with extensive colonies of *P. caespitosum* on almost vertical faces.

US 14A

Along this highway are many stops where one can find interesting rock formations and streams with complex associations of plants, including many species of *Castilleja*. Other species to see include *Haplopappus clementis*, *Geum triflorum*, *Pedicularis cystopteridifolia*, and *Sedum lanceolatum* (p. 24).

To the Medicine Wheel

On the short road from US 14A to the Medicine Wheel parking lot is an alpine meadow containing mostly *Phlox multiflora* and *Delphinium bicolor*. *Phlox multiflora* (photo, p. 22) typically forms a hemisphere about 6 inches (15 cm) tall and 8 inches (20 cm) across, covered with $\frac{3}{4}$ -inch (2-cm) bright white flowers. *Delphinium bicolor* has a 16-inch spike of large rich blue-purple flowers above foliage less than half that height.

Medicine Wheel Mountain has two peaks. One is reserved for an FAA radar installation which helps coordinate airplane flights across the United States. The other is the site of the Medicine Wheel, a Neolithic installation by a people, now forgotten, who probably used it much as the people who built Stonehenge in England did their ritual structure: as a way to predict astronomical events. The Medicine Wheel is now regarded as a sacred site by Native Americans; many visit the site for religious ceremonies, some leaving symbolic gifts, either attached to the pole and wire fence surrounding the Medicine Wheel or in one of the cairns at the end of its spokes. Because the Forest Service is responsive to the importance of the site to Native American culture, it enforces the noncommercial character of the Medicine Wheel, which may not be visited by advertised tours.

The walk from the parking lot to the Medicine Wheel is about 2 miles (2.8 km) with both loss and gain of altitude of about 1,000 feet, never very steep on a good gravel road. On the right are great long views. On the left is a series of natural alpine-garden vignettes. Plants one may see include *Anemone parviflora*, *Angelica roseana*, *Arenaria congesta*, *Arnica rydbergii*, *Castilleja pulchella*, *Cheilanthes lanosa*, *Dodecatheon conjugens*, *Frasera speciosa* (syn. *Swertia radiata*), *Geranium viscosissimum*, *Geum triflorum*, *Hymenoxis acaulis*, *Penstemon procerus*, *Phlox multiflora*, *Potentilla fruticosa* (prostrate form), *Senecio streptanthifolius*, *Telesonix jamesii* subsp. *heucheriformis*, *Townsendia parryi*, and *Zigadenus elegans*. *Angelica roseana* is a large plant with a thick purplish-sheathed flowering stem and a broad umbel of greenish-white flowers—not one's normal rock garden plant, but truly an alpine with character. *Arenaria congesta* is a modest plant of no great beauty. *Arnica rydbergii* is a very attractive yellow composite with showy flowers on a compact plant. *Cheilanthes lanosa* is an excellent rock fern which takes well to cultivation in a half-shaded rock crevice. *Hymenoxis acaulis* here is a green-leaved form, unlike the gray-leaved forms farther west. *Townsendia parryi* (photo, p. 21) is a sensational but short-lived daisy with a 3-inch-wide (7-cm) lavender, gold-centered flower head covering its narrow, spatulate-leaved rosette; the whole plant with flower is about 1 inch (2.5 cm) tall.

Medicine Wheel Mountain was once listed as the prime place to see two of the Bighorns' special plants: *Aquilegia jonesii* (see Marcel Jouseau's article in the summer 2005 issue) and *Kelseya uniflora*. Although both are at the Medicine Wheel Mountain summit, neither is easily reached owing to both terrain and path regulations. Fortunately, both are available in abundance at our other destinations.

Duncum Mountain

The motivation to visit Duncum Mountain in 2004 was its listing as a site for *Aquilegia jonesii*. The mountain is northeast of Medicine Wheel Mountain; the radar dome is visible from the road at Duncum. At the road is an assortment of showy species of *Aster*, *Erigeron*, and *Townsendia* which I ignored on my search for *A. jonesii*. I started up the slope over very rough limestone scree until I reached the top. Where the scree thinned to chunks of around 4 inches (10 cm) grew *A. jonesii*—not many plants, but all were healthy. Other showy plants here are *Hedysarum sulphurescens* and *Frasera speciosa* (syn. *Swertia radiata*), the monument plant, an impressive monocarpic member of the gentian family, 2.5 feet (75 cm) tall in bloom. *Hedysarum sulphurescens*, a legume, is 20 inches (50 cm) tall in bloom with a spike of cream flowers; it looks like it would be invasive in the rock garden.

Hunt Mountain Road

If you have only one day to spend in the Bighorns, this is where to spend it. The first stop is 1.7 miles from US 14A, at a rock formation above the road. Plants to

see here include *Allium brevistylum*, *Clematis occidentalis* var. *tenuiloba*, *Dryas octopetala* var. *minor*, *Hymenoxis grandiflora*, *Mertensia ciliata*, *Primula parryi*, and *Telesonix jamesii* subsp. *heucheriformis*. *Allium brevistylum* is a bulb with flat, narrow leaves and a tight cluster of magenta to pink elongated bells at the top of a 10-inch (25-cm) stem. *Clematis occidentalis* var. *tenuiloba* is a creeping plant, not usually a climber, with foliage at nodes no more than 6 inches (15 cm) tall and hanging, four-sepaled lavender flowers, 3 inches (8 cm) long and wide. For those who grow the usual form of *Dryas octopetala* what is surprising about variety *minor* is not only its small leaf size, one-fourth the linear dimension of the typical species, but also the fact that the leaves are packed so tightly that they stand up vertically, forming a kind of turf. Its flowers are about two-thirds the diameter of those of the typical species. The dryas is the second of the three rose family microshrubs in the area.

Hymenoxis grandiflora, the old man of the mountain, found throughout the Rockies, grows above this rock formation in a dry area. It produces its 3-inch-wide sunflowers one to a short stem after four years of growth, and then it dies. *Mertensia ciliata* and *Primula parryi* form a lush colony at the base of a wall of rock. That formation acts as a natural retaining wall for the soil on the other side; the difference in height of soil between the two sides gives rise to springs which feed both the mertensia and the primula.

The second stop is 3.9 miles from US 14A. Here is the largest population of *Aquilegia jonesii* I have encountered. The healthiest plants are growing in a jumbled mulch of limestone pieces 1–5 inches in diameter, similar to what I saw on Duncum Mountain. A typical healthy plant is about 6 inches wide and 3 inches high (15 by 7 cm), with its flower stems about 5 inches tall. In two years of visiting in the last week of July I saw just one of its beautiful blue flowers; all the others had finished earlier. The plants out of flower are decorative, though; the leaves wrap around their stems forming a blue ruffle, and the purplish seed pods, held vertically, are ornamental too. Other plants here are *Eritrichium elongatum* (or perhaps *E. nanum*), *Lesquerella alpina*, and *Senecio canus*. *Lesquerella alpina* has narrow, spatulate, inrolled furry gray foliage in a rosette, surrounded by short flower stems at the ends of which are clusters of pure yellow half-inch crucifer flowers, four to ten per cluster. *Senecio canus* here has gray foliage.

The final destination is 4.2 miles from US 14A at Hunt Mountain Cliffs. Before reaching the cliffs you cross a rich alpine meadow with many species. Outstanding are *Aster meritus* (p. 21), *Astragalus kentrophyta*, *Phlox multiflora*, and *Penstemon procerus*. *Aster meritus* has large, many-rayed flowers on short stems, and narrow foliage. *Astragalus kentrophyta* (photo, p. 22) is an absolutely prostrate plant, no more than an inch tall, with tiny divided leaves and quarter-inch lavender pea flowers. *Penstemon procerus* (p. 19) is a truly alpine penstemon with a cluster of relatively small, long-tubular deep blue flowers in scale with the rest of the plant.

The Hunt Mountain Cliffs form a series of vertical folds, much like the sinuoidal folds on window draperies but on a much grander scale. The cliffs' height is estimated at over 100 feet (30 m). Each fold extends laterally around 150 feet (45 m)—what a physicist would call their “wavelength.” The depth of each fold

(physicist's amplitude times 2) is about 40 feet (13 m), although the depth of the first fold is much greater. Opposite the cliffs are various monoliths, some quite large, one of which looks like a 20-foot-tall turban (photo, p. 22). Almost all host plants.

At the inner end of one of the farthest folds is the remnant of last winter's snow, feeding snowmelt plants. Closest to the snow is *Ranunculus eschscholtzii*, a gem with shiny yellow flowers that are very large for the size of the plant. Next away from the snow is *Dodecatheon conjugens*, the tiniest of the shooting stars: the whole plant could fit under a half-dollar coin and bears a single flowering stalk—a subject for a micro-trough (photo, p. 22).

In the shady horizontal crevices you will find dense colonies of *Telesonix jamesii* subsp. *heucheriformis*, the alkaline-tolerant subspecies, with purplish-red flower spikes (photo, p. 18). A number of good alpinists find holes and crevices in which to take root.

Despite the riches already described, one plant would be reason enough to visit the Bighorns: *Kelseya uniflora*, the last of our three rose family microshrubs (photo, p. 20). As with the others, its shrubby nature is not easily discerned; a plant looks like an interesting humped growth of moss. Only when we look at an ancient plant which has experienced dieback can we see the woody branches. *Kelseya uniflora* was once thought to exist at only four widely separated sites in three states. It is now known from a few more sites, yet it is likely that most of its plants are here on the vertical walls of these cliffs and on the monoliths facing them. *Kelseya* grows on the sunny south-facing walls, sometimes in crevices, most often where it seems unlikely that a seed could ever have lodged. At the end of July the plants are not yet in flower, although buds are visible. Sites at lower elevations produce their flowers much earlier.

Can We Grow Them?

The Bighorns are relatively dry, compared to many of the other Rocky Mountain ranges. The top layer of rocks is called "Bighorns Dolomite." The area would probably be categorized as USDA zone 4 at lower elevations, and colder though with better snow cover at the 10,000-foot elevation of Hunt Mountain. This combination of factors makes it likely that Bighorns plants could succeed in many gardens in the northeastern United States and Canada, and in cold continental climates of Europe.

Iza Goroff (newcastle@idcnet.com) has been gardening since the age of four and has been a member of NARGS since 1969. Until recently he was the editor and primary author of the NARGS website's "Plant of the Month" feature. He has been the chairperson of the Wisconsin-Illinois Chapter for a year or two in each of the past four decades, and he has just completed his second three-year term on the NARGS Board of Directors. He received the Society's Award of Merit in 2005.

The International Interim Rock Garden Plant Conference

*“Plants of the Western Cordilleras:
Alpines in All Directions”*

Joyce Fingerut

This very special and exciting event warrants a new format for our meeting, which will be held Friday, July 21 through Wednesday, July 26, 2006. We are planning a lecture series, to be followed by a three-day field trip to your choice of destinations. The initial presentations will all take place at Snowbird Ski and Summer Resort, in the Little Cottonwood Canyon of the Wasatch Mountains, east of Salt Lake City.

The meetings will open at noon on the Friday, with Registration and our Sales Rooms: you will be able to shop for books, art, crafts, seeds . . . but no plants, not just yet. We are intentionally holding the Plant Sales at the end of the Conference, so that there will be no problems with cossetting plants over the three days you are in the field.

The series of eye-opening, mind-expanding lectures will explore the geology and flora (some of it endemic) of the five areas to be visited on the field trips. These lectures will be interspersed with a little free time to wander the mountainside immediately surrounding Snowbird, and help you acclimate to the elevation (8,000 feet). You will hear some of the best and most knowledgeable speakers covering the flora and geology of the area:

- Loraine Yeatts: “Western Alpines: Life on the Tundra”
- William Parry: “The Geology of the Western Cordilleras”

There will be three presentations on important genera of the region:

- Noel Holmgren: “Penstemon”
- James Reveal: “Eriogonum”
- Sean Hogan: “Lewisia and Their Associates”

We will cover other plants according to areas:

- Elizabeth Neese: Southern Utah
- Richard Hildreth: Snowy Range
- William Gray: Wasatch Mountains

- Stuart Winchester: Ruby Mountains
- Noel Holmgren: Teton Mountains

And we couldn't do without some good advice on growing the western alpinists:

- Rick Lupp: "Growing and Propagating Western Alpines: How I do it over here"
- Graham Nicholls: "Growing and Propagating Western Alpines: How I do it over there"

Following the Sunday morning lectures, all will begin their adventures in the field, leaving for one of the following areas (to be selected on the enclosed Registration Form):

- Ruby Mountains, eastern Nevada
- Cliff Breaks and Tushar Mountains, southern Utah
- Teton Mountains, western Wyoming
- Logan Canyon, northern Utah
- Snowy Mountains, southern Wyoming
- Wasatch Mountains, northern Utah (based at Snowbird)

Evenings at all the field sites will offer optional informal sessions with the field botanists, for those who would like to confirm plant identifications, ask questions and share plant lists.

On the final day of the field trips, Wednesday, July 26, everyone will head back to Snowbird for the wild and woolly plant sale. The closing banquet will feature, instead of a lecture, scenes of the people, places, and plants from all five field trips—thanks to the wonders of digital photography. Then, back to the plant sale to find that final souvenir of this memorable conference.

The post-conference tour will begin Thursday morning, July 27, departing Snowbird and traveling for six days and five nights through Wyoming, with a focus on the Bighorn Mountains. That itinerary, and a description of the plants you'll encounter, is covered by Iza Goroff's article in this issue. The tour will finish in Salt Lake City.

The costs for this learning vacation have been pared to a minimum, and we believe that they are quite reasonable for such a six-day holiday. The registration fee of \$850 US will cover:

- All events and meals for the lecture series at Snowbird
- All transportation, lodging and meals on the field trips
- Closing banquet at Snowbird

Registration will be handled (and further questions gladly answered) by Joyce Fingerut, 537 Taugwonk Road, Stonington, CT, 06378-1805, USA; phone 860-535-3067; e-mail alpinegarden@comcast.net.

The room rates at Snowbird have been negotiated at the reasonable prices of \$105 (the Cliff Lodge) or \$130 (the Lodge at Snowbird) per night, per room. There are also several configurations of larger rooms and suites in both buildings

that can be shared by friends and/or family, which would further reduce the nightly cost of lodging (see Snowbird website). Reservations should be made directly with Snowbird either online (<http://www.snowbird.com/>) or by telephone: 1-800-232-9542. There is an added charge of \$150 for those requiring single rooms during the field trips.

Salt Lake City International Airport is a Delta Airlines hub and is also served by Air France, America West, American, Atlantic Southeast, British Airways, Canadian, Continental, Frontier, JetBlue, Northwest, Salmon, Shuttle America, SkyWest, Southwest and United airlines.

Snowbird Ski and Summer Resort is only 29 miles from the airport, a 45-minute ride past Salt Lake City. Ground transportation is provided by several locally run shuttles from the airport to Snowbird. Canyon Transportation allows you to reserve a shuttle at the same time as you make your Snowbird reservation. Other transport companies include

- All Resort Express, 800-457-9457 www.allresort.com
- Express Shuttle 800-397-0773 www.xpressshuttle.com/salt_lake_city.htm
- Wasatch Mountain Service, 801-295-4666 www.wasatchmountainservice.com

For more information, check the following websites:

NARGS: <http://www.nargs.org/IIRGPC.html>

Snowbird: <http://www.snowbird.com/>

We hope to see you at this magnificent event!

Alpines in All Directions: The Field Trips

William H. King

Salt Lake City is situated at about 4500 feet/1385 m above sea level, on the *Secotone* (environmental transition zone) between the Great Basin high desert and mountain ranges to the west, and the Rocky Mountains to the east. The theme for the International Interim Rock Garden Plant Conference, July 21 through July 26, 2006 is "Alpines in All Directions." The conference will be held at Snowbird Ski and Summer Resort, at 8600 feet/2650 m in the mountains just east of Salt Lake. Participants get to choose one of five different field trips, each lasting three days. This article outlines some of the features of each field trip (Joyce Fingerut's article in this issue gives other details of the meeting). Participants from all five field trips will meet back at Snowbird for the final day of the conference and compare notes and pictures of all of the wonderful plants and great experiences each had.

1. Wasatch Mountains

The Wasatch Range, just east of Salt Lake City, runs north-south and is approximately 160 miles/256 km long and 25 miles/40 km wide, extending from the Idaho border at the north to Mount Nebo in the south. Mount Nebo is the highest summit at 11,928 feet/3670 m. All hikes will be within an hour-and-a-half bus ride from the conference headquarters at Snowbird. The Wasatch Mountains are characterized by recent uplifting, complex folding of the strata, and rapid erosion. Most of the higher peaks are composed of intrusive rock, such as the granite found in Little Cottonwood Canyon. Sedimentary rock surrounds many of the higher peaks. More than 30 glaciers carved many of the canyons into the characteristic U shape and left steep-walled cirques at the heads of the canyons. Moraines were deposited along the edges of the canyons and the ends of the glaciers. Precipitation comes mostly in the form of winter snow. Alta and Snowbird average nearly 500 inches/12.8 m of snow a year; in 1994-1995, both received 700 inches.

The central Wasatch Range abounds in wonderful wildflowers, such as *Mertensia ciliata*, *Zigadenus elegans*, *Penstemon humilis*, *Pedicularis groenlandica*, *Linum*

lewisii, and *Ipomopsis aggregata*. The Wasatch crest also contains many endemic, rare species such as *Aster kingii*, *Erigeron garrettii*, and *Ivesia utahensis*.

2. Ruby Mountains

The Ruby Mountains lie 20 miles/32 km southeast of Elko, Nevada, 259 miles/411 km from Salt Lake City, about 5 hours by bus. The range runs north-south and is approximately 100 miles/160 km long and 10 miles/16 km wide, rising 6000 feet/1824 m from the Great Basin desert below. The highest peak is Ruby Dome (11,387 feet/3462 m). The northern Ruby Range is composed of metamorphic rocks, including gneiss, slate, marble, and quartzite. Most of the major canyons were glaciated, and glacier-formed lakes are abundant. The Rubies are one of the wettest mountain ranges in the Great Basin, receiving over 45 inches/113 cm of moisture annually at the highest points of the northern part, of which 80% is snow at the upper elevations.

The Rubies contain more than 550 species of vascular plants, of which 189 grow up to alpine elevations, making this the richest in alpine flora of all the Great Basin ranges. The plant communities of the northern Rubies are grouped into three major zones: pinyon-juniper, mountain brush, and alpine-subalpine. (For a detailed account, see "Montane Islands in a Desert Sea" by Theodore S. Cochrane, in the spring 2002 issue of the *Rock Garden Quarterly*.)

We will hike Lamoille Canyon to Liberty Pass, a moderate walk of approximately 6 miles/10 km round trip. The well-developed trail begins at 8400 feet/2560 m and goes through meadows and past lakes, climaxing with a fairly steep final mile to Liberty Pass at 10,400 feet/3170 m. While passing through the meadow, watch for *Castilleja chromosa*, *C. miniata*, *C. linariifolia*, *Aquilegia formosa*, *Erigeron asperugineus*, *E. watsonii*, and *Lonicera involucrata*. As the trail climbs out of the meadow onto the rocky slopes, *Primula parryi* is in abundance until just after Lamoille Lake. As the trail gets steeper, the alpine communities begin to appear and offer such species as *Silene acaulis*, *Phlox pulvinata*, *Geum rossii*, *Eriogonum kingii*, and *Potentilla fruticosa*.

3. Teton Range, Wyoming, and Bear River Range, Utah

The Teton Range, just north of Jackson, Wyoming, is approximately 40 miles/64 km long and 15 miles/24 km wide and parallels the Idaho/Wyoming border. The range runs north-south and is 262 miles/419 km from Salt Lake City, 6 hours by bus. The tallest peak is the Grand Teton at 13,770 feet/4197 m, more than 7500 feet/2286 m higher than the valley floor. The Tetons are one of the youngest mountain ranges in the West, and consequently the most rugged. The peaks around the Grand Teton are composed mostly of granites, schist, and gneisses, while the peaks to the south, near Rendezvous Peak, are mostly sedimentary—

limestone and dolomite. All the peaks have been heavily glaciated, and remnants of 12 glaciers are extant. Because of this, there are many high-elevation lakes. The Teton Range contains more than 1,000 species of plants, of which 216 grow above 9500 feet/2896 m. Annual precipitation above treeline exceeds 40 inches/100 cm. Because of the great elevation change from the valley floor to the top of the mountains and the lack of road access, it is difficult to get into the alpine area on a day-hike basis. Therefore, we will take the tram from Teton Village to the top of Rendezvous Mountain, (10,450 feet/3185 m), if the tram is running; otherwise we will hike from Teton Pass road. The interpretive trail at the top of the tram crosses meadows, talus slopes, and an occasional snow patch and enters a small cirque. Flowers you might expect to see along the trail include *Linum lewisii*, *Phacelia sericea*, *Castilleja sulphurea*, *Aquilegia flavescens*, and *Phlox pulvinata*.

The Bear River Range is located 12 miles/19 km east of Logan, Utah, where we will stop on the way back from the Tetons. The range runs north-south and is approximately 90 miles/144 km long and 14 miles/22 km wide, with the northern part of the range extending into Idaho. The Bear River Range might be considered, in a broad sense, to be an extension of the Wasatch Range. The tallest peak is Mount Naomi at 9980 feet/3042 m. The highest summits in the range are limestone, and as a consequence, many special plants can be found there. The Bear River Range receives over 450 inches/1125 cm of snow a year and is 110 miles/176 km from Salt Lake City, 2 hours by bus.

The hike from Tony Grove Lake (8200 feet/2500 m) to Mount Naomi is moderately strenuous, 6 miles/10 km roundtrip, with about 1800 feet/550 m elevation gain. This well-traveled trail leads through meadows of subalpine wildflowers and then switchbacks up to the top of Naomi Peak. Special plants to look for in the Bear River Range include *Draba maguirei*, *Telesonix jamesii*, *Lesquerella multiceps*, *Erigeron cronquistii*, *Musineon lineare*, and *Penstemon compactus* (just north of Tony Grove Lake on the rocks).

4. Snowy Range and Medicine Bow Mountains

The Snowy Range lies 40 miles/64 km south of Laramie, Wyoming and is 379 miles/606 km east of Salt Lake City, about 7 hours by bus, almost all via interstate highway. This range rises spectacularly out of the Laramie plains and is a jewel, with many glacier-carved lake basins and light-colored granite and quartzite cliff faces. Some of the cliffs are clothed in snow year round, hence its name. The highest mountain in the range is Medicine Bow Peak at just over 12,000 feet/3658 m, but one can get out of the bus at Libby Pass (10,800 feet/3292 m) and see many alpine plants, including *Eritrichium nanum* var. *elongatum*, *Silene acaulis*, and *Kalmia microphylla*. There are more than 300 vascular plant species above 9500 feet/2896 m. Besides the wonderful bus botanizing, two additional moderate hikes are planned to the Snowy Crest at about 11,500 feet/3505 m and to a large glacial basin at about 11,000 feet/3353 m, both providing spectacular vistas.

5. Cedar Breaks National Monument and Markagunt Plateau

The Markagunt Plateau lies about 20 miles/32 km east of Cedar City, Utah, 250 miles/400 km from Salt Lake City, 5 hours by bus. The plateau is approximately 20 miles/32 km wide by 40 miles/64 km long, with the entire center of the plateau being over 10,000 feet/3048 m elevation. The highest point of the Markagunt Plateau is Brian Head Peak (11,315 feet/3449 m). It represents volcanic activity that occurred about 30 million years ago. The southern part of the plateau is now Cedar Breaks National Monument, the main attraction of which is a giant, naturally carved amphitheater some 3 miles/5 km across and more than 2000 feet/610 m deep. Brian Head Ski Resort, just to the north, receives 400 inches/1000 cm of snow a year. "Markagunt" is an Indian name meaning "highland of trees." The Spectra Point hike (highly exposed—do not pursue the plants over the edge!) is moderate and 2 miles/3 km round trip on an improved trail along the edge of the amphitheater to a lookout point, with a vertical gain of 100 feet/30 m. The trail also passes through a stand of ancient bristlecone pines (*Pinus longaeva*). The unique feature of this hike is that you are viewing an inverted treeline: krummholz descends a short distance into the dry Claron Limestone below the rim of the amphitheater. Many small cushion plants grow on the limestone. This unusual circumstance is caused by localized cold temperatures and wind. We may extend this hike an additional 2 miles round trip to the Ramparts Overlook, but the first part is the more interesting.

Special plants to look for in the Markagunt Plateau: *Arenaria kingii* var. *plateauensis*, *Castilleja parvula* var. *revelii*, *Cymopterus minimus*, *Draba subalpina*, *Eriogonum pangucense* var. *alpestre*, *Haplopappus zionis*, and *Silene petersonii*.

William H. King of Salt Lake City, Utah, is the current president of NARGS and has been a principal organizer of the 2006 international conference.



Above: Yoko Arakawa received the grand prize and first place in Class 2 in the 2005 Photo Contest for this view of *Caltha leptosepala* beside a lake on Mount Evans, Colorado. Photo contest results appear on p. 52. Below: Jim McClements earned first place in Class 3 for his photo of *Galanthus nivalis* 'S. Arnott' emerging in his woodland garden.





Limestone cliffs in the Bighorns (p. 3) rare alpines in their crevices. (Photos, Iza Goroff)

Telesonix jamesii subsp. *heucherifolia* (p. 9) in the Bighorns.





Castilleja rhexifolia (p. 4) with *Geranium* and *Delphinium* in a Bighorns meadow. (I. Goroff)

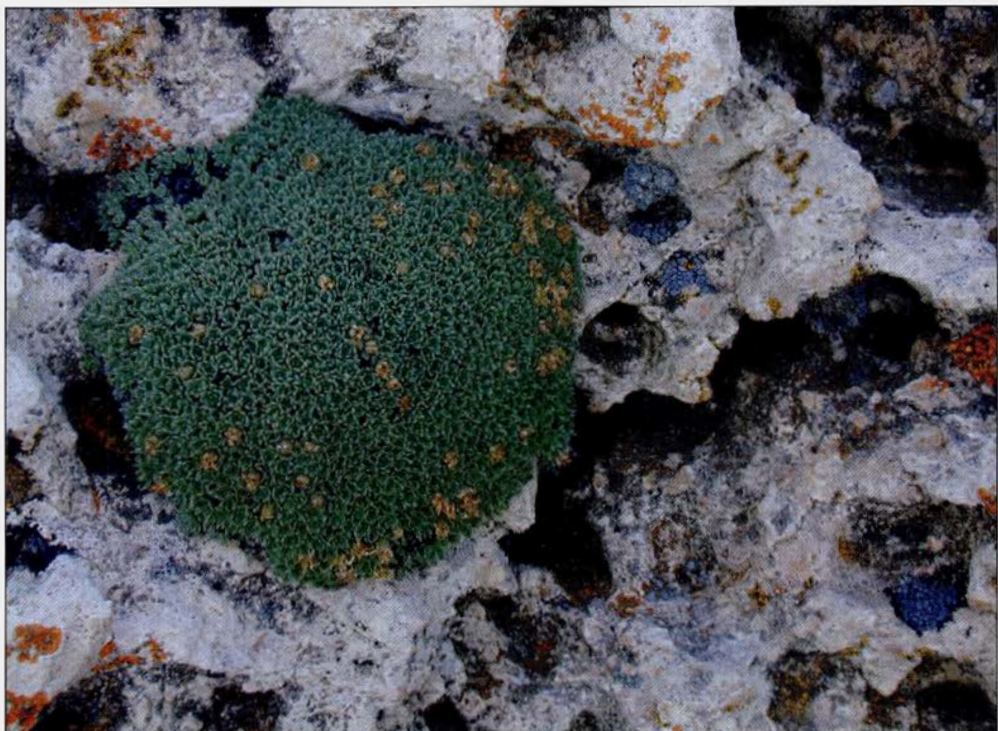
Penstemon procerus (below left, p. 8) is a typical plant of rocky meadows, and *Lupinus argenteus* (below right, p. 6) adds a silver note.





Turban Rock in the Bighorns.

Kelseya uniflora, a famous plant endemic to the Bighorn cliffs (below, p. 9). (I. Goroff)





Some composites of the Bighorns: above left, *Aster meritus* (p. 8); above right, *Erigeron peregrinus*; below left, *Townsendia alpigena*; below right, *Townsendia parryi* (p. 7). (I. Goroff)





Phlox multiflora is a common cushion species in the Bighorns (p. 6). (I. Goroff)

Astragalus kentrophyta (below left, p. 8); the minute species *Dodecatheon conjugens* (below right, p. 9)





A Bighorns meadow with *Erigeron formosissimus* and *Geranium viscosissimum*. (I. Goroff)

Penstemon subalpinus (left) and *Ranunculus eschscholtzii* (right) brighten the Bighorns.





Geum triflorum and the emerging rosette of *Veratrum viride* offer subtle beauty in the Bighorns. (I. Goroff)

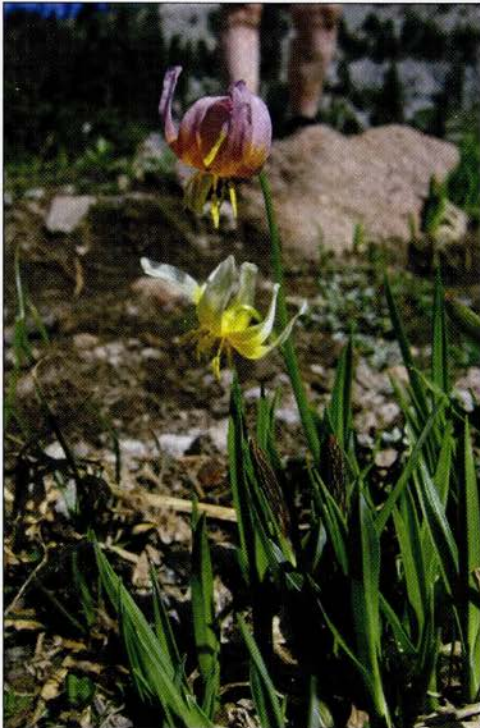
Tiny *Sedum lanceolatum* (p. 6) in lichen-encrusted rock.





Lassen Volcanic National Park (p. 33), with *Monardella odoratissima*. (Photos, David Dobak)

Left, *Erythronium purpurascens* (p. 34) showing the color change that inspired its name; right, *Calochortus leichtlinii* (p. 35) flower and seed capsule.





The brilliant *Lilium pardalinum* (p. 35) favors moist areas, as here in Lassen Park. (D. Dobak)

Cycladenia humilis (below left, p. 33) and *Mimulus primuloides* (below right) are two tiny plants in the Lassen area, the former in volcanic cinders and the latter in wet areas.





Penstemon newberryi (p. 35) in Lassen Park is closely related to *P. rupicola* but deeper in color. (D. Dobak)

Penstemon gracilentus (p. 34) and *Lupinus obtusilobus* (p. 33), taller plants of the Lassen area.





Phyllodoce breweri and the slopes of Lassen Volcanic National Park (p. 34). (D. Dobak)

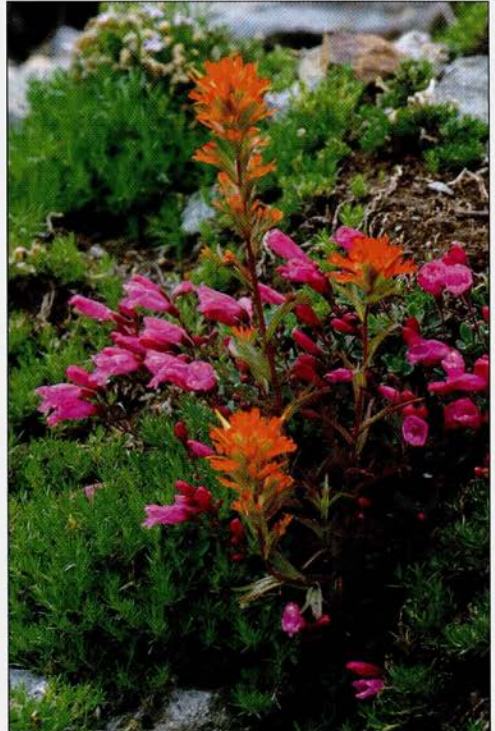
The Lassen screes host this *Streptanthus* species (Brassicaceae) with attractive foliage, and the minute *Allium parvum*.





A first-year trial planting of *Penstemon* and *Castilleja* pairs (p. 40). Left to right:
P. serrulatus and *P. eatonii* with *C. integra*, *P. strictus* with *C. haydenii*. (Photos, Dave Nelson)

Paintbrushes and their penstemon hosts in the wild: left, *P. serrulatus* and *C. minuata* on Mt. Rainier, Washington; right, *P. rupicola* and *C. hispida* amid *Phlox diffusa* on nearby Chinook Pass.





Alan Petersen received first prize in Class 1 of the 2005 Photo Contest for this image of *Townsendia incana* (p. 57) in Capitol Reef National Park, Utah.

Ranunculus alpestris in its typical form (left) and a double form found by David Sellars (right, p. 60). (D. Sellars)

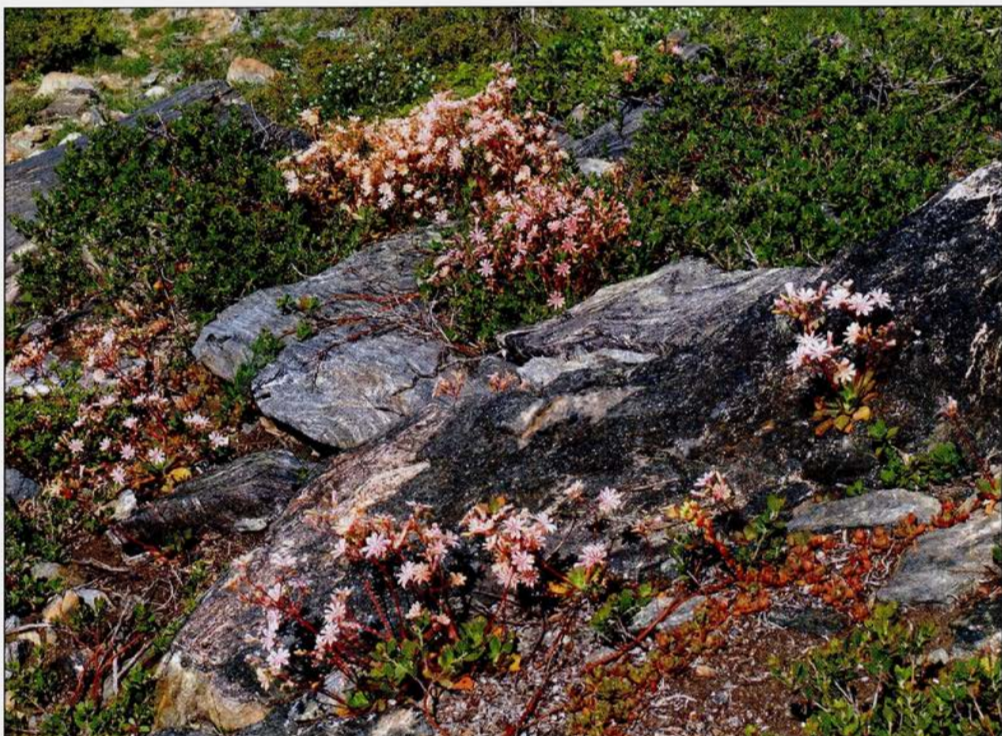




Those who attended the 2005 NARGS Annual Meeting visited the Memorial University Botanic Garden, where Doris Taggart took this photo, second-place winner in Class 4 of the Photo Contest. Thanks to the hard-working Newfoundland Chapter for the memories!



The perception of beauty in plants and settings is wide, from *Iris setosa* on the fogbound Newfoundland coast, photographed by Todd Boland (honorable mention, class 2), to *Lewisia cotyledon* in the sun-baked Siskiyou Mountains, by Jack Muzatko (HM, class 2).



Plants of Lassen Volcanic National Park

David Dobak

Lassen Volcanic National Park in northern California was established in 1916, following an eruption of Lassen Peak in 1915. For most park visitors geology is the prime attraction, but it's a very good plant area, too. Lassen Peak is the southernmost of the recently formed Cascade volcanoes, and the park's flora combines plants from the Cascades, the Sierra Nevada of eastern California, and the Great Basin. A visit my wife, Jan, and I made there in early August of 2005 was very productive; July is also a good time to see the high country. The lower elevations beg to be visited in spring.

The definitive flora for the area is *The Jepson Manual*. A more practical key (but with neither illustrations nor full descriptions) is *A Flora of Lassen Volcanic National Park, California* by G. W. Gillett et al., in the 1995 revision by Oswald and Showers. *A Field Guide to the Flowers of Lassen Volcanic National Park*, by Mary Ann Showers and David Showers, contains line drawings and brief descriptions of common species. Both are sold at the visitor center in the park.

This time, we approached the park from the southeast, so our first day's activity was a hike up Mount Harkness, starting at Juniper Lake. Access to the southeastern corner of the park is by a gravel road, passable with care in any passenger car. The trail begins at the Juniper Lake campground and ascends about 1300 feet (400 m) in 1.5 miles (2.4 km) to the 8045-foot (2450-m) summit.

Thin forest at the bottom gives way to meadows for most of the distance. Large expanses of the mountainside are covered with a monoculture of *Lupinus obtusilobus* (photo, p. 27). This low (12 inches/30 cm) plant has soft stems and silvery hairy leaves. The sight was impressive even with the plants only in bud in early August. Later in our visit we saw a few plants in flower, giving a hint of the beauty of these meadows in late summer.

The guidebook's description of this trail caught our interest with a mention that *Cycladenia humilis* (p. 26) flowers at the summit in July. "You should have seen it two weeks ago," said the fire lookout. This plant is restricted to a plot the size of a small city lot, but there it is abundant. This member of the Apocynaceae grows only 12 inches (30 cm) tall, straggling along the ground. When neither flowers nor fruit are present, one might casually mistake it for *Polygonum davisiae*,

which is common in sandy areas throughout the park. But *Cycladenia*'s magenta trumpet-shaped flowers are brilliant, and the long curled pods, always occurring in pairs, are unmistakable. Seeds are available commercially, and *The Jepson Manual*'s cultivation advice is "TRY." *Galium grayanum* grew among the *Cycladenia*, and we found *Orobancha pinorum* parasitic on the shrub *Holodiscus microphyllus*.

As we ate lunch at the summit, we noticed that thousands of California tortoiseshell butterflies were migrating across the hilltop. We contemplated the view toward Cinder Cone, Painted Dunes, and the Fantastic Lava Beds in the northeast corner of the park and wondered what plants might be found there in spring.

We descended the west side of the mountain in forest dominated by red fir (*Abies magnifica*), a tree distinctive for its rigid 60°-angled branching pattern. Viewed against the sky, the branches form patterns reminiscent of snowflakes. *Penstemon gracilentus* (p. 27) was common in the forest. Juniper Lake is Maxfield Parrish blue, and before following the trail along the south shore back to the campground, we watched a kingfisher fly among the trees.

Our base for the next two days was a motel in the town of Mineral, near the southwest entrance of the park. The main park road, about 35 miles (56 km) long and all paved, traverses the flanks of Lassen Peak in the west end of the park. We occupied a full day without straying far from the road.

The southwest entrance is at 6600 feet (2000 m) elevation. Open slopes and meadows alongside the road were covered with two species of yellow sunflowers that are near lookalikes: *Wyethia mollis* (leaves cauline, on the stem) and *Balsamorhiza sagittata* (leaves basal). The former is noted for a distinctive tobacco-like odor that is evident even as one drives past.

Emerald Lake is a charming little pond, and the meadow on the opposite side of the road, where snow tends to linger, is not to be missed. There we found a few late flowers of *Erythronium purpurascens* (p. 25). The Ericaceae (heaths) were represented by rose-pink *Kalmia polifolia*, white *Cassiope mertensiana*, and *Phyllodoce breweri* (p. 28), a pink "heather" with wide-open flowers. Even in August, *Dodecatheon alpinum* was still in flower on the lakeshore.

The Lassen Peak trailhead, at 8500 feet (2600 m), is the highest point on the road. The trail to the summit climbs the south side of the cone, in full sun. We chose to defer this experience to another time, perhaps earlier in the season. We are told that the white-flowered *Polemonium pulcherrimum* var. *pilosum* can be found at the summit, along with the endemic variety *congesta* of *Smelowskia ovalis*. The latter is said to have a cage placed around it for protection! We also heard that the 3.7-mile (6-km) trail up Brokeoff Mountain, in the southwest corner of the park, would be more botanically productive.

The road descends first steeply, then gradually around the east and north sides of Lassen Peak and the Chaos Crag, traversing the Devastated Area and the dwarf forest of the Chaos Jumbles and eventually reaching the northwest entrance near Manzanita Lake at 5850 feet (1780 m) elevation. A short nature trail near Manzanita Lake led us through a forest where a controlled burn had been conducted in June. We noted dozens of *Sarcodes sanguinea*, the saprophytic

“snow plant,” that had burned to a crisp at the moment of their flowering. Fortunately, in unburned areas we later saw many plants successfully bearing fruit. Mostly we notice this plant when it is in flower, its rich crimson contrasting with the dull brown coniferous duff in which it grows. The fruits are globes the size of cherry tomatoes and about the same color, though the vegetative parts of the plant have faded to a dull maroon by that time.

We stopped along the road to admire a clump of *Sarcodes* and then noticed across the road a rocky hillside with *Chamaebatiaria millefolium*. This rosaceous shrub has large inflorescences of small white flowers and might be disregarded as just another *Ceanothus* or *Holodiscus*, but a closer look at the leaves reveals why its common name is “fern bush.” The leaves are dissected into a lovely pattern. Several nurseries in the West list this plant and also recommend *Chamaebatiaria foliosa*, a plant with similar leaves and flowers but of groundcover stature. Growing here in partial shade, the shrubs were rather leggy, but we have seen photographs of plants growing in full sun with dense branching and lush foliage.

Hat Lake is a beaver dam impoundment. It is mentioned in older guidebooks, and another park visitor we met at the lake said that a dozen years ago it was just a meadow, the beaver dam having broken. But the beavers have been busy, and it is now a lake again. *Ranunculus aquatilis* was growing in the outlet stream, and nearby was *Sphenosciadium capitellatum*, a tall umbellifer with spherical secondary umbels of tiny white flowers, inspiring the common name “ranger’s buttons.” A brightly colored western tanager flew by as we looked. Guidebooks recommend the Hat Creek trail to Paradise Meadows for flowers, but a ranger-naturalist we spoke with felt it unworthy of attention; we will investigate on a future visit.

We returned to the park the next day for serious hiking. One of the most popular trails leads to Kings Creek Falls. It begins by traversing meadows and then descends, steeply at times, through a narrow canyon carved by the creek. We found the “owl clover” *Orthocarpus cuspidatus* and *Lilium pardalinum* (p. 26) in the meadow. On the rocky outcrops were chinquapin (*Chrysolepis*, syn. *Castanopsis sempervirens*) and *Penstemon newberryi* (p. 27). Both *Calochortus leichtlinii* (p. 25) and *C. nudus* grew here and there. The former has bright white petals with hairy yellow glands topped by maroon spots. The latter’s petals are pale purple with darker purple glands; the anthers are blue. The slender annual *Mimulus breweri* was scattered on the sandy flats, and lots of *M. lewisii* grew at the streamside.

A short side excursion to Bench Lake led us to *Ledum glandulosum* and to *Lupinus obtusilobus* in flower. We returned to the trailhead too early to quit for the day, so off we went toward Cold Boiling Lake. It was not long before we found *Mimulus jepsonii* growing on sandy flats. This tiny annual is a true “belly flower,” with a corolla about 1 cm ($\frac{3}{8}$ inch) in diameter, and stems shorter than that. A “three-purple-mimulus day” is a rare event! But not willing to settle for that, we searched for, and found, the tiny *Dicentra uniflora* in flower nearby.

This is a park that most visitors dash through. “We have only two days,” we said to the ranger at the information station. “Well, that’s great! Most visitors have only two hours!” she replied. It is well worth savoring, and we will return to savor more.

David Dobak of Portland, Oregon, is a longtime enthusiast of native plants in the American West and beyond. He and Jan are active members of the Columbia-Willamette NARGS chapter.

Sources

The following offer seeds of the region, including the unusual *Cycladenia humilis*:
Northwest Native Seed, Ron Ratko, 17595 Vierra Canyon Rd. #172, Prunedale, CA;
oreonana@mbay.net

Sierra Seed Supply, 358 Williams Valley Rd., Greenville, CA 95947;
sierraseed@frontiernet.net



Picea breweriana, drawing by Baldassare Mineo.

An Annual Review

Mike Saganich

Once while touring the excellent garden of a charming pair of rock gardeners, I happened to glance at a tray that contained a healthy batch of *Salvia coccinea* seedlings. The distaff member of the couple followed my gaze and, by way of explanation, said, “We grow some plants for other people.”

Ouch! Embarrassed at having given the wrong impression, I made it a point to ask about their cultivation regimen in order to show that I was not really appalled that the tray didn't contain androsaces.

Of course, the gardener had nothing to apologize for, and today the idea of being taken for a plant snob makes me smile. I have found that, by and large, dyed-in-the-wool plant snobs are like members of secret societies: We've heard that they're out there, we think perhaps our neighbor may be one, but more often than not the arcane symbol scratched on the doorpost was made when the sofa was carried in.

All of this is by way of saying that—while I'm sure few of us are bringing home six-packs of 'Safari Orange' marigolds to plant among the edelweiss—there are indeed places in the rock and woodland garden where annuals can fit, and annuals with sufficient grace, refinement, or audacity to fit in them. What follows is a list of some that I have grown and enjoyed over the past several years.

Asperula orientalis (syn *A. azurea*) is a plant whose seed is not too difficult to find in catalogs (sometimes in the herb section), but it never seems to appear in people's gardens. Pity, because the brush-like light purple (“blue” to some) flowers appear over whorled leaves on delicate plants, usually 6–12 inches (15–30 cm) high, which enjoy shady situations. It's supposed to be very fragrant, but my nose only detects the subtlest of scents.

Bulbine annua is an oddity indeed: a monocarpic lily family member with a fibrous root system. The family resemblance is obvious above ground, though. Out of bloom, the plant is a dead ringer for chives (*Allium schoenoprasum*), but then it sends up slender racemes of starry yellow flowers rather like those of *Hypoxis hirsuta*. These, carried on stems about 1 foot (30 cm) tall, close by evening, but the plants bloom over a long period: a nice combination of ruggedness and refinement.

The bad news: *Calceolaria mexicana* is not the slipper flower you've dreamed of growing. The good news: you can grow it. The slippers here are golden yellow and shrunken to about ½ inch (1 cm) on a plant to 14 inches (35 cm) tall or a bit more. Plants given shade and reasonable moisture will branch well and bear flowers scattered singly among the branches, twinkling like fairy lanterns in the leafy twilight. Some gardeners complain about self-sowing, but seedlings are easily twitched out wherever you don't want them.

Collomia grandiflora, from the western United States and Canada, can reach 2–3 feet (60–90 cm) high, with flat clusters of star-shaped flowers that would be showier if more of them opened at once. It's not for the alpine garden, but if you are growing some larger dryland plants it will look right at home and the color (you could call it peach, salmon-pink, or terra cotta) is one you probably don't have otherwise.

Dracocephalum moldavicum bears violet flowers on a plant about 1 foot (30 cm) high, rather like catmint (*Nepeta*) in miniature. Here's a dragon's-head that you don't have to wait a year to see in bloom.

Galeopsis angustifolia belongs to a group called hemp nettles, most of which have flowers that are fairly small for the size of the plants, and few people bother growing these mint family members. *Galeopsis angustifolia* is shorter than some at about 15 inches (37 cm), which makes the whorls of pink ½-inch (1-cm) flowers look reasonably proportionate, and well-grown specimens bear many of them. This is a field flower that I'm happy to have in my garden. The seeds need cold to germinate.

Heliophila longifolia, a wiry, semi-trailing little crucifer, lives up to its common name, "sun lover": the flowers open in sun and close in shade. However, the plant could just as well be called "sky lover," because those ⅜-inch (1-cm) flowers are the same clear yet dark blue found in the depths of the summer sky.

Incarvillea sinensis is a bit more substantial and a bit more serious about trailing than *Heliophila*, but still no great threat to its bedmates. Prettily toothed leaves and 1-inch (2.5-cm) tubular pink flowers should earn it a welcome in a sunny spot. The strain called 'Cheron' flowers in white.

Linanthus grandiflorus answers the question: What if some of our wonderful white Western phloxes flowered the year they were sown, making wispy plants with whorled leaves to about 15 inches (37 cm) high? Why, they'd be *Linanthus grandiflorus*.

Loeseliastrum matthewsii ("desert calico") is an annual that no one could sniff at. A dryland member of the Polemoniaceae, it reaches about 3 inches (8 cm) tall, bearing flowers with clearly separated petals that combine a white background color with a wash of light pink around the rim and dark pink stippling—choice enough for a trough.

Nolana humifusa, whose species name means "ground-covering," does indeed trail, though not uncontrollably. The light purple, ¾-inch (2-cm) funnel-form flowers, streaked with darker purple in the center, remind me of some forms of *Streptocarpus*, or even old-fashioned petunias, though on a smaller scale. The resemblance to petunias may be more than skin deep: although *Nolana* is now

removed from the Solanaceae and assigned to its own family, the Nolanaceae, potato beetles will feed on it.

Nolana paradoxa ‘Blue Bird’ makes one wonder what the paradox is. More a true blue and more tubular than the preceding species, this was also, for me, less floriferous. Still, it’s worth having if you are that rare gardener who treasures blue [and if you live in a warm Mediterranean climate, where it will perform far better than in the Northeast—*ed.*].

Papaver glaucum, the tulip poppy, actually came to me as plants by mail. It’s useful to know that even poppies can be moved if it’s done right. This is a variation on the bright, bright red corn poppy theme.

Salvia coccinea, the unwitting star of my opening story, is a plant that still looks good despite plant breeders’ best efforts to “pump it up.” Yes, it can reach 2 feet (60 cm) tall. Just put it where the hummingbirds will see it and don’t apologize. In addition to the typical red, I have seen white, pink and a color best described as fluorescent red-orange.

Stachys coccinea is quite different from lamb’s ears (*Stachys lanata*); this pink-flowered mint may be mistaken for a salvia. It reaches about 15 inches (37.5 cm) and is actually perennial at home, but it blooms the first year and doesn’t overwinter here in coastal Massachusetts.

Tinantia erecta is an entry in the “so weird it’s wonderful” category. A member of the dayflower family (Commelinaceae), towering to 3 feet (90 cm) in a shady spot, this has thick, fleshy stems like a garden impatiens. From those smooth stems, large adventitious roots grow down and plunge into the soil. The flowers, I must admit, are underwhelming, though their appearance does justice to the common name “widow’s tears”: they do look rather like tears being squeezed out from under blinking eyelids—if tears were bubblegum pink.

Trichostema dichotomum ends this list with a Northeast native. The humble blue curls with its ¾-inch (2-cm), two-lipped flowers adds a touch of the rarest of flower colors to waste places that are lucky to see any color at all. Plants seldom top out at much above 6 inches (15 cm). I have tried for at least three years to establish this in my garden, and this year I finally see a respectable number of the slender, paired leaves that precede the winsome blooms. It is a must to sow the seed early so that the new plants can establish in their arid domain while the coolness and moisture of spring can help them.

Further Reading

Phillips, Roger, and Martyn Rix. *Annuals and biennials: The definitive reference with over 1,000 photographs*. London: Macmillan, 1999; Ontario and Buffalo, NY: Firefly Books, 2002. Illustrates most of the species mentioned in this article and Anna Leggatt’s plant portraits later in this issue, and is a treasurehouse of ideas.

Mike Saganich gardens in Weymouth, Massachusetts.

Penstemon as a Garden Host for *Castilleja*

Dave Nelson

Many attempts to grow species of the hemiparasitic genus *Castilleja* (commonly called paintbrush) have recently been reported, some noting considerable success (see the forum “Castillejas in Cultivation” 2003; Lawrence and Kaye 2005; and Luna 2005). The two latter projects provide considerable insight into seed treatment and germination techniques for the genus. In general, almost everyone seems to agree that paintbrush seeds usually germinate readily. Problems arise with the choice of host, the technique for growing paintbrush and host in combination, and perhaps the micro-environment (moisture, soil type, and sun). I hope to offer some suggestions gathered from my pursuit of *Castilleja* over several years.

The first difficulty is the selection of a host. Although several accounts suggest sagebrush (*Artemisia tridentata*), this ultimately rather large shrub may not be a desirable plant for the small rock garden. Particular success in hosting has been achieved using various grasses, such as *Festuca idahoensis* (Nelson, 2002), *Bouteloua gracilis*, and *Achnatherum hymenoides*, as well as the sedges *Carex filifolia*, *C. paysonensis*, and *C. albonigra* (Luna, 2005). Growing paintbrush with grass hosts has been preferred as long as the garden has a distinct area set aside for these pairs; the major difficulty is the labor involved in controlling unwanted grass seedlings. I still have this problem with fugitive fescue in several beds after many years. Bunchgrasses such as *Bouteloua* also tend to crowd out the paintbrush within a year or two. However, grasses have an obvious advantage which I’ll discuss later. In general, though, most rock gardeners desire small to moderate-sized forbs. On that assumption, let’s examine some perennials as hosts for *Castilleja* that might meet our rock gardening requirements.

The choice of a host plant does appear like a statistical game; however, if we observe paintbrushes in nature, we can narrow our choice considerably. Lupine (*Lupinus* spp.) appears to be an obvious choice because it can provide usable nitrogen to *Castilleja* via the latter’s haustoria (hemiparasitic feeding roots). Unfortunately, several scientific studies report mixed results concerning perennial lupine as a host. I have also encountered difficulty (37% pair survival at the end of the first growing season) using *Lupinus argenteus* as a host for *Castilleja inte-*

gra. Similar difficulties were reported by Sweatt (1997) in his investigation of annual *C. indivisa* hosted by annual *L. texensis*.

Many researchers have utilized host plants from the Asteraceae (aster or daisy family), including *Aster alpinus*, *Gaillardia pulchella*, *Ratibida columnifera*, *Coreopsis lanceolata*, *Eriophyllum stoechadifolium*, *E. lanatum*, and *Artemisia pycnocephala*, with varying degrees of success. I've extended this host series to *Anaphalis margaritacea*, *Antennaria microphylla*, and *Erigeron speciosus*. Each of these hosts were germinated, combined with *Castilleja integra* seedlings in groups of 20 each, and placed in the garden. Near the end of the 2005 growing season, *A. margaritacea* overgrew *C. integra* to such an extent that the paintbrush did not increase in size, but rather disappeared. Yet in nature, *A. margaritacea* is often observed acting as a host for a variety of northwestern American paintbrushes. *Antennaria microphylla* was a bit better—70% of the *C. integra* has survived—but the paintbrushes were no taller than 4 cm/1.6 inch. *Erigeron speciosus* provided the best results: all pairs survived, with 40% of *C. integra* plants in bloom at an average height of 18 cm/7 inches.

I've obtained especially good results with *Penstemon* species as hosts. I chose *Penstemon* based on observations made during hikes in the Cascade Mountains, particularly near Mount Rainier National Park in Washington. Specifically, *P. serrulatus* was host to both *C. parvifolia* var. *oreopola* and *C. miniata*, while *P. fruticosus* was host for *C. miniata*. Near Mount St. Helens in Washington, I've also observed *C. miniata* hosted by *P. cardwellii*. All these common subshrubby penstemons are popular rock garden plants in their own right (photos, p. 29).

Together with my garden club colleagues, I examined the growth characteristics of eight *Penstemon* species and six perennial *Castilleja* species. These included the potential hosts *Penstemon albertinus*, *P. attenuatus*, *P. eatonii*, *P. hirsutus*, *P. ovatus*, *P. rydbergii*, *P. serrulatus*, and *P. strictus*; and the hemiparasites *Castilleja applegatei* subsp. *martinii* (syn. *C. chromosa*), *C. haydenii*, *C. hispida*, *C. integra*, *C. miniata*, and *C. rhexifolia*. The best pair survivors (over 75%) over two seasons were the following:

- *P. strictus*—*C. integra*
- *P. attenuatus*—*C. integra*
- *P. strictus*—*C. miniata*
- *P. hirsutus*—*C. miniata*
- *P. albertinus*—*C. integra*

The least success (25%) over two seasons were the pairs *P. hirsutus*—*C. integra*, *P. strictus*—*C. hispida*, and *P. rydbergii*—*C. miniata*. Generally, the penstemons survived better than the paintbrushes over two years. In addition, *P. strictus*—*C. haydenii* pairs showed moderate survival of the paintbrush (60%) over two years. *C. haydenii*'s violet coloration is so exceptional that I still pursue it each year. Sample sizes for these garden experiments ranged from 5 to 84 pairs by the end of the second year. To no one's surprise, *P. strictus* formed an excellent union with *C. integra* and most of the other paintbrushes; this penstemon also showed the best two-year survival paired with this aggressive paintbrush. Pairs of *P. strictus*—*C. integra* had been grown now through a fourth year, but only 48% of them sur-

vived this extended period. Admittedly, this is a reasonable survival rate for perennials growing under such varied conditions. Both host and paintbrush in these fourth-year pairs bloomed at the same time.

Some of our other observations suggested that matching a pair's moisture requirements can be daunting. For instance, *P. ovatus* in the West prefers garden conditions with considerable moisture, while *C. integra* is true to its Southwest origins and is quite xeric. Thus this combination does not represent a stable pair, and the seasonal results confirm that. Basically, environmental requirements should be matched to ensure pair survival.

We also confirmed that most paintbrushes will bloom from July to September during their first year from seed if paired with penstemons. Second-year blooming comes much earlier (April through June). However, we also found that incorporating compost in our sandy loam soil improved the growth in height and the blooming period of the paintbrushes, especially *C. applegatei* and *C. haydenii*. The hosts also gained considerably from this supplementation. Only a few penstemons bloomed the second year, regardless of soil type, but when we compare their size to that of unparasitized penstemons of the same age, it's evident that the paintbrushes take a heavy toll on their hosts.

One contributor to the 2003 *RGQ* forum noted above wrote that *Castilleja* seed could be placed into mats of *Raoulia* (Asteraceae) with successful germination. Earlier work (Stermitz 1993) used a similar technique, placing *C. integra* seeds within a mat of *Penstemon teucroioides*. Most seeds germinated, but few plants survived the initial season. I suspect that this could be due to the difficulty of new haustoria attempting to penetrate a mature root structure. I attempted a similar procedure with 50 *C. integra* seeds adjacent to two-year-old plants of *P. strictus* and *P. eatonii* (5 each). Unfortunately, I obtained only 5 seedlings, and a single paintbrush at the end of the growing season. Although this process may depend on the choice of host, it does not appear to be very efficient. However, when *C. integra* seed was planted adjacent to *Festuca idahoensis*, the germination and seasonal survival improved (12 seedlings from 50 seeds, with 4 survivors). This improvement may be due to the fine root structure of the grass allowing easier haustoria attachment.

The stratification procedure described by Norman Deno (1993) was used as a basis to overcome delayed germination. Variations of the Deno method for penstemons have been further elaborated (Maffitt 2003). Recent work (Lawrence and Kaye 2005, Luna 2005) very aptly increases our knowledge about germination of *Castilleja*. The procedure I used required that the seeds be set on damp paper towels in loose plastic bags and placed in a refrigerator at 5° C/40° F until small roots were visible (4–6 weeks). These seedlings were placed in 15 by 20 cm (6 by 8 inch) peat containers filled with a sterilized commercial peat-perlite mix which had been diluted with 50% sterilized sharp sand. Outside exposure was started as soon as possible to avoid fungal predation. Once most of the seedlings had formed their first true leaves, they were individually removed from the large container, and combined singly (i.e., planted within 1 cm or less) with the companion penstemon in 5 cm (2 inch) peat pots. Pairs planted with greater

distance between the two showed much reduced success. Permanent planting in the garden (sandy loam with a low humus content) usually occurred after the companion plants had grown together in their pots for approximately 8 weeks.

For more information on these results, please send me an e-mail request for a more detailed version of this report. Write to daveandlin@verizon.net and indicate Manuscript Request on the subject line.

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Dave Nelson of Richland, Washington, has been a rock gardener since his youth. He finally retired this year and hopes to make better use of his minor in botany.

The Element of Desire: Beauty, Botany and Philosophy

Loren Russell and Flo Leibowitz

Is it correct to talk about beauty in gardens—or do we believe that everything about a garden is just a matter of taste? In the United States today, we are exposed to the idea that taste is democratic, that ideas of beauty are entirely personal, and not an especially important aspect of life at that. After all, beauty may not matter at all if we're only talking about taste, a simple choice in residential decoration.

We are, respectively, a gardening biologist and a non-gardening philosopher, and we share a pleasure in small plants (if not Loren's every "Come look at this!"). From our respective backgrounds, we've had a running dialogue about just how we enjoy flowers. Let's start with a question that's specifically about rock gardeners and rock gardening: Is there an aesthetic principle that rock gardeners share, and that somehow connects all the plants we grow? It would seem that rock gardening should have some standards of taste, but what sense can we make of the vast range of plants that we rock gardeners admire, and grow or wish we could grow? "Small hardy perennials" is a start, but hardly a rallying cry. Certainly, not everyone in the garden world shares our passion for our tiny jewels. Well-known writers have often dismissed garden alpine as too small, as too difficult to cultivate, as having an inconveniently brief season of bloom, perhaps even as too wild-looking, to contribute much to the garden. We may hear (or privately suspect) that our gardens are often more the efforts of collectors than of artists, and that as a group we are better at engineering dry-stone walls than at creating a harmonious prospect.

It's our belief that everyone begins life with both a curiosity about the natural world and a delight in beauty, and rock gardening is a means to nourish these faculties. The study of rock plants opens endless opportunities for our curiosity and our delight. But what do we mean by "beauty," and how does it work on our imagination? It might be that the appeal of these plants is a simple and innate pleasure in visual form and color; but in the case of alpine, it could also arise from our instinctive connection with nature and from our memories—individual and cultural—of landscapes.

Platonic Beauty

Much of Western philosophy goes back to Plato (c. 428–348 BCE). Plato and his followers had no doubt that beauty is something real—in fact, more deeply real than anything in the material world. He also thought that we have an instinctual sense of beauty that can be accessed by contemplation of beautiful humans and other beautiful natural objects. If we believe Plato, when we contemplate a beautiful object, perhaps *Campanula alpestris*, we are improving our souls. The British philosopher and novelist Iris Murdoch, in her commentary *The Sovereignty of the Good* (1971), makes this idea explicit: “Plato, who tells us that beauty is the only spiritual thing which we love immediately by nature, treats the beautiful as an introductory section of the good . . . we see beauty in a way that we cannot see goodness itself” (p. 41). In another passage, Murdoch says: “It is so patently a good thing to take delight in flowers and animals that people who take home potted plants and watch kestrels might even be surprised at the notion that these things have anything to do with virtue. The surprise is a product of the fact, as Plato pointed out, that beauty is the only spiritual thing which we love by instinct” (p. 85).

Why did Plato (and Murdoch) believe the beautiful to be introductory to the good? For Plato, Beauty (like the other Forms) is disembodied—something approachable only through pure reason. But the Beautiful is closer to the senses than the other Forms, including that of Good itself. The Forms of Beauty are represented by just those qualities—pure color and perfect geometric form—that attract the uncoached eye. And these are the very qualities that we see and respond to in many alpine plants. This could be called the “gentian effect,” a response to the simple elegance we find in gentians, campanulas, dianthus, and many others. We believe that this visual delight, more than anything else, first hooked us on alpine plants.

Kant: Free Beauty and Teleology

We’ll skip forward two thousand years to the second half of the eighteenth century, when a number of writers specifically addressed beauty in nature. The most influential of these was Immanuel Kant, who systematized Enlightenment aesthetics in his *Critique of Judgment* (1790). Kant was well informed on contemporary natural science and strongly interested in nature and in natural beauty.

Beauty is “teleology,” he said, revealing God’s mind and purpose. He thought that aesthetic perception was a universal human trait, and that true or “free” beauty could be recognized through disinterested contemplation. Kant used flowers as exemplars of beauty that is appreciated in this way. The forms and colors of flowers, he thought, were purely beautiful and completely irrelevant to function. The beauty in these features, he reasoned, must have been designed solely for human appreciation, and to be universal, this appreciation could not be tainted by utility or by theory. “Flowers are free natural beauties,” Kant wrote.

“Hardly anyone apart from the botanist knows what sort of thing a flower is meant to be; and even he, while recognizing it as the reproductive organ of a plant, pays no attention to this natural purpose when he judges the flower by taste. Hence the judgment is based on no perfection of any kind” (*Critique of Judgment* [16], translated by Werner Pluhar, 1987).

Beauty and Evolutionary Biology

Kant’s ideas were a buttress to Natural Theology, which in turn stimulated the study of nature in the nineteenth century. Ironically, Natural Theology inspired and challenged naturalists like Charles Darwin and Alfred Russell Wallace, whose theory of evolution through natural selection supplanted Kantian teleology. After Darwin, we could understand brilliant feathers and flowers as just the cost of advertising, for mates and for pollinators respectively. Clearly, this was an advance in knowledge, but with this has come the idea (which Kant might have shared) that knowledge has “killed beauty.” Neither of us believe this. Knowledge, observation, and understanding all deepen our sense of natural beauty. Darwin claimed to have lost his pleasure in poetry in midlife, but he never lost his pleasure in natural beauty. In a familiar passage from *Origin of Species*, Darwin wrote:

It is interesting to contemplate a tangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other and dependent on each other in so complex a manner, have all been produced by laws acting around us. . . . There is grandeur in this view of life: . . . from so simple a beginning endless forms most beautiful and most wonderful have been and are being evolved.

It appears, by the way, that the “tangled bank” in this passage refers to Darwin’s beloved “Orchis bank,” which is now the Downe Bank Bioreserve in Kent, home to eleven species of orchids.

How does all this relate to rock gardening? We agree with Plato that we must have some kind of innate attraction to the beauty in natural things. But we think that the underlying aesthetic of rock gardening is cognitive. That is, our aesthetic perception and emotional response to an object are shaped by our knowledge. We appreciate the beauty more as we understand more about how it came to be. In rock gardening we read, talk, and think about plant taxonomy, geography, and adaptations to soils, pollinators, and more. This study is not just in the interest of possessing our plants a little longer, but out of love for the plants and what they mean to us.

At the simplest level, we step back from the idealized close-ups of slide shows to the associations that tie our plants to specific landscapes. For instance, we will always link *Kalmiopsis leachiana* with a visit to a Native American rock shelter

on the Umpqua River. A huge tuff boulder had rolled into a narrow canyon. There, under tall sugar pines, the rock was covered with *Kalmiopsis*, some trailing from the overhang's ceiling beside other rock paintings. Another example: In February, our blooming crocuses and *Anemone blanda* bring to mind a day Loren spent at Col de Bavella in Corsica, where *C. corsicus* covered the short turf, while anemones (here, *A. appenina*) carpeted the pine forest nearby.

Such landscape associations are typical of rock gardeners. Whether in the field or at a Winter Study Weekend slide lecture, we find ourselves thinking about the habitat, about the geological and biological associates of our plants. We concern ourselves with granite and limestone, soils and climate. We sometimes look at natural scenes with an eye to re-creating them in the garden. These associations are at the heart of our study weekends. We go to slide lectures, perhaps "shopping" for a few new plants for our gardens or hints on keeping them, but we also want to tie what we grow into the web of nature.

Is the gardener's love of plants connected with or contaminated by possessiveness and desire for rarities, or does it stem from, and grow with, our growing knowledge of the natural world? We all know that plants are stolen, that people do strange things in the pursuit of beauty—Susan Orlean's popular book *The Orchid Thief: A True Story of Beauty and Obsession* (1998) is one account of where "plantaholism" can end up. Another victory of greed over beauty may be the seeming seizing of all nature as patentable "intellectual property." But there's a better account of desire as we see it in alpine gardening—that of sharing, itself made possible by one of Darwin's postulates, the Law of Increase. And not only are alpines beautiful and readily propagated, we can think of them as co-evolving with our sense of beauty, as Michael Pollan suggested of the tulip in *The Botany of Desire: A Plant's-Eye View of the World* (2001). Flower forms that evolved as advertising to pollinators or cushions and buns that evolved as means to brave the elements somehow appeal to our child's eye for beauty, and by doing so their bearers find new homes in our gardens.

We've written of gardens and of nature, and we'd like to end with nature. The special aesthetic of rock gardening does depend on our connection to nature: our delight in plants we'll never grow, in mountains that we may visit only in our minds.

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Combinatoriality

Robert Nold

I picked up this plant at a garden center the other day, the way I always do, and I carried it around for quite some time before putting it back on the shelf. It was a nice plant, but it didn't quite fit in with my garden scheme. It wasn't that I couldn't provide the growing conditions the plant required, but rather that I was unable to follow the other instruction on the label.

It said, in a tone I thought a bit uncompromising, "Combine with purple salvias, pumpkins, and forget-me-nots," or some such thing. I wandered around the garden center wondering what would happen to me if I "combined" the plant with something else, and wondering, most of all, how it was that gardening had transformed itself from a relatively innocent pastime into an activity in which gardeners felt that plants somehow looked better if planted next to the "right" plants, and that planting them next to the "wrong" plants not only made them less effective as plants but also said something negative about the way the gardener approached gardening at the most basic level.

Especially in the past decade or so, the concept of gardening as fine art (not, it should be noted, as art in the sense of an exceptional skill) has become firmly entrenched in American horticulture. Articles abound referring to perceived artistic principles like effective color combinations, form, and texture, and no one seems inclined to question how it is that gardening, which is so dependent on chance in every respect, can even remotely be considered art—like music, dance, drama, painting, sculpture, or poetry—which is never dependent (if we set aside the aleatory music of the 1950s) on chance at any point either in its conception or its realization.

Gardeners, or at least garden writers, seem to confuse the emotions attendant on perceiving an object with the actual creation of the object; in order for gardening to qualify as fine art, the garden, when viewed at 3:13 on an afternoon in June (at which time the garden is seen as "a work of art"), every leaf and every branch and their positions in space, as well as a million other details, would have to be the willed creation of the gardener. The characteristic response to viewing a pleasant garden scene—that the gardener "planned it that way"—suggests that self-deception may be a primary requirement for becoming a gardener in the

first place. A painting of a garden can be art, but the garden itself can never be anything but the antithesis of art.

And yet, for over a hundred years, many gardeners have taken for granted the idea that gardening is a fine art, and that they are artists. A number of garden writers for whom I have profound respect have suggested this, some even claiming that theirs is the most difficult of all the arts. Where they got this idea, and how it fits in with the history of reception of artists' work by reactionary critics who expected art to fit a Procrustean conservative vision, is quite another story.

"There is no reason," wrote William Robinson (1838–1935) in *The English Flower Garden* in 1883, "why we should not have true art in the garden", and, in order to put off any objections, he defined art in the next sentence as "power to see and give form to beautiful things." He then wrote, "The work of the artist is always marked by its fidelity to Nature," which alone should explain why artists since the Renaissance have had such terrible struggles getting their work accepted.

Robinson's near-900-page apology for this stunningly narrow-minded definition of art is probably the single most influential gardening book ever written. His views were echoed by Gertrude Jekyll (1843–1932), whose *Colour Schemes for the Flower Garden* (1908) was only slightly less influential (probably because it was only a fifth as long as *The English Flower Garden*, and Robinson's plant lists were longer) but equally tendentious: "The good placing of plants in detail is a matter of knowledge of an artistic character."

Both Robinson and Jekyll shared their hatred of the then-fashionable carpet-bedding with William Morris (1834–1896), one of the principal figures in the Arts and Crafts movement of the late nineteenth century, whose gardening style directly influenced both writers. Jekyll was also a painter, but her eyesight began to fail in the 1890s, around which time she started building gardens with the great architect Edwin Lutyens (1869–1944); more than a hundred gardens were created by this partnership, Lutyens designing the architecture, Jekyll painting pictures with plants.

Jekyll's ideas were also influenced by the color theories of Michel Chevreul, whose idea of color harmonies found its greatest horticultural realization in Jekyll's Long Border in her garden at Munstead Wood in Surrey. There, she wrote, "there are flowers of pure blue, grey-blue, white, palest yellow and palest pink, each colour partly in distinct masses and partly intergrouped. The colouring then passes through stronger yellows to orange and red." By the middle of the border her plants were on fire, yet "never garish"; the color scheme then reversed gradually until, at the other end, it died away in "purples and lilacs." It should be obvious that this scheme has much less to do with fine art than with applying artistic principles to gardening, and, it must be added, extremely conservative artistic principles whose forward motion seems to have stopped about 1890.

Here lies the problem. Even if we dismiss out of hand, as we ought to, the idea that gardening can be one of the fine arts, since it is the plants and not the artist's hand that actually create the "picture," we are still left with the artistic

principles handed down to us from Robinson and Jekyll, which state, effectively, that gardens should always look as though they were designed on a golden afternoon sometime between 1890 and World War I. It doesn't take much imagination to see that once a group of plants has been combined effectively with another, successive imitations of this scheme lose their impact. If the same plants were grown together by everyone it would be like seeing the same painting or hearing the same music over and over again. It would be, and is, boring.

For the past 500 years or so, each succeeding generation of artists has moved in some direction (I hesitate to use the word "progress" in this context) away from the art of the previous generation, pursuing "the ideal," as Charles Rosen put it in his study of the music of Arnold Schönberg (whence I lifted the word that is the title of this essay), "of original invention that has been imposed on art since the Renaissance"—an ideal which Robinson attacked in his preface to *The English Flower Garden*. At about this time, Schönberg's *Verklärte Nacht* (Transfigured Night) was rejected for performance in Vienna because of the presence in it of an "unclassified chord" (an inverted ninth); one wonders what Robinson's reaction might have been, not so much to the music as to the idea that art can, and in fact must, be original. (Neither Jekyll's nor Robinson's reactions to Cubism or the Expressionists, is, I believe, recorded, which is probably just as well.)

Look at how much music, painting, poetry, sculpture, and dance have changed just in the past century, and how little the principles of "artistic" gardening have changed. There is a certain tiresome sameness in all those pictures of perennial borders, and an even more tiresome sameness in the accompanying prose; and this is to be expected, because what Robinson and Jekyll were expounding was an Arts and Crafts interpretation of what gardening should be like—not a theory of gardening as a fine art—and the Arts and Crafts movement, like almost all movements, has come and gone.

Where does all this leave rock gardeners? Unlike perennial gardeners, who seem to be stuck in the same boring 1890 color-combination rut until the end of time, rock gardeners have practically no rules to follow. This can lead to trouble, because in rock garden design and planting, the way is open to individual expression and personal interpretations of what a beautiful garden should look like.

The perception that rock gardens are often unattractive is almost a garden writers' shibboleth, and one of the most serious charges is that rock gardens look "unnatural" in a suburban setting. Ironically, perennial gardens laid out according to strict rules formulated in 1890 by a person gardening on 15 acres in the countryside, with 17 gardeners to help out, somehow are thought not to look unnatural, even in the suburbs. They do, however, look like a bunch of dead sticks and a lot of dirt in winter, unlike rock gardens.

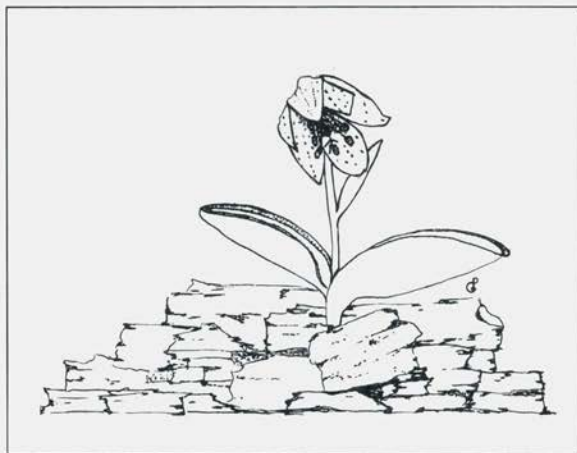
It's precisely because rock gardening doesn't have these rules, and because the potential for individual expression and the unexpected is so high, that many people, comfortable only with what they're accustomed to, find rock gardens so unattractive. It isn't the plants that are found unattractive, but rather the construction; Farrer's dictum "when the compilation is finished it ought to look

established, harmonious, and of a piece, long before a single tuft has been put in” points rock gardeners in a direction, but not *the* direction. A rock garden doesn’t have to imitate a scree on Loveland Pass or the Piz Padella; it has to be a construction for plants, and that’s all it has to be.

This has led to quite a few fantastic stylizations, mostly in the Czech Republic, Slovakia, and the Netherlands, some of which are viewed with horror by perennial gardeners wondering where to find color harmonies, texture, form, and repetition (I keep forgetting, possibly on purpose, how important repetition is in this context). Ironically, there can be little debate that a construction in rock, which is after all created by a human being, is a prime candidate for consideration as art. To rock gardeners, these constructions are a source of constant inspiration and delight.

I left the garden center without any plants at all. Back home, I made a list of plants not to grow next to other plants, and I thought about putting up a bird feeder in the “wrong” place. The late afternoon sun made play with light and shadow on the lawn; I quietly rejoiced in the idea that I had nothing to do with the making of it, and watched the garden do its work, all by itself, without me.

Robert Nold of Lakewood, Colorado, is the author of the Timber Press books *Penstemons* and *Columbines* and is a frequent contributor to these pages. In 2005 he received the Carlton R. Worth Award, given by NARGS for excellence in writing on rock garden topics. This essay previously appeared in 2002, in a slightly different version, in *Saximontana*, the newsletter of the Rocky Mountain Chapter.



Fritillaria glauca, drawing by Phyllis Gustafson.

2005

Photo Contest Results

Every year contestants seem to raise the ante with the quality of their photographs, and the judging becomes harder. Some of the Honorable Mention images this year (especially in Class 1) may well have placed higher in earlier contests. This year's contest saw strong entries from winners of previous years as well as first-time entrants who surprised and delighted us. Their work will appear throughout this year in the photo section and on the back cover.

Class 1 continues to be the largest and most hotly contested, and class 4 the smallest. We hope more people will think of taking "scenic" photos of rock gardens they make or visit and enter them in class 4, because readers find these images particularly inspiring.

The judging is based on the image, not on the subject, but the editor often wishes she could give special prizes for "hardest plant to find and photograph in the wild," "most impressive cultivated specimen," and "most glorious rock garden." If your photo of a stupendous plant has not won a prize, rest assured that it was appreciated for its content! In fact, we sometimes publish non-winners for that reason. Slides are returned to the photographers, but we keep all digital submissions in our photo library and may request permission to use them in coming years.

A technical comment from a judge: Many photos that are technically and artistically excellent lost points through no fault of the photographers because they appear to have been taken in poor light conditions. Viewers tend to react better to the brilliance and clarity of a well-lit image. Yet if you have only three days in the Alps or the coast of Alaska, and it's cloudy and foggy the whole time, you have no choice. The 2006 Utah meeting in the usually crystal-clear mountain air of the inland West should offer optimal conditions.

Grand prize:

Yoko Arakawa, *Caltha leptosepala*, Mt. Evans, Colorado (Class 2; see p. 17 in this issue)

Class 1, Portrait of a plant in the wild

1. Alan Petersen, Flagstaff, Arizona, *Townsendia incana* (p. 30)
2. Yoko Arakawa, Kennett Square, Pennsylvania, *Castilleja miniata*
3. Todd Boland, St. John's, Newfoundland, *Salix glauca*
4. Jack Muzatko, Pinole, California, *Lewisia kelloggii*

Honorable mentions:

- Yoko Arakawa, *Besseyia alpina*, *Phlox condensata*
Thomas Bland, Portland, Oregon, *Rhododendron camtschaticum*
Todd Boland, *Castilleja* sp., *Pulsatilla occidentalis*, *Ranunculus eschscholzii*,
Rhodiola rosea
David Dobak, *Geum rossii*, *Primula parryi*, *Sedum debile*
Denis Hardy, Muir of Ord, Scotland, *Argemone munita*
Tanya Harvey, Lowell, Oregon, *Erythronium oregonum*, *Fritillaria glauca*,
Hulsea nana, *Lewisia triphylla*
Dianne Huling, East Greenwich, Rhode Island, *Cypripedium reginae*,
Juniperus communis, *Saxifraga caespitosa*, *Sarracenia purpurea*, *Helichrysum*
milfordae
Matt Mattus, Worcester, Massachusetts, *Gentiana verna*, *Eritrichium nanum*,
Gentiana bavarica
Charles Morrow, Portland, Oregon, *Lewisia rediviva*, *Eritrichium nanum*
Jack Muzatko, *Lewisia disepala*
Graham Nicholls, Timsbury, England, *Mimulus kelloggii*
Alan Petersen, *Erysimum* sp., *Penstemon bracteatus*, *Phlox sibirica*
Erica Schumacher, Ballston Spa, New York, *Monotropa uniflora*
David Sellars, Surrey, British Columbia, *Androsace alpina*, *Androsace*
chamaejasme, *Saxifraga rudolphiana*, *Saxifraga oppositifolia*
Doris Taggart, Kirkland, Washington, *Olsynium douglasii*, *Phyllodoce*
empetriformis, *Cypripedium tibeticum*
Stefania Wajgert, Zabierzow, Poland, *Hepatica nobilis*

Class 2, Plants in a natural scene

1. Yoko Arakawa, *Caltha leptosepala*, Mt. Evans, Colorado (p. 17)
2. Yoko Arakawa, *Erythronium grandiflorum*, Gore Lake, Colorado
3. Dianne Huling, *Helichrysum confertum*, Lesotho
4. Todd Boland, *Pulsatilla occidentalis*, Banff National Park, Alberta

Honorable mentions:

- Yoko Arakawa, *Silene acaulis*, Straight Creek
Todd Boland, *Iris setosa*, Newfoundland coast (p. 32)
David Dobak, *Aster*, Liberty Pass; *Polemonium viscosum*
Tanya Harvey, Crater Lake; Hershberger Peak
Dianne Huling, ferns on Cathedral Peak
Matt Mattus, *Pulsatilla alpina*, Alps; *Trollius europaeus*, Alps
Jack Muzatko, *Lewisia cotyledon*, Siskiyou (p. 32)
David Sellars, *Eritrichium nanum*, Alps
Doris Taggart, Iron Bear Peak

Class 3, Portrait of a plant in cultivation

1. Jim McClements, Dover, Delaware, *Galanthus* 'S. Arnott' (p. 17)
2. Stefania Wajgert, *Adonis amurensis* 'Titibushinkou'
3. Todd Boland, *Incarvillea mairei*
4. Denis Hardy, *Primula bhutanica*

Honorable mentions:

Todd Boland, *Alyssum lenense*, *Cypripedium calceolus*, *Jeffersonia dubia*, *Pulsatilla alpina* ssp. *apiifolia*

Dianne Huling, *Arum italicum*, *Erinus alpinus*

Jim McClements, *Anemone nemorosa* 'Bracteata', *Hepatica* 'Yamatutai'

Erica Schumacher, *Viola selkirkii* and *Sempervivum*

David Sellars, *Androsace studiosorum*

Stefania Wajgert, *Corydalis solida* 'G. P. Baker', *Hepatica* double blue, *Physoplexis comosa*

Class 4, Rock garden scene

1. Dianne Huling, rock garden and steps, Quaker Hill, New York (back cover)
2. Doris Taggart, Memorial University Botanical Garden, St. John's (p. 31)
3. Dianne Huling, Memorial University Botanical Garden, St. John's
4. Stefania Wajgert, ferns in Wajgert garden, Poland

Honorable mentions:

Dianne Huling, Quackengrass Nursery rock garden; *Sarracenia* bed

Matt Mattus, spring in an alpine house

David Sellars, Sellars rock garden

Stefania Wajgert, iris in Wajgert garden

PLANT PORTRAITS

Townsendia in Utah

WILLIAM H. KING, Salt Lake City, Utah

An old adage of rock gardening advises us to forget 99% of the Asteraceae or composite family, but one notable exception is *Townsendia*. Because of their generally compact growth and daisy-like flowers, large in proportion to their small leaves, they are now considered by many to be the jewel of the aster family. *Townsendias* form buds very early and bloom with the first breath of spring, so they are sometimes called "Easter daisies." The flowers are mostly white, often flushed with pastel shades of blue, purple or pink, but in a few species the flowers are yellow.

First described as a separate genus by William Hooker in 1834, *Townsendia* now comprises about 24 species. Most of them grow along the Rocky Mountains from Canada to Mexico, with a few extensions from Washington and Oregon to the Great Plains. Utah might be considered to be at the center of their ecological evolution with its 13 species, more than any other state. Hooker named *Townsendia* in honor of David Townsend, an amateur botanist in Pennsylvania whom Hooker undoubtedly owed a favor for collecting something else.

Perhaps the smallest species is *Townsendia mensana*, first described by Salt Laker Marcus E. Jones, which grows in the Uinta Basin near Duchesne on wind-swept ridgelines. Some plants are not much bigger than a quarter and, when they are not in bloom, one must bend over and search to find them. Jones thought its range extended to Utah's western desert, but later analysis by J. H. Beaman in 1957 and James Reveal in 1970 found small differences in the western desert plants, and Reveal made them a separate species: *Townsendia jonesii*, in honor of Marcus Jones. The latter grows in the western half of Utah from Tooele to Washington County at an elevation of 5000–9,000 feet/1524–2743 m. Welsh's *Utah Flora* describes it as locally common in western Utah. Two additional varieties have been delineated: *Townsendia jonesii* var. *tumulosa* grows in the Charleston Mountains near Las Vegas, Nevada, and *Townsendia jonesii* var. *lutea*,

with pale yellow flowers, grows in the Rainbow Hills between Sigurd and Glenwood, Utah. Elizabeth Neese has also reported finding it near Piute Reservoir. Variety *lutea* is rare and may someday be endangered by recreational activities.

Townsendias are easy from seed, but as with most plants in the aster family, the germination rate is low. They are best grown in troughs or controlled scree environments with good drainage and few neighbors, in full or part sun. Some townsendias are short-lived and seem to bloom themselves "to death," but these reseed readily. For further information, consult "A Revision of the Utah Species of *Townsendia* (Compositae)" by James L. Reveal (*Great Basin Naturalist* 30.1, 1970) or Panayoti Kelaidis's article "Townsendias: Halcyon Daisies of the Rockies" (*Rock Garden Quarterly* 56.2, pp. 99–119).

Townsendia jonesii

JOHN STIREMAN, Sandy, Utah

My brothers, Patrick and Tony, and I made several trips through Tooele County, Utah, in the spring of 1998 in search of populations of *Lewisia rediviva* and any other interesting flora we might accidentally find along the way. One discovery was *Townsendia jonesii*.

In its southwest corner, the large, empty Rush Valley holds the well-worn Vernon Hills, the highest of which rises at most 500 feet/152 m above the valley floor. The lower elevations provide habitat for the junipers, and the barren, rocky ridges host a variety of plants of interest to rock gardeners. *Townsendia jonesii* can be found in the thin soils of the ridge crests, where competition from more vigorous plants, especially grasses, is low. Artemisia, juniper, and grasses, including introduced cheat grass, grow close by in deeper soils but struggle in the company of *T. jonesii*.

The conditions that support *T. jonesii* are shared by other dryland plants such as *Astragalus calycosus*, *Lewisia rediviva*, *Cryptantha*, *Antennaria*, *Erigeron eatonii*, *Gilia congesta*, and *Phlox hoodii*. The latter three are commonly found in desert shrubland in the surrounding lower elevations. *T. jonesii*, however, appeared to be restricted to ridge crests in the Vernon Hills; where its requirements are met, it can be seen in good numbers.

If you drive 10 miles/16 km south of the town of Vernon on a gravel road, you will arrive at the Benmore junction in the lowest foothills of the Sheeprock Mountains. Another quarter-mile to the east, the road rises gently to the crest of a slight ridge. Here juniper grows abundantly, although open areas abound where little soil covers the rock that supports the ridge. *Phlox hoodii* occurs profusely throughout the shrubland to the north but shares the ridge with an increased diversity of small plants and more thinly distributed shrubs. *Phlox australis*, *Physaria chambersii*, *Erigeron argentatus*, and *Astragalus utahensis* are some of the species joining *T. jonesii*, *Antennaria*, *Cryptantha*, and even scattered *Lewisia rediviva*. Here *T. jonesii* apparently grows in deeper soils, although it is difficult to

know how close solid rock approaches the surface. Some of these plants of *T. jonesii* definitely grow within the root zone and partial shade of junipers.

Southeast of Vernon, where State Route 36 nears the Juab County line, eroded, rocky, juniper-covered hills between the East and the West Tintic Mountains also host populations of *T. jonesii*. The final site where we found *T. jonesii* is near the Carbon County and Utah County line at the top of Price Canyon at nearly 8000 feet/2438 m. Except where soils are too shallow, this is sagebrush country. *T. jonesii* was growing on very thin soil on a flat rock outcrop with *Phlox hoodii*, *Penstemon caespitosus* var. *perbrevis*, *Artemisia frigida*, and other small, middle-elevation xerics.

Although each habitat where *T. jonesii* was found appeared superficially distinct, there are notable affinities. All populations occurred where bedrock was near or breaking the surface and most soils were very shallow. Competition, especially from grasses, was very low with the exception of junipers. *T. jonesii* seems adapted to abundant winter and spring moisture and the severe summer drought between junipers or in thin ridgetop soils. Most plants occurred on stable ground; their small stature would make them vulnerable on slopes in open soil which moves considerably during winter freeze/thaw cycles. Most of the populations observed consisted of numerous individuals, and most of these had multiple rosettes. In 1998, flowering began in early April and continued through May in the Vernon Hills.

We made no effort to locate *T. jonesii*. Our discoveries were accidental. After observing a number of populations in Tooele County, we understood that potential habitat is plentiful and that *T. jonesii* is likely a common "Easter daisy" in the northern tip of its range.

Townsendia incana

PANAYOTI KELAIDIS, Denver, Colorado

[The following note appeared as part of an article on the genus *Townsendia* in the *Rock Garden Quarterly*, 56(2), spring 1998. We reprint it here to accompany the award-winning photograph by Alan Petersen which appears on p. 30.]

Just as the Great Plains Easter daisies dominate the southern Rocky Mountain parklands and shortgrass prairies, another miniature Easter daisy can be found in nearly every corner of the deserts that occupy the high, dry plateaus and basins between the Rockies and the Sierra-Cascade ranges. The intermountain Easter daisy, *Townsendia incana*, is utterly distinct from other species. For one thing, it can form mats of considerable extent—a foot (30 cm) is not unheard of—with rather distinct gray rosettes covered with hairs. Although the occasional blossom opens in late April in the wild, this species generally waits to bloom until hot weather sets in. Expect the showiest displays in May most years, or even June on higher ridges. Thenceforward, all the way to autumn, you can find a few scattered

flowers. In a garden where it receives an occasional drink, flushes of bloom recur throughout the warm summer months.

This is very much a desert plant in nature, and you are sure to find it in all the great sagebrush desert country of western Colorado, southwestern Wyoming, and throughout Utah. It is abundant throughout the Uinta Basin, where it can often be found with several other, earlier-blooming Easter daisies that form much smaller tufts. Throughout the San Rafael Swell, Capitol Reef, the endlessly colorful and outrageous landscapes of the Canyon Country—wherever pinyon and juniper and sagebrush grow—you are apt to find the open mats of this *Townsendia*, together with *Eriogonum shockleyi* and the usual rabble of paintbrushes, penstemons, fleabanes, and other wildflowers that make this region America's most surreal flower garden. Look up, and a soaring natural arch may be in view, or a forest of orange rocks.

There is tremendous variability in foliage size, flower color and size, and garden performance among accessions of *Townsendia incana* we have grown over the years. Its protracted bloom period and trim habit make it one of the most valuable garden plants in the genus for xeriscapes or sunny rock gardens.

Ipomopsis rubra

ANNA LEGGATT, Toronto, Ontario

Ipomopsis rubra has a split personality. It starts life as a perfect rock garden plant. Self-sown seedlings appear in the spring and summer in a sandy, gravelly bed, in cracks in my wooden deck, and in other flower beds. Each seedling quickly develops into a 12.5-cm (5-inch) ferny hemisphere. The individual mid-green leaves are divided into filaments, about 10 mm long, from the 4-cm main petiole. Everyone admires the little cushion and asks what it is. The plants overwinter well as long as there is good air circulation. Overcrowded plants or ones in wet, heavy soil may rot in wet weather in March and April.

The split personality of *Ipomopsis rubra*, a biennial, is revealed in spring. Rapid growth starts in late May. The leafy flower spikes may reach as high as 2 meters (6 feet) but are only 10 cm (4 inches) wide. They will grow to only half this height if they're too close together or have been transplanted. The red flowers (there is also a yellow form) appear in tight clusters on the top quarter of the stem. Five-pointed, 10-mm petals spread out from a long, narrow petal tube, forming a perfect star. The upper leaves are completely hidden in the first flush of bloom. More flowers continue to appear from each cluster as the first seedpods develop. Removing the seedpods or cutting off the top will induce more bloom. Flowering starts in mid-July here in eastern Canada and continues until frost. Plants can survive light frost and may even have a few flowers in late November here.

These plants are far too tall for the purist rock gardener, but they're "see-through" plants. I want it to stay in the gravelly, sandy soil in the corner of my scree bed. This area has a little shade, but *I. rubra* wants full sun and is advancing

into a place where the plants obscure part of the rock garden. I sprinkle seed where I want them to grow and leave them to their own devices.

Start seeds (readily obtained from seed exchanges) in a sterile pot filled with a moist commercial seed starting compost, mixed with an equal quantity of perlite or Turface. The pot can go outside in a plastic bag in a shady place, or you can start them under fluorescent lights.

Ipomopsis rubra is perfect for attracting hummingbirds. A must in my garden, it is native to Texas. I would never have tried it if I had done my research—"Texas" makes it sound tender.

(A similar article appeared in *Trellis*, the newsletter of the Toronto Botanical Garden.)

Symphyandra wanneri

ANNA LEGGATT, Toronto, Ontario

At a casual glance, species of *Symphyandra* appear to be in the genus *Campanula*. However, if you pull the flower apart, you will find that the stamens are joined into a narrow tube around the style. This diagnostic feature separates the genus *Symphyandra* from *Campanula*.

Symphyandra wanneri is a useful though fleeting plant: like most other members of its genus, it is monocarpic (dying after seed formation). Seedlings grow fairly rapidly in full sun into attractive mid-green rosettes about 15–20 cm (6–8 inches) across. The hairy leaf is like a long, narrow, pointed spoon in outline. The leaf blade persists in a narrow band down each side of the petiole. The leaf margins are toothed.

Rosettes have persisted 3 to 5 years in my garden without flowering. Then the plants switch to reproductive mode, producing a 20- to 30-cm (8- to 12-inch) stem with smaller leaves. Frequently the stem is branched. The plant will flower continuously for at least six weeks in July and August. The corolla is typically deep blue to violet, bell-shaped, slightly wider at the mouth and down-facing. The plant exhausts itself with seed production and dies.

The seeds germinate easily indoors under lights. Surprisingly, this species does not often self-sow in my rock garden. Seed is usually available from exchanges.

Symphyandra wanneri seems to come in two forms. My best plant was only 15 cm high, with quite short side branches. Others are taller and more branched. I also have a plant that self-seeded from *S. wanneri* 'Alba'. This is larger and also has drooping branches with tubby, creamy white bells—a pleasant plant, but not eye-catching.

Closely related is *Symphyandra hoffmannii*. This can be a thug as it self-seeds, aiming to carpet the garden, but it is easily removed. When I saw *S. wanneri* 'Alba' I was afraid *S. hoffmannii* had returned after several years' absence, but the former's winged petioles eliminated this fear.

I have grown a plant called *S. zanzegur*, which is pretty enough, with wiry stems and a multitude of small down-facing bells. However, the *AGS Encyclopaedia of Alpines* says the flowers are 5 cm long. Not my plant; be careful to confirm the identity of what you send to seed exchanges!

Ranunculus alpestris 'Flore Pleno'

DAVID SELLARS, Surrey, British Columbia

There is extensive karstic terrain in the Dolomites of Italy, and the elevated plateau north of Passo Gardena is a particularly interesting example. The tilted rock strata contain deep fissures where the limestone has been dissolved by rain-water. The plateau has an average elevation of about 2400 m/7900 feet, and the grassy benches between the fissures are covered with wildflowers in July: sky-blue *Gentiana verna*, light pink *Potentilla nitida*, and the curious gray flower of the Edelweiss, *Leontopodium alpinum*. But the most remarkable sight is thousands of tiny white *Ranunculus alpestris* springing up from the short grass on the limestone ledges. On closer inspection, the lobed, dark-green foliage contrasts beautifully with the pure white flowers (photo, p. 60). *Ranunculus alpestris* is common in limestone areas in the Alps and seems to spread with abandon where the conditions suit it. As you follow the easy trail across the plateau and the white and green carpet continues to unfold, you start to think that once you have seen one *Ranunculus alpestris*, you've seen them all.

But it was not so. As we scrambled off the trail around a small cliff near Forcella de Ciampac, we were surprised by a plant with leaves identical to *Ranunculus alpestris* but the flower of a very small peony (photo, p. 30). We puzzled over this until a year later, when we showed the photograph to Rottraud and Werner Keuschnig, who have developed an inspirational rock garden in the mountain village of Mallnitz, Austria. They told us that it must be a double ("flore pleno") form of *Ranunculus alpestris*, and that we were extremely lucky to find it. We went back to Forcella de Ciampac a year later and admired the fields of *Ranunculus alpestris* but were unable to find the same plant. There was, however, a guilty-looking sheep chewing something with great satisfaction.

There does not seem to be much in the literature on naturally occurring double forms of alpine flowers. There is no *Ranunculus* Society or Group to turn to for assistance, so we are left not really knowing whether this sighting was really extraordinary, or whether others might have made similar finds.

BOOKS

A Bookshelf for the Western Cordillera

WILLIAM H. KING

The theme for the 2006 International Interim Rock Garden Conference is "Plants of the Western Cordillera: Alpines in All Directions." The Western Cordillera is the vast landmass that lies between the eastern slopes and foothills of the Rocky Mountains and the crest of the Sierra Nevada and Cascade Mountains. Field trips branching out from Snowbird, Utah will take participants as far west as the Ruby Mountains in Nevada, and as far east as the Snowy Mountains near Laramie, Wyoming. To the north, some participants will travel to the Teton Mountains of Wyoming; to the south, to Cedar Breaks National Monument of Utah. Field trips will also be conducted in the nearby Wasatch Range of northern Utah. No single book adequately describes the flora of this mammoth landmass. However, the *Utah Flora* (see below), which covers Utah and includes technical descriptions of more than 3000 species, comes the closest and is highly recommended. It may well cover three-quarters or more of the species at any one location we will visit. For those who prefer pictures of plants for identification, Strickler's *Alpine Wildflowers* and Duft and Mosley's *Alpine Wildflowers of the Rocky Mountains* are great, but they only cover several hundred species. A unique booklet that fits easily in backpack or pocket is Wingates and Yeatts's *Alpine Flower Finder*. It has small but excellent line drawings and a key that anyone can use to determine many species. Scott's *The Alpine Flora of the Rocky Mountains* covers much of the area but is too large and heavy for most of us to carry along on a hike.

More specific guides are available for each of the field trip sites. For the two sites in Wyoming, Dorn's *Vascular Plants of Wyoming* is very good, or try any of Shaw's books on the Tetons or Nelson's for the Snowy Mountains in the Medicine Bow Range.

There is no generally available flora for Nevada. Anderson's *Ruby Mountain Flora* is not a flora in the traditional sense, but rather a color photo guide to 114

common species. For more detailed information, use the Utah or Sierra Floras or the *Intermountain Flora*. The eight-volume *Intermountain Flora* is still incomplete. It has wonderfully detailed information and line drawings. Monzingo's *Shrubs of the Great Basin* is also very useful here.

For the Wasatch and Cedar Breaks sites, the *Utah Flora* works well, but one might also want to consult Arnow's *Flora of the Central Wasatch Front, Utah* or Buchanan's *Wildflowers of Southeastern Utah*. Also of great value in Utah is the *Utah Atlas*, which has distribution maps for more than 2400 Utah species.

Those interested in studying alpine ecology should have a look at Zwinger's *Land above the Trees* and Arno's *Timberline*, which summarize the works of W. D. Billings and other alpine researchers in understandable prose.

Advance time spent paging through a few of these reference books might make your field trip at the conference more enjoyable and rewarding, or you may want to bring one or two along to the meeting.

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Alpine Plants of Europe: A Gardener's Guide, by Jim Jermyn. Portland: Timber Press, 2005. ISBN 0-88192-734-1. 320 pp., color photographs throughout. Hardcover, \$39.95. Available through NARGS Book Service.

Reviewed by JANE MCGARY, Estacada, Oregon

The genesis of rock gardening as it is known in the West lay in the admiration of travelers, especially the British, for the plants of Europe's high mountains. Until the successive waves of introductions from East Asia, North America, and Central Asia beginning around the turn of the twentieth century, "alpine" gardening was precisely that: the cultivation of small flowering plants from the Alps and nearby ranges. Thanks to two centuries of experimentation and selection, the inventory of readily growable alpinines available to us today still reflects, to a great extent, the continental European flora. It is thus with great pleasure that we receive the book under review: a survey of Europe's mountain ranges with a focus on the plants regarded as choice by rock gardeners, written by one of the United Kingdom's leading growers over many years.

Jim Jermyn is a professionally trained horticulturalist who worked in Germany, Italy, and the U.K. before becoming proprietor of the acclaimed Edrom Nurseries in Berwickshire, Scotland, which he ran for twenty years (it is still in operation under Ron McBeath). He is a popular lecturer who has visited NARGS chapters in North America and now works managing a national garden show in Scotland, as well as leading botanical tours. His skill in propagating and maintaining difficult plants is legendary, and in this book he shares many of his techniques in a down-to-earth style that will appeal to gardeners both new and experienced.

The book begins with "A history of European alpine plants and their geographical distribution" and "Ecological zones in the European Alps." Chapter 3, "Early spring in the garden," seems somewhat out of place in this book although it focuses appreciatively on European species, particularly bulbs and early primroses. With chapter 4 Jermyn moves into the meat of the book, five chapters con-

sidering, respectively, the Pyrenees, Western and Central Alps, Eastern Alps, Balkans, and Carpathians. (The book's only map, sad to say, is a near-illegibly labeled half-page tucked inexplicably into chapter 3, underneath an equally misplaced sidebar on alpine houses.) Each of these is subdivided into sections on smaller areas that are especially rich in alpine plants.

Each section is a sort of mental stroll through the screes and meadows, as the author focuses in turn on particular species or groups of species from a given area which, by their ornamental qualities, attract the gardener—or should do so if they were more familiar or more growable. At each stop on his stroll, Jermyn not only describes the plants and their habitats but also offers invaluable comments on their cultivation and propagation. This format, so unlike the common “manual of alpine,” demands that the reader walk along with Jermyn, listening attentively and making mental notes, reflecting on what is being said. It also means that the book can be used effectively in planning one's own botanical travels, even if one never grows the plants. Jermyn's style is chatty and accessible without being sloppy, and he does not indulge in the excesses of the Farrer school of alpine-garden writing.

The final chapter is “A practical guide to alpine gardening,” which hits the usual high spots in 12 pages. It does include a great way to make a small winter cover, which I'm going to try soon. A source list (including some North American suppliers), modest glossary, good bibliography for the general reader, measurement conversion table, and decent index complete the book.

The book is illustrated in color throughout. The quality of the photographs (many by Wilhelm and Dieter Schacht) is very uneven, and indeed I was taken aback by this when I first leafed through the book. Printed on matte paper, the inks reflect variably depending on color. More serious is the variation in color balance, which must stem from the images rather than the printing process; for example, on p. 52 there are three photos of primulas, one too yellow, one too blue, and the third normal in appearance. Even worse is the pair of photos on p. 178, both of *Physoplexis comosa*: the top one is sharply focused but unnaturally colored, and the bottom one shows what I would consider the natural color but is out of focus. In such cases, the motivation of the designer is hard to fathom. I suspect that some of the photos were scanned from old slides that have begun to deteriorate, so that the color has become brownish. Some of the images also show the dulling effect of being shot in low light conditions, unavoidable for the photographer but avoidable for the book designer choosing illustrations. All this said, however, a great many of the photos are quite good, and all of them will help readers identify and choose plants.

North American readers will want to know whether this decidedly British (if we may include “Scottish” there for our purposes) book is relevant to our conditions. I would say that its greatest areas of relevance are Jermyn's identifying a great many desirable plants to try in the rock garden, the propagation tips, his suggestions about placement and plant companions, and his guidance in planning European travel. U.S. readers must bear in mind that his experience growing the plants is mostly around 55° north latitude, much farther north than the

contiguous U.S. states, and this probably affects his advice about siting plants: he often recommends full sun for plants that U.S. rock gardeners find need a little shade. He frequently recommends planting in tufa, a substance not available to many of us, and of course there are the references to John Innes compost, sterilized leafmold, and other substances that can be had in North America only if we make them ourselves.

In conclusion, this is a book that should find its way into the library of every member of NARGS. I will certainly treasure it for many years to come.

Sharp Gardening by Christopher Holliday, photographs by Jerry Harpur.
Portland: Timber Press, 2005. ISBN 0-88192-699.

Reviewed by GWEN KELAIDIS, Denver, Colorado

This is quite an interesting book, taking a new stab at the subject of garden design and cutting a novel swathe through the palette of plants available to gardeners. The author makes clear from the beginning that the book is not for the USDA-zone-5-and-north bunch. He deals primarily with tropical to subtropical plants, throwing in a few presumably irresistibly spiny hardy perennials such as *Sempervivum* and *Echinops*.

I was unable to distinguish easily whether the author was more attracted to the spike or the spine. My own background being mostly northern North American, my training in ensiform leaves (swordlike) and lancelike leaves has mostly led to contemplation of irises, gladioli, and such, so it took me a while to realize that yuccas and agaves are rosettes of swords and lances, that palm trees mimic yuccas on sticks, and finally that such a plant as *Pachypodium lamerie* (which looks treelike to me) could be considered, as a whole, to be in the category of swords and lances. But it is good occasionally to have our plant sensibilities shocked into novel perspectives.

As I mentioned, this book will be of primary interest in North America to those who live in southern or coastal climates, where temperatures rarely drop below 15° F. The introductory chapters give a nice history of the introduction of many tropical plants into Victorian England. Design advice includes using verticals and horizontals, achieving year-round interest through evergreens, and not collecting too many different plants in one garden. It is also said that the dramatic shapes of upright succulents and thrusting swords can work well in modern small yards.

I find the headings of the paragraphs difficult sometimes to relate to the subject matter which follows: "Spikes for shade" leads to *Asplenium*? "Lush lances" refers to cannas, and continues on to include hedychiums, *Ensete*, and then *Melianthus major*? But without the colorful and beautiful photos I would be lost in this world so far from my familiar tundra-turf.

I think perhaps the book was rather lightly edited in places: on p. 92, "yuccas are the most instantly recognizable spiky plant" is followed in the next para-

graph by “yuccas create an instantly recognizable structured outline,” followed by the caption on the same page (expressing more accurately my own humble experience): “agaves and yuccas can be alarmingly similar—always check the label.”

All in all, this book may give short shrift to cacti (surely among the sharpest), or overdo the fluffy spires of grasses, but in the end it is a jolting and awakening read. It presents a very dramatic cast of plants as well as arguing for a garden designed mostly around an irritating, pointed texture—enough to recommend it, surely?

Siskiyou Sundays: A Tour of Southwest Oregon, by Don Begnoche. Self-published, 1999. 148 pp., spiral bound, 24 color plates. Available from Don Begnoche, 439 Herbert St., Ashland, OR 97520, or Northwest Nature Shop, 154 Oak Street, Ashland, OR 97520, <http://www.northwestnatureshop.com> for \$29.95 plus shipping.

Reviewed by JAY LUNN, Hillsboro, Oregon

To quote the author, “*Siskiyou Sundays* is a guide for the weekend enthusiast, for the casual traveler into the countryside who would like a companion to point the way and provide a starting point to understand the birth, maturity and senescence of southwestern Oregon’s botanical and geological landscape.” He should have mentioned geological before botanical, because the book includes a lot more about the geology of the region than about the plants.

Begnoche breaks down what he calls “the Grand Tour” into fourteen separate interconnecting tours. The Grand Tour encompasses an area bordered on the north by the Rogue River, on the east by Interstate 5, on the south by the Klamath River, and on the west by the Pacific Ocean. Each tour includes a geologic map that covers approximately 250 square miles, a road log with mileage points for features of interest, and a trailside flora list. Most of the plants in these lists can be found in one of the color plates in the book, and the author identifies the plate in which its picture appears.

The plants are represented by small pictures (16 per page) and are identified by scientific name only. The author does include a “Floral List” in the Appendix that gives the common name associated with each plant. The size of the plant pictures makes it difficult to identify some of them by sight. Begnoche includes keys in the Appendix for several genera, including some in the Liliaceae, but unfortunately not for *Erythronium*, a complex group in this region. Some helpful keys he has included are those for *Calochortus*, *Iris*, *Arabis*, *Delphinium*, *Penstemon*, *Castilleja*, *Eriogonum*, *Lupinus*, and *Sedum*.

In addition to the geological formations that occur at the mileage points in the road log, the author points out locations where you can find certain plants. Begnoche also indicates locations of trails to be explored and the showiest and most typical flowers to be seen along the way. The trails he cites are short hikes,

usually less than 3 miles one way. The Appendix includes a bar chart that indicates when to go on the different tours. The time frame extends over a fairly long period, so I wouldn't completely rely on this for guidance in seeing flowering plants.

It appears that this paperbound book was produced with a color copier. The color images may not withstand long exposure to direct sunlight as do those of a conventionally printed book. A spiral binding is not the strongest method for putting together a book, but it does allow the pages to be opened flat. This is a handy feature to have while driving,

It is difficult to find a definitive work for the flora of the Siskiyou, and this book isn't offered as such. *The Jepson Manual: Higher Plants of California* (1993) supposedly includes most of the plants that occur in the Siskiyou. However, these plants are consolidated with all of the other flora that grows south of here in the 156,000-plus square miles of California. Until something conclusive for this unique area comes along, *Siskiyou Sundays* is helpful, if you can get beyond the geology. Of course, the geology of the region had a lot to do with which plants found a home in the Siskiyou!



Trillium rivale, drawing by Phyllis Gustafson.



NARGS COMING EVENTS

Eastern Winter Study Weekend: New York, NY, January 27-29, 2006. Hosted by the Manhattan Chapter of NARGS. Information: Jacques Mommens, PO Box 67, Millwood, NY 10546 / 914-762-2948 / nargs@advinc.com

Western Winter Study Weekend: Mary Winspear Centre, Sidney (near Victoria), BC, March 3-5, 2006. Hosted by Vancouver Island Rock & Alpine Garden Society. Information: garynwhite@pacificcoast.net; Claire Hughes, 2901 Colquitz Ave., Victoria, BC Canada V9A 2M2, 1-250-388-6594

International Interim Rock Garden Plant Conference and NARGS Annual Meeting: Snowbird Resort, Snowbird (near Salt Lake City), Utah, July 21-26, 2006. Sponsored by NARGS and hosted by the Wasatch Chapter. Information: Joyce Fingerut, 537 Taugwonk Rd., Stonington, CT 06378-1805, tel. 860-535-3067, alpinegarden@comcast.net

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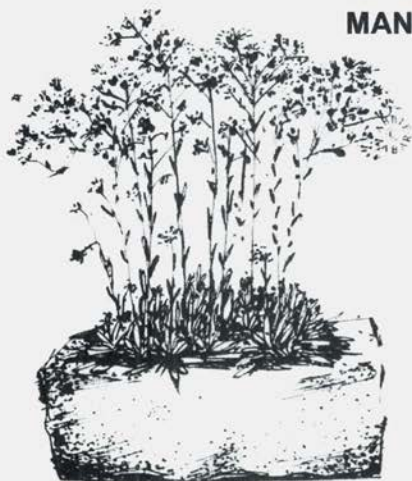
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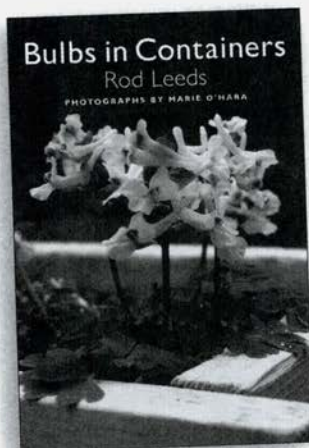
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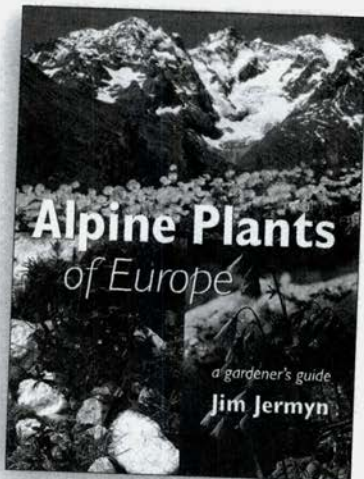
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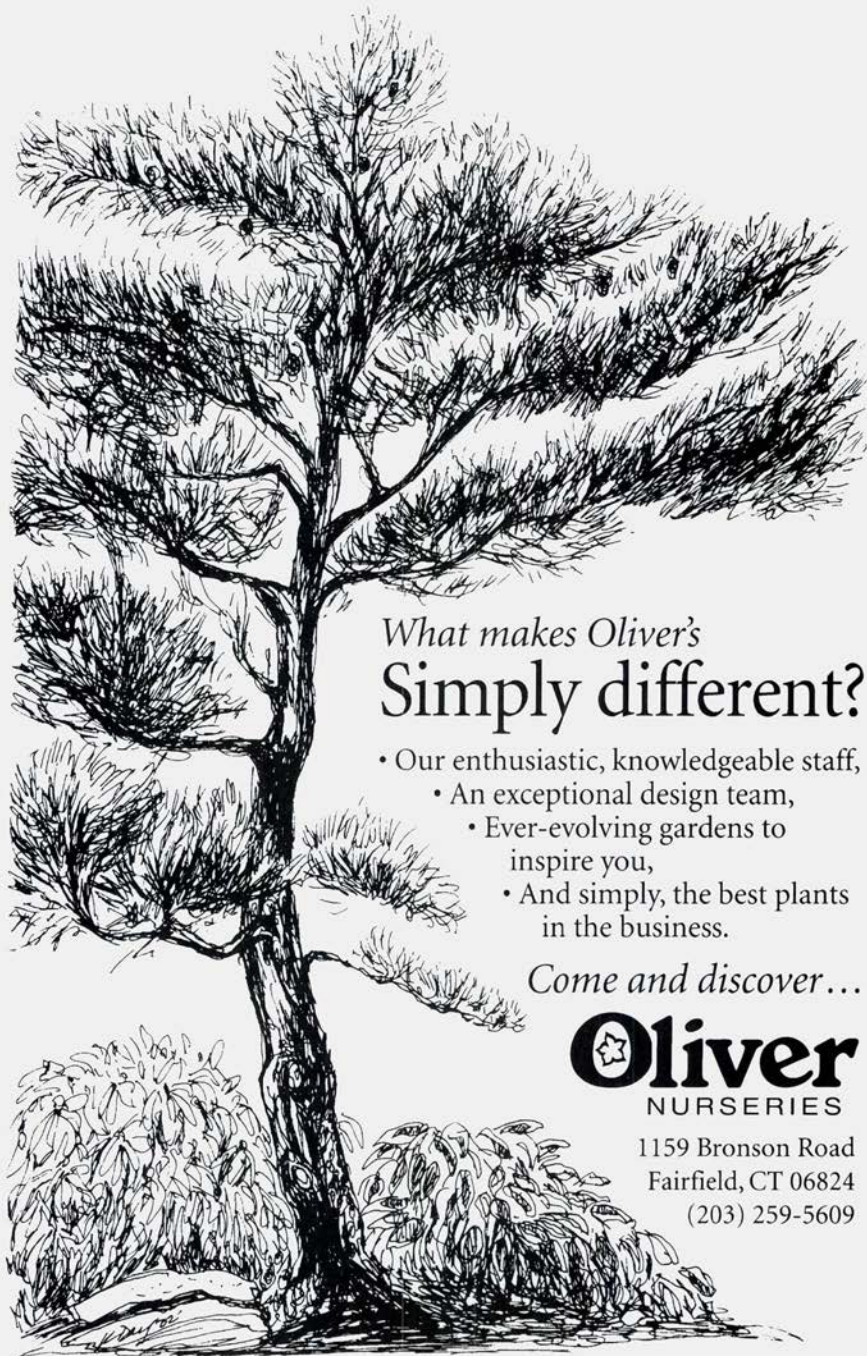
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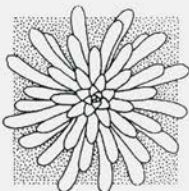
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