

# ROCK GARDEN *Quarterly*



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Cover: *Dodecatheon pulchellum* subsp. *monanthum* (syn. *D. radicum*) in Minnesota.  
Painting by Diane Crane.

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# ROCK GARDEN

## Quarterly

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# The Mountains of Northeastern Oregon

Loren Russell

## Introduction

A center of scenic beauty and floristic diversity—home to about 2400 species of vascular plants, more than 60 percent of the state's flora—the mountains of northeastern Oregon have long been one of my favorite destinations for hiking and botanizing. The Wallowas and the Blue Mountain complex, which includes the Ochoco, Maury, Aldrich, Strawberry, Greenhorn and Elkhorn ranges, are collectively known as the Blue Mountain Region and extend for more than 200 miles, from the northeastern corner of Oregon and adjacent southeastern Washington to Prineville in central Oregon. Diverse in its geology, soils, and landforms, half of the region is covered by eruptive igneous rocks, primarily the vast Columbia River flood basalts and the older John Day River ash and rhyolite deposits. There are also large exposures of granite and of sedimentary rocks, including limestone, and some exposures of serpentine rocks; there are significant parallels to the geology of the Klamath region of southwestern Oregon (see Bishop 2003).

The western ranges of the Blue Mountain Region are generally lower and drier, the eastern ones higher and wetter. The region is largely covered by ponderosa pine (*Pinus ponderosa*) or mixed conifer forest (see Langston 1995), which makes it stand out on a relief map, vegetation map, or satellite image from the adjacent, lower-elevation grasslands and semi-desert of the Columbia Basin to the north, and of the northern Great Basin to the south. There are also large areas of lower, drier grassland along the John Day and Crooked rivers, and prairies such as those of the Grand Ronde Valley near La Grande and of high basins (e.g., Big Summit Prairie in the Ochocos). In the western part of the region, timberline is reached only on Strawberry Mountain, but in the Elkhorn and Wallowa Mountains, alpine and subalpine vegetation is the most extensive and diverse in Oregon. Unfortunately, most of the alpine zone in these ranges is remote, accessible only on multi-day backpack or horseback trips.

It is impossible to do justice to this rich floral region in a single article, so here I will cover just a few reasonably accessible sites with alpine and subalpine

vegetation; I have not mentioned sites at the western (Ochoco) and eastern (Hells Canyon) ends of the region. Several of the places described were visited by the July 2003 NARGS Expedition, led by Tom Clark and myself; these are designated by \* in the text. All localities mentioned can be found easily on the National Forest and Wilderness maps of the area.

## Aldrich and Strawberry Mountains

These two ranges rise in a 50-mile front south of the John Day River between Dayville and Prairie City. They are largely composed of Mesozoic to mid-Tertiary volcanic rocks; there are significant exposures of serpentine rocks in both ranges. To the west is the Aldrich Range; generally lower and less glaciated, it is best visited in late June or early July. Most of its trails are accessible via paved Road 21 from US Highway 26, and there are many roadside delights in the first miles of this route, including *Penstemon eriantherus*, *Mimulus cusickii*, and a beautiful endemic composite, *Luina serpentina*. Fields Peak (7363 feet/2266 m) is the highest peak, a 2-mile climb from a trailhead 11 miles south of US 26 on Road 2160. From the summit of Fields Peak, it's worth following ridgetop trails to McClellan Mountain or to Moon Mountain, each about 2.5 miles. A wide range of grassland, outcrop, and scree species grow on these summits, including *Lewisia rediviva*, *Claytonia nevadensis*, and *Phacelia sericea*.

Farther west in the Aldrich Mountains, there are several good localities along Road 21 and 2150: the Cedar Grove Botanic Area on 2150, 9.5 miles from Road 21; a serpentine barren at Cabbage Patch Camp at 16 miles; and the summit lookout at 7000-foot Aldrich Mountain at 18 miles. At Cedar Grove, a 1-mile trail descends into an isolated grove of *Chamaecyparis nootkatensis* with many boreal and moist-forest understory plants, including *Calypso bulbosa* and *Cyripedium montanum*.

The Strawberry Mountains lie within the Strawberry Mountain Wilderness Area (designated Wilderness Areas are roadless and have other restrictions). This range is dominated by Strawberry Mountain (9038 feet/2780 m) and Slide Mountain (8500 feet/2615 m). Glaciation here was extensive and left behind several cirque lakes, the largest of which are Strawberry Lake, High Lake, and Slide Lake.

**\*Strawberry Mountain from Indian Spring Butte.** This 7800-foot (2400-m) elevation trailhead on the southern boundary of Strawberry Mountains Wilderness is a quarter-mile from the end of Road 1640, 40 miles from John Day on US 395, Road 15, and Road 16. This is a 3-mile, mostly level hike to the base of Strawberry Mountain, with the summit another half-mile and 600-foot climb. The trail follows an old road through sagebrush and open pine and juniper forest for the first mile; in late July, there is a wonderful display of *Linanthus nuttallii*, *Phlox hoodii*, *Eriogonum flavum*, and *Penstemon attenuatus*. This area is generally dry, but along the trail there are snowmelt patches with *Lewisia triphylla*, *L. pygmaea*, and a variety of tiny annuals, and permanent seeps with *Mimulus lewisii* and *Platanthera dilatata*. At the end of the abandoned road, the trail (signed as

the Onion Creek trail) continues north through rocky slopes and forest burned in 1996 and again in 2002. At the base of Strawberry Mountain, there is an overlook to Strawberry Lake, and a “rock garden” with *Penstemon attenuatus*, *Eriophyllum lanatum*, and *Epilobium obcordatum*. At the northeastern edge of its range, this population of *E. obcordatum* includes many soft pink and white-flowered individuals; seed has been distributed by Ron Ratko (Northwest Native Seed). The trail crosses a vast east-facing talus slope dotted with small islands of pines and *Penstemon fruticosus*, *Potentilla brevifolia*, *Claytonia megarhiza* var. *bellidifolia*, and *Collomia debilis* var. *debilis* (photo, p. 115). At an 8300-foot (2555-m) pass is a stand of whitebark pine (*Pinus albicaulis*) with a view of Prairie City a mile below. Many alpine plants can be found here on rocky pavement and north-facing ledges: *Draba densifolia*, *Erigeron compositus*, *Rhodiola rosea*, *Sedum lanceolatum* var. *rupicola*, and *Penstemon procerus* var. *formosus*.

A second option from the end of Road 1640 is the trail to two high cirque lakes, High Lake (an easy 1.3 miles) and Slide Lake (3 miles). It is just possible for a strong hiker to link these trails to complete a 17-mile circuit of Strawberry Mountain, Strawberry Lake, Slide Lake, and High Lake in one day.

\***Baldy Mountain** is a north-facing peridotite bald visible from John Day on the northern boundary of Strawberry Mountain Wilderness. From John Day, drive east on US 26 for 6 miles, then go right onto Pine Creek Road (which becomes Road 5401). Stay on the Forest Service road and follow signs to Chambers Mine, avoiding the maze of private roads and driveways. Watch for the sumptuous *Calochortus macrocarpus* by the road. At an intersection 8 miles from US 26, there is a parking area and horse corral. The road to the left, leading to Baldy Mountain, may be closed here. Walk or drive this road another mile to the wilderness boundary, a few hundred yards past the mine. Here the road enters a huge sloping meadow, full of color in late June and early July: *Frasera albicaulis*, *Lupinus lepidus* var. *aridus*, *Balsamorhiza serrata*, *Cymopterus terebinthus*, *C. nivalis*, *Zigadenus paniculatus*, and *Allium tolmiei* are abundant. A few hundred yards above to the right are outcrops with the ferns *Aspidotis densa* and *Polystichum lemmonii*, and flowering *Penstemon humilis*, *P. confertus*, *Cryptantha nubigena*, and other saxatile species.

## Elkhorn and Greenhorn Mountains

Farther east, these ranges are geologically complex and heavily forested; the higher peaks are heavily dissected by Pleistocene glaciers. The Greenhorns are a little-visited knot of mountains north of US 26, drained by the North Fork of the John Day River. The most attractive botanizing is in the trail system around Vinegar Hill (8131 feet/2500 m), Dupratt Springs, and Indian Rock (7353 feet/2262 m), which offer some limestone exposures and a tempting range of sub-alpine habitats.

The abrupt eastern face of the Elkhorns parallels Interstate 84 for 30 miles along the west side of the Powder River Valley. Much of the range is remote wil-

derness where such boreal outliers as *Bupleurum americanum* and *Geum rossii* are accessible only to hardy backpackers.

At 7100 feet (2185 m) the **Anthony Lakes ski area**, 18 miles east of Interstate 84 on Road 73, offers easy access to subalpine lakes and meadows and granite peaks. There is an extensive trail system here. The shortest and easiest, and one of the most scenic, is the \***Hoffer Lakes Loop** (2 miles). Beginning at the end of the road on the west side of Anthony Lake, the trail climbs along a stream to wet meadows full of *Gentiana calycosa*, *Dodecatheon jeffreyii*, *Kalmia microphylla*, and *Allium validum*. Where the trail crosses a ski area service road, turn right to return to the parking area; along the road, straw-yellow *Penstemon confertus* is plentiful, growing with a beautiful pale-pink form of *Ipomopsis aggregata* that is pollinated by a day-flying hawkmoth. More ambitious hikers can return to the Hoffer Lake trail to complete a 7-mile circuit of Angell Peak, Gunsight Mountain, and another wet meadow at Black Lake.

More ambitious hikers may wish to sample sections of the 30-mile long **Elkhorn Crest trail**. The 11-mile loop from the Peavy Cabin trailhead at the end of Road 380 (off Road 73, southwest of Anthony Lakes) follows the Peavy trail to 7500-foot (2308-m) Cracker Saddle, where several trails converge. Return by heading north on the Elkhorn Crest trail, then back to your car by way of the steep Cunningham Creek trail. Another very tempting route that I've never had time to complete follows the Elkhorn Crest trail north from 7800-foot (2400-m) Marble Pass (on Road 6510, west of Baker City) to Elkhorn Peak (8930 feet/2748 m) or Twin Lakes, a round trip of 10 to 12 miles.

Fifteen miles west of Anthony Lakes at the intersection of Roads 73 and 51, it's worth a short walk to the riverbank at the \***North Fork John Day Campground** to see *Polemonium occidentale* and *Corydalis caseana* var. *cusickii* (photo, p. 115).

## Wallowa Mountains

The Wallowas (pronounced "Wah-lów-ahs," "low" rhyming with "how") tantalize and frustrate day-tripping plant-lovers. There are many alpine summits and meadows in the Eagle Cap Wilderness, but the trails to them are generally long and start at low elevations, and they are usually liberally coated with horse manure. The classic locality for alpinists, Ice Lake and the Matterhorn, is nicely described by Marvin Black and Dennis Thompson (1985), but this and other sites in the back country of the Eagle Cap Wilderness require multi-day backpack trips. I have reached Ice Lake, the summit of Eagle Cap (9600 feet/2954 m), and other Wallowa peaks in single-day trips, but I'm not recommending it for everyone.

Despite the presence of awe-inspiring granite peaks, the best plant-hunting in the Wallowas is on basalt and limestone. The most accessible alpine area in the Wallowas is **Mount Howard**, at the north end of a ridge of uplifted Columbia River basalt. At the 8200-foot (2523-m) upper terminal of the Mount Howard

Gondola, 6 miles east of the town of Joseph, the visitor steps out into timberline krummholz (wind-dwarfed trees) and screes full of phlox, lupine, and many other cushion plants. The terminal area is heavily used, and visitors should not stray from the nature trails. Instead, follow the ridgeline trail south toward East Peak (9450 feet/2908 m), taking care to return before the gondola closes for the day. Two endemics, *Lomatium greenmanii* and *Penstemon spatulatus*, are abundant on this ridge, and bunnies abound on its windswept crest. On the first rise south of Mount Howard there is a north-facing exposure of the underlying granite; this is covered in *Dryas octopetala*, *Cassiope mertensiana*, and many other alpiners. The highest point on the ridge is Aneroid Mountain (9700 feet/2985 m), with still more alpiners, including *Eritrichium nanum*. I have traversed the entire ridge on several occasions, returning to Wallowa Lake via Aneroid Lake and the East Wallowa River trail. At 14 miles, half of it cross-country, this route is only for the strongest hikers, but it offers an extraordinary range of plants. In 2003, the gondola fare was \$10; the gondola operates year-round, with the best plant-viewing in July and August. It was, however, out of service for repairs in July 2003.

A 3-mile hike from the \***Hurricane Creek** trailhead, five miles southwest of Joseph, leads to a limestone gorge where Slickrock Creek spills down from the Hurricane Divide. After a stream crossing that may require care in early summer, the trail passes an area of avalanche debris and small stream channels with many species of shrubs and woodlanders like *Disporum trachycarpum*, then emerges into dry meadows with eriogonums, *Clematis hirsutissima*, and *Frasera speciosa*. Moist thickets at the edge of Hurricane Creek harbor wetland plants like *Swertia perennis* and *Parnassia fimbriata*. About 2 miles in, denser coniferous forest is home to *Clematis columbiana*, *Cypripedium montanum*, *Moneses uniflora*, and several species of grape ferns (*Botrychium*). At Slickrock Creek there is a natural rock garden with an amazing mixture of alpiners and lowlanders. A limy sand flat is ablaze with penstemons, *Anemone multifida* (photo, p. 113), *Ipomopsis aggregata* (p. 113), *Asclepias speciosa*, and *Erigeron speciosus*. In the spray of waterfalls are alpiners including *Hedysarum boreale*, *Lloydia serotina*, and *Pinguicula vulgaris*, and a dwarf form of *Aquilegia flavescens*. Screes and water-polished limestone faces host a dwarf *Campanula rotundifolia* and the Wallowa endemics *Erigeron chrysopsidis* var. *brevifolius*, *Cryptantha nubigena*, and *Eriogonum chrysops*. From early July through mid-September, this trail is one of the most floriferous places in Oregon.

Another scenic and botanically rich limestone area is Marble Point (8600 feet/2646 m) on the Frances Lake trail, near the end of the Lostine River road. Unfortunately, it requires a 7-mile climb, gaining 3500 feet (1077 m) in elevation, to reach screes full of *Eritrichium* and outcrops with *Saxifraga oppositifolia* and *Dryas drummondii*. Even worse, the spectacular view of Frances Lake has tempted me into a 20-mile day on more than one occasion. This mile-long valley ringed in 9000-foot peaks is not often visited and certainly merits a multi-day hike.

Trails on the east side of the Eagle Cap Wilderness are much less visited than the lake basin trails on the north side. The \***Bonny Lakes trail** from the Ten-



derfoot trailhead at the end of Road 100 (off Road 39, about 40 miles southeast of Joseph) offers a quiet 8-mile round trip through burnt larch forest, sagebrush, meadows, and outcrops, ending at lush meadows and dry limestone pavement at the lakes (7800 feet/2400 m). A sense of the range of habitats along this trail can be gathered by reciting just a few plants seen: *Lupinus polyphyllus* var. *burkei*, *Paeonia brownii*, *Penstemon globosus*, *Mimulus lewisii*, *Dodecatheon alpinum*, *Phoenicautis cheiranthoides*, *Gilia congesta*. Strong hikers will want to continue one or two miles past the lakes to the alpine meadows around Dollar Lake (8420 feet/2590 m); the hardest may continue from there to Tenderfoot Pass and return on the North Fork Imnaha River trail, for a 15-mile day hike.

## Further reading

- Bishop, Ellen Morris. 2003. *In Search of Ancient Oregon: A Geological and Natural History*. Portland: Timber Press. An up-to-date and beautifully illustrated popular account of historical geology of Oregon and the Klamath Province of California. The plant hunter will be especially interested in descriptions of many local outcrops of serpentine, limestone, and other parent materials in the Blue Mountains.
- Black, Marvin, and Dennis Thompson. 1985. To Ice Lake and the Matterhorn. *Bulletin of the American Rock Garden Society* 43:1–10. Reprinted in *Rock Garden Plants of North America* (NARGS/Timber Press, 1996). An excellent description of a classic locality for alpine plants.
- Hitchcock, C. Leo, and Arthur Cronquist. 1973. *Flora of the Pacific Northwest*. Seattle: University of Washington Press. This remains the standard reference for the flora of northeastern Oregon.
- Langston, Nancy. 1995. *Forest Dreams, Forest Nightmares: The Paradox of Old Growth in the Inland West*. Seattle: University of Washington Press. An environmental and cultural history of the forests and rangelands of the Blue Mountains from Oregon Trail time to the present.
- Mason, Georgia. 1975. *Guide to the Plants of the Willowa Mountains of Northeastern Oregon*. Eugene, OR: University of Oregon Museum of Natural History. Reprinted 2001. More portable than the Hitchcock flora, with very simple keys; most useful for its description of the habitat and elevation range of Willowa plants.
- Sullivan, William. 2002. *Discovering Oregon's Wild Areas*. 3rd ed. Seattle: Mountaineers Books. The indispensable guide for hiking in the state, this book covers most of the trails of interest to plant hunters.

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Loren Russell of Corvallis, Oregon, is recording secretary of NARGS and current chairman of the Emerald Chapter. He is well known for his extensive donations of wild-collected seeds to the NARGS and other exchanges, his leadership of energetic hikes, his large rock garden, and his talks to chapters throughout North America.

# With NARGS in the Wallowas

David Sellars

*Note: The author participated in the NARGS Expedition to sites described in Loren Russell's preceding article. His impressions should entice others to join in one of these annual tours sponsored by the Society. Some of his photos appear on pages 113–115.*

The Painted Ladies came over the shoulder of Strawberry Mountain in a never-ending swarm of dancing butterfly wings. At our feet, drifts of pink *Epilobium obcordatum* were poking out of the hot dry rocks (photo, p. 115). The slopes beyond were daubed with magenta *Penstemon fruticosus*, and blue *Collomia debilis* (p. 115) nestled in the coarse scree. We reached a rocky ridgetop with views over the baking valley, more butterflies, and *Claytonia megarbiza* hiding in crevices on the cliff face, sheltering from the hot sun. We had come to this place not knowing what we would find but trusting in the knowledge and expertise of the expedition's leaders.

To those of us unfamiliar with northeastern Oregon, it seemed like Middle Earth. The mountains had fantastic names like Elkhorn Ridge, Strawberry Range, and the Blue Mountains. Here were towns called Enterprise, John Day, and Halfway, and even a Hell's Canyon watched over by the Seven Devils. Extracts from the diaries of immigrants who came here on the Oregon Trail echoed with their terror as they faced the mountain passes and plumbed the canyon depths.

We were very fortunate to have as our leader Loren Russell, also known as Gandalf the Grey, wise in the lore of Middle Earth and a wizard at identifying plants. He used words such as “crispid” to characterize plants that had finished flowering and had dried in the hot sun. We assumed that this was a current botanical term; it appears in no modern botanical dictionary, but I later found it was used in the 14th-century poem *Morte Arthure*. We were also very dependent on Strider, in the guise of Tom Clark, who constantly made sure the party was well fed and protected.

Our main base of operations was an encampment just outside Enterprise, north of the Wallowa Mountains. Just like the pioneers of the Oregon Trail, we had air conditioning, a swimming pool, and a conference room for daily debriefing. The view of the Wallowa Mountains from our hotel must be one of the most

stunning in North America. The verdant green valley of the Wallowa River sweeps up in a broad outwash fan to the foot of the craggy mountains. The slope is dotted with farms and green fields, reminiscent of the European Alps.

A typical day involved climbing into the luxurious bus and motoring off to a trailhead. Strider would hand out the day's lunches and we would head up the trail, trying to keep within earshot of our plant guru. The members of the party were remarkable for their industriousness at taking notes, scribbling furiously as Loren orated on the wonders of the plants, geology, weather, and anything else that came to mind. He even conjured up plants for our delectation. On the Hurricane Creek Trail he speculated that we might see *Parnassia fimbriata* in a forested section, and as we turned around, one magically appeared right by the trail. Our destination that day was Slickrock Creek (I am not making these names up), where in a steep limestone gully we saw the white "hot rock penstemon" (*Penstemon deustus*), clusters of fiery red *Ipomopsis aggregata* (photo, p. 113), yellow *Aquilegia flavescens*, and beautiful blues such as *Campanula rotundifolia*, and tiny *Pinguicula vulgaris*.

On the descent Loren led us off the forested trail onto a sandbar beside Hurricane Creek at an elevation of about 5500 feet (1692 m) above sea level. We were startled to see, growing in a natural sand bed with a constant supply of water, *Silene acaulis*, *Dryas drummondii*, and *Epilobium latifolium*, plants normally seen only above 8000 feet (2462 m) at this latitude. Avalanches scour the sides of the Hurricane Creek valley and must have swept plants and seeds down to lower elevations where they had gained a tenuous hold in the special ecosystem formed by the sandbar, where drainage was good, water was plentiful, and there was no shade though the forest was nearby. This transient ecosystem would last only until the next big flood, when the sandbar would reform and wait patiently for nature to replant. This happens in our own gardens, too, but in our disturbed ground, nature generally distributes what we classify as weeds.

On the third day we ventured to the edge of Hell's Canyon to look into the abyss. On the ridge above, we were all captivated by the *Calochortus eurycarpus*, a "mariposa" of exotic form that carpeted the hillsides (photo, p. 114). There were swathes of a particularly lovely *Penstemon venustus* with large, luminous blue flowers supported by glaucous foliage—definitely one for the garden. Perched on the hot, dry rocks was *Lewisia columbiana* subsp. *wallowensis*, with no visible means of obtaining water. Fleshy leaves and deep roots must sustain it.

On the way back we stopped by one of Loren's cairns, mysterious piles of rock to mark the location of a route to some interesting plants. This cairned path led to clumps of *Clematis columbiana*, long past flowering but exhibiting interesting foliage and form. (One of the advantages of traveling with a knowledgeable group is that the constant chatter of plant names improves your pronunciation. For instance, I learned that the second word in the name *Penstemon rupicola* is pronounced like the musical instrument piccolo, rather than a new variety of soft drink.)

The final day in the Wallowas was a hike to Bonny Lakes on the drier eastern end of the range. The path was a pack trail, which in these parts means that it

keeps crossing and recrossing the stream on rudimentary bridges of fallen trees. Most of the party balanced across the logs or stepped gingerly from rock to rock. By the end of the day, many simply got fed up and splashed across the stream, getting their boots soaking wet. We saw no pack horses but did meet a train of pack *goats* coming down the trail. They were kitted out with suitably sized packs, and their handlers maintained they needed less attention than horses.

In the verdant valley below the trail, we were startled to see a cluster of huge, spiky white inflorescences. *Veratrum californicum* has larger flowers than the green-flowered *Veratrum viride* that is common in the Cascade Ranges to the west. Other notable beauties on the way up the trail included *Polemonium pulcherrimum* in the lightly shaded forest and clusters of pink *Allium acuminatum* growing among large rocks.

Above Bonny Lakes we climbed up a sweep of limestone rock and the party dispersed, eyes down, looking for plants in flower. We came across particularly fine specimens of *Anemone multifida* in bicolored yellow and red (photo, p. 113).

Perhaps the finest plants were seen on the final day as we headed to the western shores across the Elkhorn Range. Not too far from the Anthony Lakes parking lot we came across a lovely moist meadow with nodding *Dodecatheon jeffreyi*, glorious blue *Gentiana calycosa*, and the white bog orchid *Platanthera dilatata*. Tall blue spires of *Aconitum columbianum* contrasted with the odd-looking *Pedicularis groenlandica*, known locally as “elephant’s head.” Higher up the slopes were a number of *Castilleja* species looking stately against the granitic rocks. On the way down we saw a lovely pink form of *Ipomopsis aggregata* on a dry rock bank above the trail. Later, beside the John Day River, we were rewarded with roadside views of *Corydalis caseana* var. *cusickii* (photo, p. 115) and *Polemonium occidentale*.

To anyone thinking of participating in a NARGS expedition, there can be no finer way of obtaining an introduction to the geography, geology, and flora of an unfamiliar area. We were particularly fortunate to be led by Loren Russell, who has such an intimate knowledge of the Wallawas, and Tom Clark, whose organizational skills were remarkable. There were no Misty Mountains in this Middle Earth. Every day was sunny, so that the main preoccupation was finding shade rather than rain hats. On top of all that we had great companionship, made new friends, and learned how to pronounce *Eriogonum*.

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David Sellars of Surrey, British Columbia (near Vancouver) recently contributed an article on winter protection structures, and an award-winning photo of his rock garden appeared in the winter 2004 issue.

# Growing *Calandrinia* and *Montiopsis*

Rick Lupp

*Calandrinia* is a rather large genus of mostly South American plants that has gone through a number of taxonomic changes and splits over the years. At one time, the North American species *Claytonia megarhiza* was included in *Calandrinia*. The current arrangement of this group within the family Portulacaceae—which also includes *Lewisia* and *Talinum*—has the old genus *Calandrinia* parceled out among *Calandrinia*, *Montiopsis*, and *Cistanthe*. The first two include the majority of species often seen in cultivation.

Over about the past ten years, I have grown many of these plants, and I have found that some do very well in my open deep sand beds and troughs; others, however, seem to thrive only under cover in the climate of the maritime Pacific Northwest, at least in our wet, cold winters. At my home southeast of Seattle, Washington, annual precipitation averages 55 to 60 inches (137–150 cm), with most falling as rain between October and June. The weather is mostly dry between July and October. Winter lows are typically about 10°F (–12°C) but sometimes reach –10°F (–24°C) or even colder.

*Calandrinia caespitosa* has one of the largest ranges in the genus and is found from the northern mountains of Chile and Argentina to Tierra del Fuego, at elevations from 2500 to 12,500 feet (750–3750 m). Its typical habitats are quite moist at flowering time but dry out later in the season, much like those of deciduous *Lewisia* species in North America. Several quite distinct plants have been included in this species. One, sometimes called the “tomato red” or just “red” form, has in the past been known as *C. rupestris* or *C. caespitosa* var. *rupestris*. In nature, it occurs near the upper limit of the vegetated zone in scree and similar situations. It forms cushions of little cockscomb-like structures topped by narrow, fleshy leaves, and it bears good-sized red blooms with prominent greenish-yellow centers. We have also grown a similar plant with white flowers. Both have been long-lived under cover in a lean soil mix kept rather dry in winter, and have also succeeded for several years in a crevice in the sand bed, with an eastern or northern exposure. They should do well in troughs, given similar exposure and a well-drained soil. Both produce abundant seed that germinates well.

Another form of *C. caespitosa* that we grow was received as *C. caespitosa* “Skottsbergii” (a name that is invalid botanically but used in horticulture). This is a very beautiful plant with large golden-yellow blossoms. It makes a small mat of narrow, fleshy foliage, lacking the cockscomb structures seen in the red and white forms. It has not yet succeeded in our open garden but does very well in a pot or trough, covered in winter. It dies quickly if allowed to get too dry during the growing season but should be kept relatively dry in winter. (In nature, it is found above the winter snow line in the southern Andes, especially in slight depressions where the snow melts later and the substrate is presumably damper than in the surrounding scree.) It produces plenty of seed most years, but this seed does not germinate well. We have found that if plants are set with some of the larger roots exposed for most of their length on the soil surface, they form little plantlets along the roots which can be removed and grown on easily.

John Watson and Anita Flores introduced *Calandrinia ranunculina* to cultivation via their seed list in 2000. They describe it as “a smallish flowered variant of the *C. caespitosa* complex which we believe should be regarded as a separate species.” This is a cute little plant that forms rosettes of succulent, narrowly lanceolate leaves with single bright yellow flowers held on short stems. Its overall effect is much like that of a yellow-flowered *Lewisia pygmaea*. *Calandrinia ranunculina* has overwintered in our sand beds and has even self-sown a little in a cool, bright site. It would also make a good addition to a well-drained trough. It, too, dislikes drying out during the growing season.

*Calandrinia* sp. G&K4698 (photo, p. 116) is much like *C. acutisepala*, with its tufted rosettes of rather long, narrowly lanceolate leaves, but it bears an abundance of large orange flowers held singly on strong 6-inch (15-cm) stems, rather than the large white blooms of *C. acutisepala*. A well-grown plant of G&K4698 can have 25 or more blooms, making a splendid display. This plant has now been in cultivation for more than six years, but as far as I know it has not yet been identified. It has done well for us in the open when planted under the overhang of a large pine tree in a well-drained bed, but the slugs enjoy chewing it down to a nubbin every now and then, if I forget the slug bait. It has, however, always recovered quickly from these attacks. I get good seed set from it, and the seed germinates well when given stratification (moist chilling) over winter.

*Calandrinia hirtella* is a rather small, much-branched plant with short linear-spatulate leaves, very fleshy and glandular, with a brownish tint. Its overall habit reminds me of some *Talinum* species. The form of *C. hirtella* I'm growing bears clusters of three or four small white flowers over a long period during summer. There are also purplish-flowered forms. This is another species that makes abundant seed and self-sows a bit. It is found at mid elevations in the Andes from around Santiago south to Patagonia, growing in exposed sites. We find that it does best in the sand beds where it is not too hot and does not get too dry in summer; it's also easy in a trough or pot.

We have grown several other calandrinias that are lovely but have not proven especially good garden plants in the open sand beds or troughs. They might do better in a richer scree or a traditional rock garden. *Calandrinia acutisepala*

(photo, p. 116) is one of the most beautiful species in the genus. Its rather long linear leaves are strongly acute (pointed) and form tufted rosettes. The flowers of the form we grow are over an inch (2.5 cm) in diameter, white with a showy red eye. An older plant can have a dozen or more blooms open at any one time over a period of six to eight weeks. Pink and magenta forms are also known. This species comes from the south central Andes of Argentina, occurring on sandy volcanic slopes. We grow it in a very well drained mix under cover, taking care not to overwater during winter. Cold-hardiness has been good. Seed is produced, but germination has been poor.

Also beautiful is *Calandrinia affinis* (photo, p. 116), which bears rather large pinkish flowers in the form we grow; more commonly, it has white flowers with a prominent golden eye. In general appearance it reminds me of *Lewisia longipetala*, though a bit neater with its bright green linear leaves forming tight rosettes. The flowers sit right down on the foliage in tight little clusters filling the center of the rosette. At this time, I'm down to just one plant of this species because I tried to take cuttings from several other plants, and they all developed rot from the cut areas and died. To make matters worse, none of the cuttings rooted. This is another plant that produces plenty of seed that just does not want to germinate well. It is fairly common in the mountains of Chile and Argentina, where it grows in areas that are very wet in spring and drier in summer, blooming just after the snow melts. We grow it under cover in a well-drained mix kept fairly damp in spring but allowed to become surface-dry in summer.

We first received seed of *Calandrinia acaulis* about eight years ago from Betty Lowry, another gardener in the Seattle area, who had collected it at high elevation in Ecuador. This has been an easy, long-lived species for us when grown under cover. It forms pretty rosettes of straplike, fleshy, linear leaves, which are sharply acute and have an attractive reddish tint at the base. The plant is surrounded by a ring of pink or white flowers, 0.5 to 1 inch in diameter (1.5–2.5 cm), which are held singly on short stems in our form; other forms may have longer stems. We like to grow this plant as a little colony of three to five individuals, making a good show even when not in bloom. We use a well-drained mix that is never allowed to become dry, since the plants wilt and even die if they dry out. This widespread species occurs throughout the Andes in various types of habitats, and perhaps other forms would need different growing conditions.

Several species of *Montiopsis* make good garden plants in the right conditions. Our favorite is *Montiopsis sericea* (syn. *Calandrinia sericea*; photo, p. 117). It has beautiful low silver mounds of narrow foliage covered with long, silky white hairs. The very large flowers have a satiny texture and range from glowing pink to almost magenta. As in other species, the flowers open fully only when the sun hits them. This may be the most satisfactory garden plant of all the *Montiopsis* and *Calandrinia* forms here. We grow it in crevices in our sand beds, in full sun, and in a sunny wall it has thrived for three years, blooming off and on all summer and into fall. The deer occasionally nip it. I get good seed on this species only with hand pollination, but what seed is produced does germinate well. In

nature, *M. sericea* grows in moist screes up to very high elevation, and it appears to be a “pioneer” plant with many small individuals in a colony.

Another good performer in sand beds is *Montiopsis cistiflora* (syn. *Calandrinia dianthoides*), which forms small clumps of tufted, narrowly linear to filiform (threadlike) leaves. The flowers are shallow cups of rich magenta, and a mature plant can produce dozens of blooms on strong, upright 5-inch (12.5-cm) stems. There are also pink- and white-flowered forms. I grow it in my sand beds in full sun, either in crevices or on the flat areas, and also in troughs and pots, where it needs plenty of sun and good drainage to thrive. The plant is much larger and more luxuriant when grown in pots than in the open. Abundant seed is produced, and it germinates readily after winter stratification.

*Montiopsis andicola* (photo, p. 117) is a close ally of the previous species and needs the same conditions, both in the open and under cover. This one resembles a small, decumbent shrub, with narrowly linear-spathulate leaves and many solitary, rich red blooms. *M. andicola* var. *tricolor* has similar foliage but forms a very low, sprawling, prostrate mat with pretty brownish-orange flowers centered with red. While *M. andicola* var. *tricolor* produces plenty of good seed here, *M. andicola* itself has never done so even with hand pollination. This past year for the first time I used pollen from var. *tricolor* on the typical form, and I now have several promising seed pods.

*Montiopsis gilliesii* forms low cushions of linear leaves covered with rather coarse hairs. The scapes tend to be prostrate, so that the flowers form a circle around the cushion. The flowers are held in dense terminal clusters and are white or various shades of pink. Almost every pink-flowered plant we've grown has been a slightly different shade, producing a nice effect when the plants form a small colony in the garden. This species needs the same conditions as *M. sericea* in the sand bed or trough, and it is also an easy-to-please pot subject. *M. gilliesii* comes from the central and northern Andes of Chile and Argentina at elevations from 6000 to 12,000 feet (1800–3600 m).

Seeds and plants of both *Calandrinia* and *Montiopsis* are increasingly available, and we hope that more and more growers around the world will give them a try. We will all benefit from learning more about these wonderful plants and their needs in cultivation.

## Sources

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<bvccreek@netidea.com>

Mt. Tahoma Nursery, 28111 112th Ave. E., Graham, WA 98338,  
<www.backyardgardener.com/mttahoma>

John Watson & Anita Flores, c/o M. J. Cheese, Silvercove, Lee Downs, Ilfracombe,  
North Devon, EX34 8LR, England [seeds only]

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Rick Lupp is the proprietor of Mt. Tahoma Nursery in Graham, Washington, propagating a large selection of true alpine perennials and dwarf shrubs. An enthusiastic hiker, he travels frequently to the mountains of North America to discover choice selections.



# Junos from a Mine Field

Jānis Rukšāns

*Note: This account first appeared in somewhat different form in Jānis Rukšāns's 2003 bulb catalog. He has given us permission to edit and publish it, and has provided the photographs on pp. 118–120. Botanists and gardeners in former Soviet bloc countries, including Latvia, have long made plant-hunting expeditions to Central Asia, introducing hundreds of species to cultivation. This article will give readers some idea of the adventures that lie behind these lovely plants.*

On a botanical field trip in Uzbekistan in 2001, one of the former Soviet republics of Central Asia, the botanist Arnis Seisums and I left Tashkent on 22 June at 5 o'clock in the morning. We planned to start by spending six days in southern Uzbekistan, first in the southwest near the border with Turkmenistan, and then in the southeastern corner near the Tadjikistan border. Both regions are very close to a third border, with Afghanistan.

The scene that opened up as we gazed through the windows of our hired car was discouraging. Everything was sunbaked, and the weather was extraordinarily hot and dry. The last time we had been here in late June, at Tahta-Karacha Pass local boys had been offering bunches of *Tulipa fosteriana* flowers. Now all was gray, with only some *Eremurus olgae* in flower near the pass. Near Shurab, where the last time we had found *Allium gypsaceum*, *A. verticillatum*, and other bulbs in flower, the landscape was gray, brown, pinkish, and even white, but this time the colors were not those of plants but of bare, sunbaked soil. We felt almost as if we were on another planet. The driver we had hired for the trip was a rather crazy young man, and the car reached 90 miles per hour even on the winding mountain roads. How would it all end?

Eventually we turned off the road we knew from previous trips and toward the Kugi-Tang mountain range. The first side road (25 kilometers, according to the map) goes just to the ridge on the opposite side of which is Hodja-fil-ata, the vicinity from which *Iris vvedenskyi* was described. The landscape resembled a desert, and the riverbed was completely dry. Surprisingly, the road was well paved up to the last village on our map. On the outskirts of the village was a campsite where we found lodging for 4000 *sums* a night, about U.S. \$4. They offered us

their best house—two beds, and even electricity. Later we found that the electric lines were broken and the beds without mattresses, but at least we had light on an open veranda.

When we entered the village, we were surprised to find a gate across the road, with a sign in Uzbek, which we couldn't read (we could communicate with a few of the local people in Russian). Our Uzbek driver, however, opened the gate and drove in, disregarding the guard's cries. It was only late the next evening that we learned that we were entering a Natural Preserve. The director of the campsite had decided that if we had passed the gate, that meant we had "strong papers," and questioning us could be dangerous.

We left our baggage at the camp with our driver and went on a short trip to the mountains. Soon we saw the first Juno irises: scattered, broken, dry stems with a few seeds remaining. There were *Eremurus*, also with yellow, dry leaves. It appeared that these were at least two species; one might be *E. olgae*, but it was very short, so I tentatively identified it as *E. stenophyllus*. Arnis, however, thought its shortness might have been caused by the dry spring, and he was probably right, since Kugi-Tang is quite far from the area where *E. stenophyllus* is known to occur. The other *Eremurus* seemed to have borne large flowers in a loose spike, generally resembling species we had collected earlier in Zaamin and Tut. The latter, collected too early, had not survived in my nursery. In fact, collecting *Eremurus* is not easy. Their rootstocks are large and heavy, taking up a lot of space. We usually do not collect more than five plants at a given spot, and that sometimes is not sufficient to guarantee successful introduction to cultivation. It is better to collect seeds, and now we were here just when they were almost ripe, so we gathered some. We went up an old tractor road, but there were not many bulbs to be seen—only more *Eremurus*.

The old road ended; where should we go now? The first day, we decided on the gentle slopes about halfway up the ridge. We passed a fairly dense *Juniperus* forest. In the clearings, Arnis found the small, late-flowering, very beautiful *Allium gypsaceum*. When we reached the meadows, there was another onion, *A. verticillatum*. It is short-growing with a proportionately very large globose flower head, but even more distinctive is its foliage: the leaves are long and threadlike, almost indistinguishable from the surrounding grass. This is not an easy species to grow; I had collected it on two previous trips and lost it, so this time I took only seeds.

Also present was *Gentiana olivieri*, almost ubiquitous in Central Asia. This was the first time we had seen it with its leaves already yellow and withering, again confirming that the season was very early and dry. There was a yellow-flowered *Delphinium* species, too. There are two perennial delphiniums with yellow flowers in Central Asia, both growing in the same localities. We could not determine which this was—*D. semibarbatum*, which we had grown successfully for years, or *D. biternatum*, for which we were still searching.

Surprisingly, there were almost no cattle on the mountains. The meadows appeared to have been cultivated at one time, since they were terraced, and on the terraces we noted a sequential change involving two grass species. It seemed that

there had been an attempt to return previously cultivated fields to a more natural condition. In one spot were many dry scapes of *Allium stipitatum*, growing in the richly manured soil of a former cattle pen; this species enjoys such humus-rich sites.

On the way back, we discussed a route for the next day. It wasn't an easy decision. In some spots the slope was cut by steep rocks, and in others there were dense shrub or juniper thickets, which can be even harder to cross. Finally we decided to follow a dry watercourse, locally called a *sai*, and then go up a rockfall that appeared to have a zigzag footpath across it.

On the way back we collected a few Juno irises, possibly *Iris warleyensis*, though I thought the bulbs and roots were too fat. Arnis, however, told me this was normal for this species in the South Kugi-Tang, where he had been many years before. Flowering the next spring proved that it really was *I. warleyensis* (photo, p. 120), and indeed the most beautiful form of the species I have ever seen, with velvety, blackish-purple falls and bright blue-violet standards.

While we were in the mountains, our driver had found some vodka and was quite drunk. We made tea and supper and went to sleep. The next morning we got up early, for the day promised to be terribly hot, and we wanted to reach the ridge in the freshness of morning. Just at the start of our hike we met an elderly man, whom I asked about the way up. He confirmed that the only route was by the *sai* and the footpath, but he warned us to be careful, because border guards had mined the ridge to forestall Muslim fundamentalist intruders. The border between Uzbekistan and Turkmenistan follows the mountain ridge somewhere south of the pass. Arnis and I decided it couldn't be true, here so far from Afghanistan. We speculated that the border guards had told this story to the locals so they wouldn't cross into Turkmenistan to graze their cattle there.

The walk up was easy in the cool of early morning. We found another Juno iris, probably *Iris svetlanae* (photo, p. 119), though we would know for sure only the next spring, when a few mature bulbs we collected began to flower. This is one of the most beautiful yellow-flowered Junos—compact, large-flowered, and bright, and most important, a good grower in the northern climate of Latvia. The footpath wound through shrubs—*Rosa*, *Lonicera*, *Crataegus*, *Prunus*, and *Acer* (rose, honeysuckle, hawthorn, cherry, and maple)—following a narrow rivulet that finally disappeared in the rocks. We took the last opportunity to refresh ourselves, washing our faces and hands and filling our water bottles.

Now we saw a few Junos, different from those lower down—probably *I. warleyensis* again. Under a large juniper we found a tall *Allium*, which we thought at first was *A. jesdianum*, but a careful look at the seed capsules proved that it was *A. sarawschanicum*. We lost the neglected path repeatedly and had to search for the route upward.

At half past eight we stopped to collect some tulips, probably *Tulipa lanata*, two Juno species, some alliums, and two *Eremurus* species. There were many bulbs, but finding them was not easy after the nearly snowless winter and dry spring. The seed crop was minimal, and many stems had already broken and blown away, so we collected some seeds from wind-blown capsules.

We reached a bare, south-facing stony slope where the sun baked us cruelly, despite a light, refreshing breeze. We paused to rinse our dry mouths with water; we didn't drink, only rinsed, for if you start to drink, you can't stop. We started seeing a small tulip, probably of the *Tulipa turkestanica* complex, and then a very tiny Juno iris. We carefully removed some soil to see its roots. It was a typical species of the *Iris parvula* group, and although we saw no flowers, this was the locality from which *I. vvedenskyi* had been described.

At the top, where our path crossed the ridge, an unpleasant surprise awaited us. The pass was blocked by a high stone fence, with a sign in Uzbek. Immediately we recalled our early-morning talk with the old man. His first warning had proven right—the pass was closed—but what about the mines? What should we do? Up to now we had found only two weak plants of the probable *I. vvedenskyi*, but it usually doesn't like south-facing slopes. More typical habitat could exist on the opposite slope just beyond the fence, protected from intense sun. And these little Junos must be *I. vvedenskyi*, because two closely related species rarely grow side by side at high elevations. Finally we decided to cross the fence, but to be very careful and not walk on the footpath. Instead, we'd try to jump from one large rock to another.

It was 20 past noon when we crossed the ridge via the rocks on the other side of the fence. Now we could see that this really was the only possible route, for there were impassable cliffs on both sides of the pass. On the opposite side we spotted a fine meadow with a good wide path leading downward. But it looked all too good, and we kept close to the cliffs instead. We could hardly believe that there were mines in this pleasant, peaceful landscape. We turned into a steep, narrow rift in the rocks that ended in a vertical cliff, and there they were: thousands of *Iris vvedenskyi* (photo, p. 118), protected from the midday sun, growing under dense shrubs of dwarf rose and cherry that prevented the cattle from reaching them—and made it equally difficult for us. On a small rock ledge a couple of meters above us was a large *Fritillaria olgae* with plenty of seeds. We sowed half the seeds at the site and took half with us. Despite a careful search, we found no more individuals.

In a side meadow were two *Eremurus* species, one with very hairy leaves recalling *E. kaufmannii* from Zaamin. A previous attempt to introduce the latter as a collected rootstock had failed, but now we could collect nearly ripe seed. The other appeared to be a small-flowered species with plicate seedpods, and we collected some of its seed too. In another meadow full of Junos, we collected some, but digging them was not easy; the roots were very brittle and too often broke off the bulb. However, our experience with the closely allied *Iris tadshikorum* and *I. parvula* (photos, p. 118) had shown that this is not fatal for either bulbs or roots, both of which can regenerate. The broken roots make a shoot from which a new bulb develops, and a bulb without storage roots produces new ones the next season. A bulb without roots can flower, but the roots alone make only leaves.

Near the rock outcrops grew *Allium protensum*, and among the irises in the meadow was a small onion with bright reddish-purple flowers. It looked like a

miniature *A. barszczewskyi*, but Arnis would later identify it as *A. tenuicaule*. It would be a good subject for pot cultivation or small rockeries.

We had found everything we came for, and after a short rest we decided not to risk more and turned back. As always, going down was more difficult than going up, and only now did we realize how far we had come. Finally we heard the babbling of the high spring and paused to refresh ourselves and take a brief nap in the shade of a large willow. But we still had more than half the hike ahead of us, and we forced ourselves to stand up and continue, walking at a good pace despite our aching legs.

Near our campsite, a few men in uniform were waiting for us. This made us rather nervous, since we were so near the border. They stopped us and started questioning us. Who were we? What were we doing? Who allowed us to walk here? This is a Natural Preserve, we were informed; why hadn't we registered and paid for permission to enter? We could, however, pay a fine for hiking without permission and without a guide, and as foreigners, we had to pay a special tax. After a short negotiation, we agreed that U.S. \$30 for each of us would suffice, and since we didn't need receipts, we suddenly became their best friends (\$30 is half a year's salary for them). They told us that the Natural Preserve had existed for only five years; our maps were ten years old, so didn't show it. In fact, the guards had been afraid that a mine might blow us up, and then they would spend the rest of their lives in prison. Walking without a guide was not permitted simply because of the mines on the other side of the ridge. Yes, this time the Lord was with us!

Early the next morning we left the Kugi-Tang mountains and went on to Tupalang, the last large valley before the border with Tadjikistan. The map showed a paved road far into the valley. We were hoping to find some good alliums—possibly species new to us—and a population of *Iris rosenbachiana*. Some beautiful forms of *Iris vicaria* (photo, p. 119) had also been reported from Tupalang. It took until three in the afternoon to drive into the valley, but the road was in perfect shape and brought us higher and higher. We had gone more than halfway to our intended destination when we were halted by an army guard post. The soldiers explained that even if they allowed us to pass, we would soon be stopped again and sent back because of a dangerous situation in the mountains owing to the presence of Muslim fundamentalists. All we could do was turn around.

Near the roadside we saw dried stems of *Iris vicaria*. Since we couldn't go up the valley, we decided to try a short hike up a promising side gorge. The weather was terribly hot, and our fast pace soon left us short of breath. The sides of the gorge were extremely steep and dry, and only on the steepest spots where even sheep couldn't walk were some remnants of vegetation, including irises. Finally we found a slope where we could gain a foothold on some small shrubs, and there we collected some Junos, which we located only by the stubs of the stems left by the sheep, or even holes in the soil where the stems had been pulled out. The soil was brick-hard, and lifting the bulb with its roots attached was not easy. *Iris vicaria* dislikes having its storage roots broken, and a bulb without them usu-

ally dies, while detached roots rarely make new shoots. Nonetheless, I carefully collected all the bulbs we dug, roots or not, and autumn brought me a pleasant surprise: approximately half of the bulbs without roots at planting time showed the small knobs of new roots forming. *Iris vicaria* (photo, p. 119) is an easily grown species in the garden, and if the Tupalang plants were as beautiful as the Soviet botanists had written, these would be a nice addition to our collection.

Having failed to explore Tupalang's high reaches, we retreated from the border and tried the next gorge, Sangardak. The road there was not so good, but passable. This valley contains a unique natural site, designated the Springs of Sharimazar on the map. This is a large rock formation from which emerge many streams, creating wonderful cascades of pure, refreshing water. The air is moist, cool, even misty, and there is an entirely different plant world dominated by mosses, ferns, and algae. Only 15 meters away the temperature was 40°C (104°F), but here the air was cool and fresh. In view of our earlier experience, we asked the local people whether there were protected areas, and whether we could walk freely in the mountains. They assured us there would be no problems.

We pitched our tents just outside the village of Sangardak, looked around a bit, and discussed the next day's route. We decided to continue on through the village and try to reach the highest peak in the region, 4117-meter-high (13,380-foot) Hursantag. At those elevations, there might be some beautiful alliums.

We started out at dawn, but just before we left the village, we were stopped by a man in civilian clothing who started questioning us: Who are we, where are we going, why hadn't we registered with the police? He took us to the municipal offices and gave us forms to fill out while he wrote on another paper in Uzbek. We had no idea that he was reporting to the District Headquarters of Defense about two very suspicious men entering the village through the mountains from Tadjikistan and inquiring about the religion and political sympathies of the local people. In fact, he believed, he had nabbed some "Tadjik Muslim fundamentalist soldiers of fortune from the Baltic states." We were arrested, our passports were confiscated, and local policemen took us in our own car back to Tupalang.

Then the interrogation started. Where was our rock-climbing equipment (on the Tadjik side there are nearly impassable cliffs)? Where were our maps, compass, cameras, video? What had we photographed? We didn't know what was safe to tell them. The problem was that in local slang, "botanist" means "drug collector." We decided to say that we were journalists—not a lie, since my previous career was journalism, and I still write for Latvian newspapers. We had no idea that the foreign journalist is public enemy number two in Uzbekistan, right after the Muslim fundamentalist. The questioning doubled in intensity. How had we got past the checkpoints? They didn't believe that no one had asked for our documents. We were worried about our maps, which were military maps from the former Soviet Union, still "Top Secret" in Uzbekistan even though freely obtainable in Latvian bookshops. The officials, however, were hesitant to search our equipment; if we actually were foreign journalists and they found nothing incriminating, diplomatic problems could arise.

So, after several long hours of interrogation, we were free—relatively free, allowed to walk around inside the headquarters compound. We had to wait for them to contact the Home Affairs office in Tashkent. The colonel invited us to his table for the evening meal, which was delicious. Even Heineken beer was supplied—“You Baltic people like beer,” explained the colonel. After that, the brain-washing began: the full Moscow line about the bad Latvians who forget the great aid received from their “elder brother, helpful Russia.” We were given beds for the night in the colonel’s private apartment.

Two lieutenant colonels invited us to a little party, needing company to drink vodka. It was well chilled but conspiratorially served in teacups. We had the same discussion about the bad Baltic states, which don’t understand how happy they would be in a Russian Empire. The biggest joke was their explanation that we were “not arrested, only invited.”

In the morning, we were informed that they were sending us back to Tashkent, because the Secretary of State, a general, wanted to meet us personally. Two soldiers would accompany us, “only for your safety,” but we couldn’t stop anywhere along the way. In the end, because our car was small, only one soldier came along. Before we got back to Tashkent, however, we had to cross all of southern Uzbekistan, going to the town of Termez to have our papers stamped. We reached there at noon, and the office was closed because of the heat. We passed our time in the city park, drinking the excellent local beer under shade trees. After our papers were finally stamped in the late afternoon, we continued on our way but had to spend the night in Samarkand, in good lodgings in a former private house.

On our way to Tashkent the next morning, we had another surprise. Rebellious collective farmers had blocked the highway with tractors because they had received no wages for half a year. We saw one limousine try to pass the blockade, and the farmers pelted it with stones, breaking all its windows. We were foreigners and potential hostages, so we had to turn around quickly and seek another, longer route. There we encountered a police checkpoint where they were awaiting the Special Forces. The police officials asked us what we’d seen on the other highway. To our question about what would happen to the protesting farmers, they replied, “Seven to ten years in prison for those who are alive after the attack.” Given prison conditions in Uzbekistan, that is equal to a death sentence; it would be better to die immediately.

After reaching Tashkent in the afternoon, we entered the vast complex of the Ministry of Home Affairs, where we were shunted repeatedly to hotter and more distant outdoor “waiting rooms.” Admitted after several hours, we were guided from one parlor to another; everywhere were TVs playing Indian soap operas to help the officials pass the workday. Again we had to write our account, listing all our contacts in Uzbekistan—among whom was the chief of the president’s bodyguards. That name abruptly altered the expressions on the officials’ faces. We were served tea and sweets, and our papers taken away.

After an hour or more, the door flew open and an angry-looking man asked, “Now stop lying, tell the truth—who are you?” Somewhat frightened, I answered

that Arnis was a doctor of biology, and I myself a plant breeder, biologist, and journalist. Still angry, he said, “Why didn’t you say at the beginning that you’re biologists, instead of claiming you’re journalists?” Only then did I realize the antagonism of the local regime toward journalists, especially independent and Western ones!

Now everything changed: we became friends, we exchanged addresses and received promises of future help. But when we asked if we could return to the mountains, they strongly recommended we stay in Tashkent—a beautiful city, with so many nice buildings and monuments. A recommendation like that is equal to a command, so we returned to our friend’s home and looked for the first flight home.

Nevertheless, the trip was not a total loss. We had found the most important plant, *Iris vvedenskyi*, and we were really too late for such a dry year. It had been so hot—over 45°C (110°F) in the daytime and rarely below 30°C (85°F) at night. The few days we remained in Tashkent were sufficient for me to develop an allergy to heat. For several months after returning home, I couldn’t use the sauna, the usual form of bathing in many Latvian country houses. Later, we re-identified some of the *Eremurus* we had collected, but in general, all the collected material was correctly named and survived, and has now increased in the nursery.

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Jānis Rukšāns operates a well-known bulb nursery in Rozula, Latvia. Trained in botany and horticulture at the National Botanical Garden of the Latvian Academy of Sciences (of which he is now a member), he edited the horticultural magazine *Darzs un Drava* from 1968 to 1991, when he became a full-time plant explorer and grower. He has raised many registered tulip and daffodil hybrids as well as introducing more than one hundred new species and selections from the wild. He is the author of five gardening books published in Latvia and is working on a revision of his book on daffodils and one on bulbs in the wild and in the garden. During his expeditions he has discovered three new species of *Corydalis* (one of which botanists have named *C. ruksansii* in his honor), two new *Allium* species, and two new *Iris*. His two catalogs—one of daffodils and one of other bulbs—may be obtained for US \$5 from Jānis Rukšāns, Pulkas/Bulb Nursery, p.o. Rozula, LV-4150 Cesis distr., Latvia; e-mail janis.bulb@hawk.lv>.



# Longevity in the Rock Garden

Compiled by the editor

One way you can identify a really experienced rock gardener is by his or her possession of a large number of “tombstones”—a cache of labels, perhaps even filed neatly, that have lost their plants. This is inevitable in a branch of horticulture that encourages its practitioners to grow the difficult, the experimental, even the admittedly impossible. Yet in every rock garden of some age, you will also see plants that have been there “forever,” perhaps little noted from year to year, taken for granted because they are so obliging. It’s worth noticing these plants, though, because most people beginning their rock gardens will want some of them to form a dependable foundation.

As this year turned, I realized that I will have been in my present home for 20 years come September, and that the basic layout of my garden was established by the spring of 1987. My tombstones by now would probably fill a bucket, but as I walk around the garden, I see many plants that went into their niches in raised beds, retaining walls, and other “rock garden” sites (in the broad sense) when I was also planting the trees that now reach the second-story eaves.

I asked the correspondents on Alpine-L, the Internet rock gardening forum, to report on long-lived plants in their parts of the world. I specified that the plants should be small perennials and dwarf shrubs other than conifers—typical rock garden subjects. They had to have survived at least 10 years in the garden without being renewed by cuttings or division.

Here is a short list from my garden in northwestern Oregon, where winters are cool and very wet, and summers are mild and typically dry. *Alchemilla alpina* and *A. erythropoda* are well-behaved species, the latter useful as a small, modestly self-sowing ground cover. *Alyssum cuneifolium* and *A. montanum* are remarkably long-lived, with bright yellow flowers and silver leaves. *Androsace lanuginosa* persists here better than any other species, although *A. carnea* self-sows. *Arabis xsturii* and *A. procurrens* are more restrained than the equally ancient *A. caucasica*. *Aubrieta gracilis* subsp. *scardica* has made mats of shiny little leaves a yard wide, covered with violet flowers in spring. *Campanula garganica* combines longevity with compact growth. *Cassiope* ‘Badenoch’, tucked into an east-facing wall, never flinches. *Cerastium candidissimum* renews its pure white leaves annually. *Dianthus erinaceus*

is known as “the 900-pound gorilla” for the size of its massive bun—about 30 inches (75 cm) across—and its dauntingly prickly foliage. More approachable is *D. simulans*, which, however, rarely flowers. The little hybrid *Erysimum* formerly sold as *E. helveticum* has long wandered among the stones of a low wall. Seedlings of *Lewisia cotyledon* planted very young into dangerously sunny rock formations are still flowering strongly after 18 years. The cacti *Maihuenia poeppigii* and *Opuntia humifusa* ‘Claude Barr’ have survived many drenching winters in their sand bed. *Origanum* ‘Kent Beauty’ and *O. libanoticum* flower reliably and provide many cuttings. *Paronychia serpyllifolia* is a mat of papery white flowers each summer. *Penstemon fruticosus*, *P. davidsonii* subsp. *menziesii*, and *P. rupicola* are long-lived here in their native region, though perhaps not elsewhere. *Petrophytum cinerascens* roams through a hot south wall, coating the crevices with its bluish rosettes. Many *Phlox subulata* hybrids persist, especially those known by the invalid name *P. douglasii*. *Pieris nana* (syn. *Arcterica nana*) is only a foot (30 cm) across after 12 years, but outliers are popping up from its rhizomes. *Polygala calcarea* manages to produce its brilliant blue flowers without the lime its name seems to demand. *Potentilla alba*, mentioned by many respondents, is a modest low cushion with elegant foliage and white flowers over a long period; Bill Plummer in New York state has grown one for 30 years. *Satureja montana* and *S. spinosa* are tiny shrubs with good foliage, useful in the kitchen too. The shade-loving saxifrages of the *S. umbrosum* type are permanent, some of them growing in the deep moss on shaded boulders. Sedums and sempervivums go without saying. Without cats present (see the winter 2004 issue), *Teucrium compactum* and *T. marum* are dependable. As I worked through the following lists, I also recognized a number of others I had overlooked on my stroll through the garden.

Fred Hook also lives in the maritime Pacific Northwest, but in slightly warmer, drier Victoria on Vancouver Island, British Columbia. *Jasminum parkeri*, a low mounding shrub, “after more than 20 years with absolutely no attention of any kind (including no watering, ever) in my rock garden, is approximately 30cm (12 inches) in height and 45 cm in diameter and bears its yellow flowers regularly and profusely each spring. The soil in my garden is nearly all sand.”

Mark Mazer writes from Connecticut, “Here are some of the old timers: *Iberis sayana*, *Aubrieta gracilis*, *Genista lydia*, *Dianthus gratianopolitanus*, *Globularia repens* ‘Nana’, *Saxifraga valdensis*, *S.* ‘Whitehill’, *S. × wendolacina* ‘Wendy’, *Thalictrum kiusianum*, *Aethionema oppositifolium*, *Ptilotrichum spinosum* ‘Roseum’, *Lavandula angustifolia* ‘Nana’, *Petrorhagia saxifraga*, *Phlox* ‘Laura’, *Acantholimon venustum*, *Cheilanthes fendleri*.” Mark adds, “I dare not reveal the identity of any daphnes that qualify for they would then surely die”—a superstition very common in our community!

Also in Connecticut is Barbara van Achterberg, who “limited myself to low plants over 10 years old that are not groundcovers, although several do spread.” Her shade garden includes many senior citizens, some easy in most gardens and others regarded as quite challenging: *Anemone nemorosa* in various forms, “of which my favorite is ‘Robinsoniana’”; *Dodecatheon* ‘Red Wings’ from Siskiyou Rare Plant Nursery; *Epigaea repens* (trailing arbutus), a 1983 gift from Ev Whittemore; all the *Galanthus* she has planted “except *reginae-olgae*, which I lost twice”; *Gayluss-*

*sacia brachycera* “since 1979 and 1980 (almost a groundcover by now)”; *Helleborus niger*; *Hepatica acutiloba* “though several other species have come and gone, including a long-lived *H. americana*; *Iris cristata*; *Jeffersonia dubia*, *J. diphylla*; *Lathyrus vernus*, both purple-and-yellow and pink-and-white; *Polygala paucifolia*, the “adorable” gaywings; *Primula kisoana*, a root-spreader; and *Shortia galacifolia*, permanent if it can be established at all. Surprisingly, the *Jeffersonia* species have both been long-lived on the Pacific coast too. Barbara’s sunny rock garden hosts the oldsters *Adonis amurensis* ‘Fuku Jukai’; *Bruckenthalia spiculifolia*, a heathlike miniature; many crocuses; *Daphne cneorum* ‘Ruby Glow’ (she’s not afraid to name a daphne!); *Iris reticulata* ‘Violet Beauty’, a stayer if you can get disease-free bulbs; *Iris verna* in partial sun; many *Narcissus*, including the little *N. asturiensis*; *Potentilla alba*; *Primula sieboldii*; *Ramonda myconi*; *Sanguinaria canadensis* ‘Multiplex’, the double bloodroot, a spreader for partial sun; and *Thymus herba-barona*, “really prostrate and smells wonderful when you walk on it, which it tolerates, and it stands a lot of heat.”

Rock gardeners in the U.S. Northeast often struggle with shrubby penstemons, but Mark McDonough of Pepperell, Massachusetts, praises *Penstemon fruticosus* var. *serratus*: “I purchased a plant from Thurman Gardens way back in the early 1970s. It survived the move to five different residences in those years, including being shipped 3000 miles when I moved from Massachusetts to Washington state, then moved back again via automobile when I returned to the East Coast. Besides a couple of dwarf hostas and an epimedium that I purchased back in the 1970s, similarly surviving many cross-country displacements, it seems remarkable that I still have this old friend after 30 years. I paid homage to the plant today, the prickly leaves now colored a sombre purplish-red for the winter, with snow squalls blowing wildly and peppering the ground.” Mark’s longevity list also includes *Globularia repens* and *G. meridionalis*, “true-blue performers.”

Anne Spiegel, gardening in the severe climate of upstate New York praises *Penstemon hallii* (photo, p. 128): “A true alpine penstemon, the oldest plant here was removed at age 13 because it had become very woody. It bloomed reliably each year. I grow it in a very lean scree with Osmocote (slow-release fertilizer) broadcast early in spring. *Penstemon davidsonii* and a very dwarf form of *P. fruticosus* (21 years old) also qualify; it’s a good idea to take cuttings before the plants become really woody, or they will self-layer. Of my favorite pea plants, only *Oxytropis multiceps* manages to reach 10 years in the garden despite the dreadful summer humidity. *Astragalus monspesulanus* with its lovely red pods has persisted in a sand bed for 10 years, gently self-sowing. Some of the Fabaceae may not be long-lived in nature. *Acantholimon* past 10 years in a very fast-draining line bed include *Acantholimon androsaceum* and another species, past bushel basket size with lovely wands of pale pink flowers. *Lewisia tweedyi* can last long in the right spot in the Northeast; it took a tornado and a fallen oak tree to wipe out the 12-year-old specimen growing on a steep, lean scree in full sun, planted with a shovelful of manure deep below it. *Eriogonum douglasii*, *E. umbellatum* var. *porteri*, and *E. u.* var. *humistratum* are also long-lived in a lean scree of lime bed.”

Panayoti Kelaidis in Colorado (high elevation, cold dry winters, hot summers) takes the encyclopedic, or all-embracing, approach to rock gardening,

both at home and in the Rock Alpine Garden at Denver Botanic Garden. He says, "I have enjoyed this thread on many levels: as a public horticulturist overseeing a large rock garden, I came to treasure the plants that 'paid rent' by looking good through the year, particularly those that live for a long time. A disproportionate number of these are shrubby, or subshrubby (brooms, heaths, dwarf conifers), but there are a good many persistent herbaceous plants. I suspect the list from the Rock Alpine Garden would be very long indeed, but more useful might be the following inventory I maintain from Gwen's and my first home, which we rent out nowadays. I keep this garden up in a desultory fashion, weeding and adding a few plants here or there, but mostly we let the existing mats and mounds just get bigger and bigger. Longevity is largely a factor of siting a plant in the right microclimate: i.e., if it is a dryland or steppe plant, it had better be well drained and exposed to a maximum of heat and light. Woodlanders like *Cyclamen* and *Jeffersonia* need shade and must not dry out much. Hence the long list of acantholimon, penstemons, zauschnerias, and eriogonums here: they are growing in our front yard, where they are unwatered. When they are watered regularly, they will often die after two or three years. The back yard, with the more classic alpins, is watered at least once and sometimes twice a week during the hottest weather, and much less in spring and fall. Most of the plants on this list were planted in the 1980s. I have eliminated all the taller plants and most of the bulbs (crocuses, tulips) which are very persistent here. Most on the list were mature 10 years ago when we moved out, and they are still there, all the happier that we don't harass them). Some are self-sowing, like most of the *Corydalis*."

The Kelaidis list: *Acantholimon avenaceum*, *A. caryophyllaceum*, *A. lycopodioides*, *A. cf. venustum*, *A. glumaceum*, *A. hobenackeri*, *A. litwinowii*; *Achillea* × *kellereri*; *Aethionema glaucescens*, *A. cf. iberideum*; *Ajuga chamaepitys* subsp. *glareosa*; *Androsace muscoidea* var. *uniflora*, *A. studiosorum* 'Chumbyi', *A. villosa*; *Anemone nemorosa*; *Antennaria dioica*; *Aquilegia saximontana*; *Arabis androsacea*, *A. bryoides*; *Arctostaphylos* × *coloradoensis* 'Panchito'; *Arenaria hookeri*, *A. tetraquetra*; *Artemisia frigida*, *A. pygmaea*; *Asclepias tuberosa*; *Asperula gussonii*; *Astragalus alyssifolia*; *Aster alpinus*, *A. coloradoensis*; *Aubrieta gracilis*, *A. pinardii*; *Ballota acetabulosa*; *Bergeranthus berteloa*; *Bongardia chrysogonum*; *Callirhoe involucrata*; *Campanula chorubensis*, *C. portenschlagiana*, *C. troegerae*, *C. waldsteiniana*; *Carduncellus pinnatus*, *C. rhaponticoides*; *Castilleja integra*; *Cercocarpus intricatus*; *Chrysothamnus nauseosus* (dwarf race); *Convolvulus assyriacus*, *C. nitidus*; *Coptis asplenifolia*; *Corydalis ainii*, *C. angustifolia*, *C. bracteata*, *C. chionophila*, *C. firouzii*, *C. malkensis*, *C. persica*, *C. solida* 'George Baker', *C. hybrids*; *Coryphantha echinus*, *C. leei*, *C. sneedii*, *C. vivipara*; *Crassula peploides*; *Cyclamen coum*; *Daphne* "Tage Lundell", *D. alpina*, *D. arbuscula*, *D. cneorum* 'Pygmaea Alba', *D. jasminea*, *D. kosaninii*, *D. mucronata*, *D. oleioides* var. *oleioides*, *D. ×burkwoodii*; *Delosperma nubigenum* 'Lesotho'; *Dianthus anatolicus*, *D. arvernensis* 'Albus', *D. brevicaulis*, *D. freynii*, *D. gratianopolitanus*, *D. haematocalyx* var. *pindicola*, *D. petraeus* var. *noeanus*; *Draba brunifolia* subsp. *brunifolia*, *D. bryoides*, *D. hispanica*, *D. paysonii*, *D. polytricha*, *D. rigida*; *Dracocephalum botryoides*; *Dryas integrifolia*; *Dudleya cymosa*; *Echinocereus gonacanthus*, *E. triglochidiatus*; *Edraianthus tenuifolius*; *Ephedra minima*; *Eremurus fuscus*; *Erica carnea*; *Erigeron caespitosus*, *E. compositus*, *E. linearis*, *E. pumilus*, *E. scopulinus*,

*E. ursinus*; *Erinus alpinus*; *Eriogonum brevicaulis* subsp. *orendense*, *E. caespitosum*, *E. compositum*, *E. corymbosum* 'San Rafael', *E. douglasii*, *E. ericifolium* var. *pulchrum*, *E. flavum*, *E. flavum* var. *piperi*, *E. jamesii* var. *flavescens*, *E. jamesii* var. *jamesii*, *E. ovalifolium*, *E. ovalifolium* var. *depressum*, *E. pauciflorum* var. *nebraskense*, *E. sphaerocephalum*, *E. umbellatum* var. *aureum*, *E. umbellatum* 'Alturas Red'; *Erodium daucoides*; *Eryngium variifolium*; *Escobaria albicolumbaria*; *Euonymus xkeuwensis*; *Fendlera rupicola*; *Fritillaria bucharica*, *F. pyrenaica*; *Fumana ericoides*; *Genista lydia*, *G. pilosa*, *G. villarsii*; *Gentiana acaulis*, *G. gelida*, *G. paradoxa*, *G. septemfida*; *Geranium cantabrigense* 'Biokovo', *G. dalmaticum*, *G. sessiliflorum* var. *nigrum*; *Geum capense*; *Globularia cordifolia*, *G. incanescens*, *G. repens*; *Gymnospermium albertii*; *Gypsophila aretioides*; *Hacquetia epipactis*; *Hebe pinguifolia* var. *pagei*; *Helianthemum nummularium*, *H. oelandicum*; *Heuchera hallii*, *H. pulchella*, *H. rubescens*, *H. rubescens* 'Troy Boy'; *Hymenoxys argentea*; *Inula verbascifolia*; *Iris bucharica*, *I. cycloglossa*, *I. histrioides* 'George', *I. lactea*, *I. missouriensis*, *I. pseudocaucasica*, *I. pumila*, *I. reticulata*, *I. vicaria* (many of these are *Junos*); *Ivesia lycopodioides*; *Jeffersonia diphylla*, *J. dubia*; *Jovibarba heuffellii*; *Lallemania canescens*; *Leucosium vernum* var. *carpathicum*; *Lewisia cotyledon*, *L. rediviva*; *Liatris punctata*; *Limonium binervosum*; *Marrubium rotundifolium*; *Melampodium leucanthum*; *Nananthus transvaalensis*; *Nandina domestica* 'Wood's Dwarf'; *Neobesseyia missouriensis*; *Nepeta mussinii*, *N. phyllochlamys*; *Oenothera fremontii*, *O. macrocarpa*; *Onosma alboroseum*, *O. sericeum*; *Origanum* 'Kent Beauty', *O. acutidens*, *O. libanoticum*; *Orostachys fimbriata*; *Pachystima canbyi*; *Pediocactus simpsonii*; *Penstemon auriberbis*, *P. breviculus*, *P. davidsonii* var. *praeteritus*, *P. eriantherus*, *P. fruticosus* 'Holly', *P. laricifolius* var. *laricifolius*, *P. linarioides* var. *coloradoensis*, *P. pinifolius*, *P. richardsonii* var. *dentatus*, *P. utahensis*; *Petrophytum caespitosum*, *P. cineracens*; *Petrorhagia saxifraga*; *Phlox brittonii* 'Green Mt.', *P. divaricata* 'Alba', many *P. subulata* selections; *Physaria bellii*, *P. vitulifera*; *Podophyllum emodi*; *Potentilla dickeana* 'Nana', *P. hyparctica* 'Nana' (hort.), *P. nevadensis*, *P. speciosa*; *Prunus pumila* var. *depressa*; *Pterocephalus depressus*; *Ptilotrichum spinosum* 'Roseum'; *Ranunculus gramineus*; *Rosularia aizoon*, *R. sempervivum* var. *glaucophyllum*; *Ruschia hamata* hybr.; *Ruta graveolens* 'Blue Mound'; *Salvia candidissima*, *S. cf. huberi*, *S. jurisicii*, *S. macrostachya*, *S. multicaulis*, *S. pachyphylla*; *Santolina cyparissus* 'Weston'; *Saponaria xolivana*; *Satureja montana* subsp. *illyrica*; *Saxifraga callosa*, *S. paniculata* varieties, *S. xapiculata* 'Alba'; *Scutellaria orientalis*, *S. salvifolia*; *Sedum cauticola* 'Lidakense', *S. cf. dasyphyllum*, *S. ewersii*, *S. 'John Creech'*, *S. pachyclados*, *S. populifolium*, *S. tatarinowii*, *S. telephium*; many sempervivums; *Sideritis cf. phlomoides*, *S. taurica*; *Silene acaulis*, *S. argaea*, *S. echinus*, *S. maritima* 'Swan Lake', *S. saxatilis*; *Sisyrinchium macrocarpum*; *Sphaeromeria capitata*; *Stachys iva*, *S. lavandulifolia*, *S. monnieri*; *Sternbergia candida*, *S. clusiana*, *S. lutea*; *Stomatium agninum*, *S. mustellinum*; *Talinum calycinum*; *Tanacetum densum* var. *amani*; *Teucrium orientale*, *T. pyreneicum*; *Thalictrum heliophilum*; *Thymus serpyllum* var. *minus*; *Townsendia bookeri*, *T. rothrockii*, *T. spathulata*; *Verbascum dumulosum*; *Veronica bombycifera* var. *freyderiana*, *V. cinerea*, *V. liwanensis*, *V. macrostachya*, *V. oltensis*, *V. pectinata*, *V. teucrioides*; *Vesicaria* sp.; *Vitaliana primuliflora*; *Yucca glauca*, *Y. harrimaniae*, *Y. sterilis*; *Zauschneria arizonica*, *Z. arizonica* 'Etteri', *Z. californica*, *Z. garrettii*.

The U.S. Midwest is a notoriously difficult area for alpine gardeners. Iza Goroff of Whitewater, Wisconsin, reports: "I purchased *Daphne arbuscula* from

Ed Lohbrunner (Vancouver Island) in 1976 and it lived from then until I tried to transplant it in July 1990 to my current garden, where it would have thrived if I had gotten it into the ground sooner. At 14 years the plant was 6" (15 cm) tall and about 20 inches (50 cm across)." At least he killed it by moving it, not by merely speaking its name.

Perhaps the most trying rock garden climate in North America is the U.S. Southeast, famed for its hot, damp summers. Richard DuFresne of North Carolina specializes in plants of the mint family and particularly recommends the ornamental oreganos—*Origanum hybridum*, *O. laevigatum*, *O. pulchrum*, and hybrids between these species. He grows them on the edges of raised sand beds.

Overseas members commented as well. Although Franz Hadacek in Vienna says, "I have not ideal conditions for the culture of alpine plants—the summers are too hot and dry and the winters without snow and frosty—some plants nevertheless grow well, and the following plants have been living over 15 years in the rock garden: *Adonis amurensis*; *Arabis arachnoidea*; *Arenaria purpurascens*; *Asperula arcadiensis*; *Campanula cochlearifolia*, *C. fenestrellata*, *C. garganica*, *C. tommasiniana*; *Carduncellus rhapsodicoides*; *Colchicum bivonae*, *C. cupani*, *C. hungaricum*; *Cyclamen hederifolium*, *C. purpurascens*; *Douglasia vitaliana* (syn. *Vitaliana primuliflora*); *Draba bryoides*; *Geranium dalmaticum*; *Gypsophila aretioides*; *Haberlea rhodopensis*; *Ornithogalum nanum*; *Potentilla nitida*; *Primula auricula*; *Ramonda myconi*, *R. nathaliae*; *Ranunculus calandrinoides*; *Saponaria pumilio*; *Sternbergia lutea*, *S. sicula*; *Talinum okanoganense*."

Hubert Agback in Uppsala, Sweden, writes: "My climate is classified as USDA Zone 5 in the *RHS Dictionary of Gardening* but I guess that zone 4 is more like it. Poor snow cover, often very wet winter periods, and ground frost down to 100 cm. Summers are generally cool with highs seldom over 25°C (78°F). Yearly precipitation is about 500 mm (20 inches), driest in spring. Uppsala lies just south of 60° north latitude, corresponding to the southern tip of Greenland and about 70 miles south of Anchorage (Alaska)," but it is, of course, subject to maritime influence. Hubert lists plants that have survived many years without division (though some have been moved intact), adding "indications of vegetative spreading ability (without my intervention), ultimately forming mats or colonies," from no symbol (roughly constant in size over the years) through + (slowly spreading) and ++ (spreading moderately) to +++ (spreading rapidly).

Hubert Agback's list: *Adenophora nikoensis*; *Adonis vernalis*; *Androsace lactea*+, *A. mucronifolia*+, *A. sempervivoides*+, *A. studiosorum*++; *Arenaria ledebouriana*+, *A. purpurascens*++; *Bergenia stracheyi*++; *Campanula alpestris*+, *C. betulifolia*, *C. chamissonis*++ (syn. *C. dasyphylla*), *C. cochlearifolia*+++ ("a beautiful weed"), *C. collina*+, *C. garganica*, *C. glomerata* var. *acaulis*, *C. poscharskyana*, *C. raddeana*, *C. saxifraga* subsp. *aucherii*, *C. tommasiniana*; *Codonopsis grey-wilsonii*; *Convolvulus boissieri* (Balkan form)+; *Cyananthus lobatus* (*C. microphyllus* died after 20 years); *Dactylorhiza fuchsii*, *D. praetermissa*; *Daphne arbuscula*, *D. retusa*; *Delphinium cashmerianum*; *Edraianthus pumilio*; *Epipactis palustris*++; *Genista delphinensis*++; *Gentiana acaulis*+, *G. sino-ornata*, *G. paradoxa*, *G. septemfida*, *G. verna* subsp. *pontica*; *Geranium ×cantabrigiense* 'Biokovo'+++; *G. dalmaticum*++; *G. cordifolia*++; *Haberlea rhodopensis*; *Hacquetia epi-*

*pactis*++; *Hepatica nobilis*; *Iris bucharica*; *Jeffersonia dubia*; *Jovibarba heuffellii*; *Lagotis stolonifera*++; *Lewisia columbiana*; *Linnæa borealis*; *Meconopsis quintuplinervia*+; *Mertensia maritima*; *Oenothera missouriensis*; *Penstemon hirsutus* var. *pygmaeus*, *P. newberryi*, *P. rupicola*; *Podophyllum hexandrum*; *Potentilla megalantha*, *P. nitida*; *Primula auricula*, *P. cockburniana* hybrid, *P. elatior*, *P. ×floerkeana*, *P. glaucescens*, *P. 'Linda Pope'*, *P. veris*; *Pulsatilla montana*, *P. vulgaris*; *Ramonda myconi*, *R. ×regis-ferdinandii*; *Ranunculus amplexicaulis*, *R. graminifolius*, *R. parnassifolius*; *Rhodiola quadrifida*; *Rhododendron camtschaticum*, *R. keleticum*; *Salix 'Boydii'*, *S. reticulata*+, *S. serpyllum*+++ (after initial lag); *Saxifraga cuneifolia*, *S. hypnoides*++, *S. rotundifolia*, *S. veitchiana*, *Porphyron* and *Ligulatae saxifrages*; *Sedum pachyclados*; *sempervivums*; *Soldanella alpina*; *Thymus ×citriodorus*++; *Vancouveria hexandra*+++; *Vitaliana primuliflora*+

From the cold continental climate of the Czech Republic, Zdenek Rehacek writes: "My garden is situated in the northeastern part of Czechia in an elevation of about 500 meters (1500 feet). Our summers are often wet and quite hot with temperatures often rising above 30°C (86°F); our winters are often without snow cover and rainy, but sometimes with temperatures down to -20°C (-5°F), sometimes with snow, sometimes without it." Survivors for more than 20 years under these conditions include the following: *Adonis vernalis*; *Aethionema grandiflorum*; *Alyssum repens*; *Arabis androsacea*, *A. ferdinandi-coburgii*, *A. soyeri*; *Arenaria purpurascens*; *Aster alpinus*; *Campanula aucheri*, *C. glomerata*, *C. kemulariae*; *Chiastophyllum oppositifolium*; *Dianthus gratianopolitanus*, *D. lumnitzerii*; *Draba brunifolia*, *D. bryoides*; *Dryas octopetala*; *Eunomia (Aethionema) rotundifolia*; *Geranium dalmaticum*, *G. sanguineum*; *Gypsophila aretioides*; *Haberlea rhodopensis*; *Helianthemum nummularium*; *Iberis sempervirens*; *Omphalodes verna*; *Onosma alboroseum*; *Potentilla nitida*; *Ramonda myconi*; *Ranunculus millefoliatus*; *Saponaria caespitosa*, *S. olivana*, *S. pulvinaris*; *Saxifraga cochlearis*, *S. marginata*; *Silene zawadskii*; *Teucrium chamaedryis*; *Valeriana supina*; *Vitaliana primuliflora*. Several favorite plants older than 15 years are *Genista dalmatica*, *Geum pentapetalum*, *Micromeria croatica*, *Minuartia parnassica*, *Petrocallis pyrenaica*, *Petrophytum caespitosum*, *Potentilla alba*, and *Pterocephalus parnassii*.

One striking thing about these far-flung though anecdotal reports is the recurrence of certain plants in gardens with extremely different climates. For instance, how can we explain the fact that the gesneriads *Ramonda myconi* and *Haberlea rhodopensis* can live almost forever in Sweden, central Europe, the Rocky Mountains, New England, and the Pacific Northwest? What accounts for the widespread adaptability of the two *Jeffersonia* species, one of the interesting genera split between eastern Asia and eastern North America? Why does the decidedly high-alpine *Vitaliana primuliflora* persist everywhere—perhaps because it rarely flowers away from home?

Whatever the answers, perusal of these lists should provide plenty of ideas, both for those stocking their first rock gardens and for those who, having accumulated too many tombstones, are ready to fill more space with stalwarts.

# Diamonds in the Rough

Brian Bixley

Part Three of Simon Schama's majestic *Landscape and Memory* is called "Rock." It is less about rocks than it is about mountains, about the love-hate, fear-cherish relationship that we have with high places, particularly those difficult of access and offering vertiginous views to the valleys below.

*Landscape and Memory*, an exploration of "the long history of landscape metaphor," is prodigiously learned, intellectually exciting, anecdotal, adjectivally obese, and, much of the time, wittily irrelevant to its theme. Part Three, almost 120 pages long, includes several references to "mountain flora" and "alpine flora," though only once is a plant—gentians—imprecisely specified. While botanical imprecision is characteristic of garden historians (and devalues much of their work), it is disappointing to find the same casual attitude here in a discussion of the seductiveness of mountains.

Many travelers, callow climbers, and walkers of the eighteenth century went to the Alps and Pyrenees (and, in the case of the English, to Wales and Scotland) to confront the "congenial horrors" of the Sublime, and many went in the nineteenth century as a test of their "muscular Christianity." Multitudes were drawn not only to the spectacular views but also to the tapestry of exquisite plants found, and found only, in the highest windswept places. It was the heady combination of exercise, clear air, the "spirituality" of the heights ("Could the survey of the outer world . . . ever disclose essential inner truth?") and the diverse rarity of the flora that brought growing numbers of men and women to the mountains. And when they came, they frequently came "botanizing," knowing before they started to climb a mountain path that the Spring Gentian was quite unlike the Stemless Gentian.

True alpine plants grow above the tree line. Lacking the shelter of trees and tall shrubs, they hug the rough ground, growing a few centimeters high but putting down deep roots into cracks and crevices in search of scarce moisture. They are light-lovers, most of them rejoicing in the strong clear summer, a few seeking the reduced light of north-facing slopes or hiding demurely in the shifting shadow of a rock. While summer sun is strong, nights are cool and low in humidity. Deep snow protects the plants against the coldest winter temperatures and provides abundant moisture as it melts in spring. Many alpine plants dislike



damp around their “necks” and detest having their “feet” in water, so that the swift drainage of mountain slopes is crucial to their health.

To see the plants was to love them, and to love them was to want to grow them in one’s own garden. Unhappily, this led to widespread collecting. The poet William Wordsworth boasted of establishing in his garden

... chosen plants and blossoms blown  
Among the distant mountains, flower and weed  
Which thou hast taken to thee as thy own

but he didn’t tell us on what scale, or for how long he was successful. Typically, plants with long roots were dug from between the rocks where they had found the necessary conditions for survival, and shipped or carried back to the Home Counties, where, in conditions totally alien to those from which they had been snatched, they soon succumbed. As the nineteenth century wore on, guides began to appear to their cultivation and propagation (by seed or by cuttings, so it was no longer essential for covetous travelers to dig plants, though many of them went on doing so), and this made it possible for an increasing number of gardeners—many of whom would never see mountains except in movies or photographs—to enjoy the challenge and delight of growing high-altitude plants in low-elevation domestic gardens.

I gradually realized that the hilly counties of southern Ontario offer unusually favorable conditions for growing alpine. Think of the necessary conditions listed above: summer sun, winter snow, rapid drainage. True, summer humidity in the lowlands can be a problem, but in practice it seldom is because of our ever-present winds. And those plangent winds, which tear the clematis to tatters, topple the delphiniums, and make the trees lean like lopsided ballet dancers, merely accelerate harmlessly over the heads of the ground-hugging alpine.

There are other advantages. Dozens, perhaps hundreds, of different plants can be grown in an area no larger than that shaded by your car. Once a site has been established, no repeat digging is required. While rocks and a sloping site lend authenticity and foster good drainage, they are not imperative. The same drainage can be easily created in a raised bed or trough, and these can be built at waist height, so as to reduce stooping and make it easier to study the flowers and their foliage and fragrance (Schama tells us that Shelley, traveling with Byron, ate honey that he declared to be “the best I have ever tasted, the very essence of the mountain flowers and as fragrant”). Alpine plants rarely need to be sprayed against insects, though slugs and snails can be nuisances. The plants will often do better on a jejune diet than they will if you feed them, and many do quite well with minimal watering. Up there on the mountain heights, they go unsprayed, unfed, and in many cases unwatered through the summer months. Above all, they are beautiful: wrenchingly, heart-achingly beautiful, diamonds growing in rough terrain, eternity in a sheet of tiny flowers.

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Brian Bixley gardens in the country near Shelburne, Ontario. This article previously appeared in his collection *Essays on Gardening in a Cold Climate* (Whitfield Press, 1998).

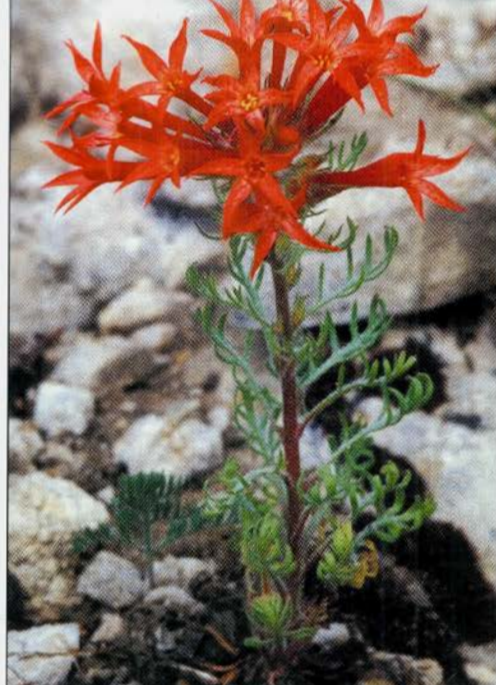
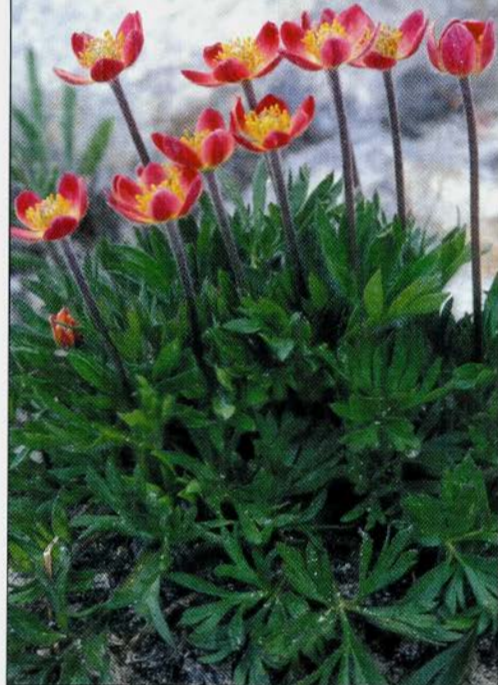
# Tim Roberts and His Tufa Mountain

Rex Murfitt

Once in a while we see a garden that leaves a lasting impression. There is something so evocative about it that it remains fresh in our memory many years after the visit. My first such experience goes back to early postwar years in England. At that time I was a student at the renowned Birch Farm Hardy Plant Nursery, operated at that time by W. E. Th. Ingwersen and Will Ingwersen. The nursery got the name “Birch Farm” because it was one of several farms that belonged to Gravetye Manor in West Sussex. The Manor was the home and garden of none other than the influential garden writer, William Robinson, author of *The English Flower Garden* (1883), a classic that has been reprinted many times, and other books.

As part of an arrangement with Dwight Ripley, a great plant explorer who was in the United States during World War II, the Ingwersens kept an eye on the great collection of alpine plants at the Ripley home in Horam, Sussex in those days. On one of their visits to the garden, I was invited to go with them. Certainly, the immaculate alpine houses were impressive, but even more amazing was the original and famous Cliff House. Its huge limestone cliff had been built against the high garden wall, and then the whole thing was enclosed by a greenhouse with removable panels of glass along the front and sides. I am sure it was at least 60 feet (20 m) long or even more; the removable glass panels were each at least 10 by 10 feet (c. 3 by 3 m). It housed an extensive collection of rare Mediterranean plants. Since it was so long ago I do not recall the names, but I remember huge plants cascading from the top of the cliff. Some had large hairy leaves, but the tiny rare treasures were there too, tucked into crevices. Planting was largely limited to the crevices and those areas where the soil was relatively level, because the cliff was made of limestone rock and could not be drilled and planted as tufa is today. (Photos, p. 121.)

A visit to the garden of Tim Roberts in Lancashire, England makes very much the same powerful impression. It is a relatively small garden in a built-up area. Since Tim is a landscape contractor, part of the property has been landscaped to showcase his skills and services. I stepped from the street into a beautiful, shady, mature Japanese-style garden. Upon leaving its shaded walkways, I entered the



Colorful plants of the Wallowa Mountains (p. 86): left, *Anemone multifida*; right, *Ipomopsis aggregata* (p. 86; photos, Shan Cunningham).

*Castilleja rhexifolia* in the Wallowas (photo, David Sellars).





A rivulet in the Wallows lined with *Saxifraga arguta*. (Photos, S. Cunningham).

*Calochortus eurycarpus* (left, p. 89) and *Townsendia montana* (right).





*Epilobium obcordatum* (left) and *Collomia debilis* (right; p. 84) in the Wallawas. (Photos, D. Sellars)

*Corydalis caseana* (p. 85) by a northeastern Oregon stream.





*Calandrinia* G&K 4698 (left; p. 92) and *Calandrinia affinis* (right; p. 93). (Photos, Rick Lupp)

Two color forms of *Calandrinia acutisepala* (p. 93).





*Montipopsis sericea* (left; p. 93) and *Montipopsis andicola* (right; p. 94). (Photos, R. Lupp)

*Allium aaseae* (p. 137), photographed by Jay Lunn near Boise, Idaho, received honorable mention in Class 1 of the 2003 NARGS Photo Contest.





Juno irises found by Janis Ruksans and Arnis Seisums in Uzbekistan (p. 98). Above, *Iris wedenskyi*; below left, *Iris linifolia*; below right, *Iris parvula*. (Photos, J. Ruksans)







Above, two forms of *Iris svetlanae* (p. 97); below left, *Iris tadshikorum* (p. 98); below right, a color form of *Iris vicaria*. (Photos, J. Ruksans)





Above, two forms of the showy *Iris warleyensis* (p. 97); below, forms of *Iris stolonifera*, not a Juno but a member of section Regelia. (Photos, J. Ruksans)





Tim Roberts's tufa mountain (p. 112). (Photos, Rex Murfitt)





*Lupinus arcticus* at Bathurst Inlet, northern Canada (p. 134). Anna Leggatt's photo below received first prize in Class 2 of the 2003 NARGS contest, and the image above won honorable mention in Class 1.





Narcissus selections raised by Walter Blom (p. 133): above, *Narcissus romieuxii* 'Floral Feast'; below, *Narcissus cantabricus* 'Peppermint'.







A digital photo essay on *Lewisia disepala* by Jack Muzatko (p. 132). The smaller images, which received honorable mentions in the 2003 Photo Contest, show size and color forms. The large photomontage depicts the plant's scenic habitat about Yosemite Valley.





Primrose photos from the 2003 Photo Contest. Above, *Primula abchasica* (p. 135), by Dick Redfield, fourth prize in Class 3. Below, *Primula auricula* on a Manhattan parapet, by Abbie Zabar, honorable mention in Class 4.

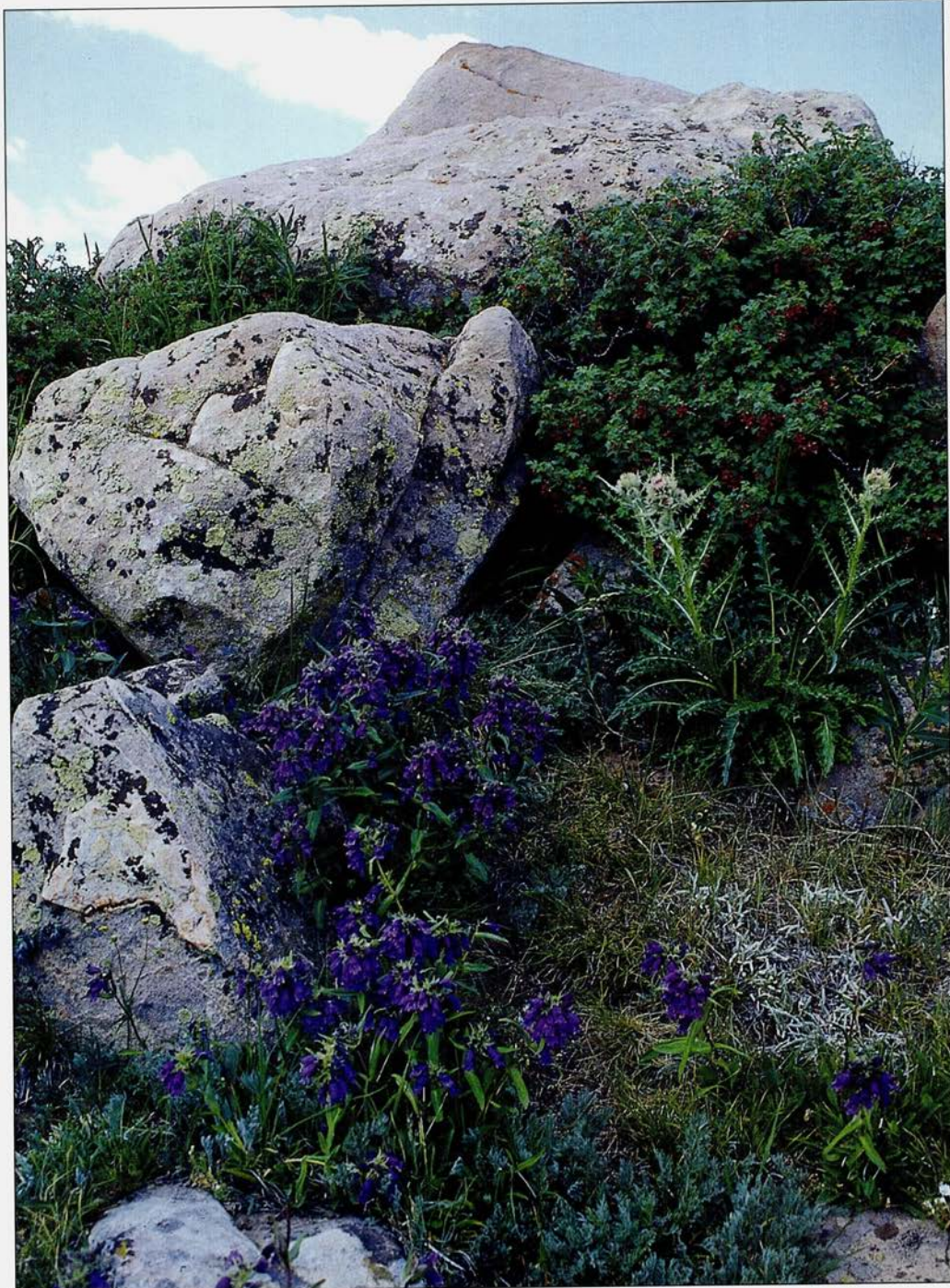






Images of spring on either coast, captured by Dianne Huling. Left, Princess Abkhazi's garden in Victoria, British Columbia (second prize, Class 4, 2003 Photo Contest); below, the garden of Sandra Pollock in Hanover, Massachusetts (honorable mention, Class 4).





*Penstemon hallii*, shown here in the wild in Colorado, is reported to be long-lived in the garden (p. 105). This photo by Nicholas Klise received fourth prize in Class 2 in 2003.

alpine area. Once I was able to raise my eyes from the array of genuine stone troughs, pots, and container-grown plants tightly packed into the valuable space, I studied the recently built pond, the brick sides of which are raised to a comfortable sitting height. I sat in the sun and watched the koi lazily swimming in the cool depths.

Then I was ready to receive the full impact of the dominating tufa mountain. This huge mound of golden tufa dwarfs everything around as it rises to its summit. Over 6 feet (2 m) high, it is as tall as the peak of the nearby alpine house's roof. The three-sided mountain was constructed skillfully with fitted rocks ranging in size from huge blocks over 3 feet (1 m) long down to smaller broken pieces.

When confronted with a work of art of this magnitude, it is difficult to come up with intelligent comments, and with regret I remember asking, "Where on earth did you get all that tufa?" Tim's reply was, "I am a landscaper, am I not? I have a truck—I went and got it." He obtained it in North Wales. This type of rock is uncommon in North America, but we in British Columbia are fortunate to have a commercial quarry in our province, and it can also be had in the U.S. Northeast.

Eventually I recovered and came down to earth enough to study it in detail, and really to take time to look at the wonderful plants. I remember Tim showing me his collection of a dozen or so forms of *Saxifraga* × *lhommei*, well established directly into the tufa. *Saxifraga* × *lhommei* is not particularly well known in gardens; it is a natural hybrid between *S. longifolia* and *S. paniculata* which has been found in the central Pyrenees. Beryl Bland writes in her book *Silver Saxifrages*, "Within this group of plants every type of form can be observed from plants so close to *S. longiflora* as to be almost indistinguishable apart for the presence of extra rosettes or less impressive flowers through to plants very near to *S. paniculata* in appearance."

Other choice specimens were planted in the joints between the pieces of tufa. I took a photo of a compact, gray, woolly edelweiss (*Leontopodium alpinum* subsp. *nivale*) bearing six or seven short-stemmed flowers. Nearby, a tight mat of *Petrophytum hendersonii* was just going out of bloom. Handsome clumps of small daphnes were covered in their faded flowers—*Daphne petraea*, *D. oleoides* var. *oleoides*, *D. o.* var. *glandulosa*, and *D. reichsteini*.

Having three definite sides, the mountain takes advantage of the different aspects or exposures, and has been planted accordingly. There are choice little ferns in the shadier spots along with *Primula allionii*, *P. marginata*, *Ramonda myconi*, and *Jankaea heldreichii*. The sunny tip of the mountain has its complement of drought-tolerant plants, including *Acantholimon creticum*, *Anaphalis alpinicola*, *Centaurea odyssei*, *Linum flavum* 'Compactum', and *Verbascum arcturus*.

The mountain itself is a major component of this compact garden, but it certainly is not the only fascinating thing to be enjoyed. I have referred to the koi pond, the magnificent troughs, and the alpine house, which is a story in itself, full of Himalayan saxifrages. I really enjoyed an older project of Tim's, a classic English limestone outcropping rock garden, which was almost obscured by the alpine house.

The design of the tufa mountain struck me as ideal for rock gardeners with little space. For those who may want to build their very own version of it, here are some general construction details, written up by Albert Deurbrouck from Tim's account (Deurbrouck recently hosted Tim during the latter's NARGS-sponsored lecture tour). "The feature is triangular in shape and over 8 feet (2.4 meters) high. The sides are 10×15×10 feet (1 foot = c. 30 cm). The mountain was built in three stages. Stages 1 and 2 were built against a brick wall running east-west. The first side was built in 1993 using smaller pieces of tufa, rough cubes ranging from 1 to 1.5 feet on a side. It faces south by southeast, with the lower end facing east. The second stage was built in 1996 and is the reverse of the first section, facing north by northeast with the lower end again facing east. The pieces used to build this section are larger—3×1.5 feet. The final phase was built in 2000 following the construction of a rectangular pond on the north side of the mountain. This brick-lined pond is 15 feet along the west face by 5 feet wide; it is 7 feet deep and raised above ground 2 feet. At this time the brick wall on the west side of the stage 1 and 2 tufa walls was removed and replaced with tufa. The pieces of tufa for the west wall of the mountain were notched out to rest on the pond edges. The completed mountain contains approximately 10 tons of tufa.

"The mountain does not sit on the ground, because Tim considered that tufa on the lower areas on two faces would be wasted. Instead, he built a series of supporting walls 18 inches (45 cm) high out of concrete slabs 3×2 feet in size. This not only supports the mountain: Tim set some slabs perpendicular to the "wall" at the back and then covered with with a "roof" of slabs, forming a handy row of open-fronted compartments for storing compost, sand, and other supplies.

"The first layer of the tufa on the mountain was notched out at a 90° angle and placed on a bed of mortar overhanging the concrete slabs and the brick pond. The following layers of tufa were laid with overhangs, undercuts, and flatter areas, proving an aesthetically attractive surface full of nooks and crannies for planting choice alpiners. The tufa pieces were trimmed with an axe to fit together dry, without mortar (Tim has been building dry walls since his childhood). The center of the mountain is filled with sharp, gritty sand.

"For ease of watering, Tim layered 3/4-inch (c. 2-cm) plastic overflow pipe in the mountain at 1.5-foot (45-cm) intervals. The pipe was cross-drilled every 6 inches (15 cm) with a 3/8-inch (c. 1 cm) bit. One end of the pipe is blocked off, and the other end is fitted with a 90-degree angle and brought up through a gap or hole in the tufa. To water, he simply pushes a hose into the desired hole and turns on the tap as long as required.

"To plant the mountain, Tim drills holes 1/2 to 3/4 inch (1.2–2 cm) in diameter and 3 inches (7.5 cm) deep into the tufa. He lowers a seedling, rooted cutting, or small plant into the hole on a dibber (a pointed tool) and gently refills the hole with sharp sand and waters in the plant. After settling, he again fills the depression with sand and surrounds the neck of the plant with small pieces of tufa. He waters frequently until the plants are established."

A day with Tim Roberts is equivalent to two days with anyone else. He showed us some of his garden construction projects for clients. All his stonework was

just great, featuring some of the most classic designs I have ever seen. If I wanted some skillful rock garden or stonework done in England, I know exactly where I would go. All right, so when do we order the tufa?

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Rex Murfitt, born and trained in England, developed the alpine house and rock garden at Frank Cabot's Stonecrop in upstate New York. Now retired, he lives in Victoria, British Columbia, and is well known for his alpine house, trough garden, and collection of saxifrages. He has co-authored a book on troughs and contributed a chapter on that subject to the new NARGS book *Rock Garden Design and Construction*. He lectures frequently to garden societies.

Albert Deurbrouck of Pittsburgh, Pennsylvania, a retired mining engineer, is past president of the Allegheny chapter of NARGS and chaired the Society's 2001 Annual Meeting in his city.

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# Plant Portraits

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## *Lewisia disepala*

□ JACK MUZATKO, Pinole, California

Each spring, some secluded locations in Yosemite National Park are covered with a beautiful carpet of amethyst, white, and pink flowers of the Yosemite bitterroot, *Lewisia disepala*. The mass of color is stunning, but in spring of 2003 I was particularly intrigued by the variety and seductive beauty of individual plants and their blossoms. The photos on pages 124 and 125 demonstrate their varied personalities. This is a diminutive species: the plants shown here are only a little more than an inch (2.5 cm) in height, and the flowers are a little less than an inch across. Each plant exhibits its own distinctive character and spirit. The photomontage on page 124 is an image of this remarkable alpine in its spectacular natural home—an image that exists in only my mind's eye, but is real enough to lure me back to this magical place again and again.

*Lewisia disepala* is often thought to be quite a rare species, but in fact it is not. As explained in *An Illustrated Flora of Yosemite National Park* by Stephen J. Botti, its range is mostly limited to the 1170-square-mile (3032-square-kilometer) area of the Park, and the plants are seldom seen by visitors. However, this is because its occurrence is primarily limited to the many high domes (granite monoliths) in the Park, and because it flowers for only a short time just as the snow melts. At that time, the trails to some of these areas may not be open. Thus, only the most dedicated hikers are likely to see the dazzling color display of thousands of lewisias. For those who like to explore and follow their instincts, however, there are some sites that are more accessible. *Lewisia disepala* often grows in very shallow granite screes, and emerging plants are sometimes hard to see. The plants can easily be damaged by careless or excessive foot traffic, so one should take extreme care when photographing or observing these delicate jewels.

For those whose rock garden passions draw them to very small plants, *L. disepala* is irresistible. However, little has been reported on its successful cultivation. I know of only two people who have grown this species (although I have been told there are probably several more). At this writing, one plant growing at Rick Lupp's Mt. Tahoma Nursery in Washington state is five years old and

blooms every year but has not produced seed. Sean Hogan grew *L. disepala* at the University of California, Berkeley, Botanical Garden from 1988 to 1995. The plants flowered there each year, producing seed. However, *L. disepala* is no longer grown there.

Unfortunately, current regulations prohibit the collecting of seed in Yosemite National Park. However, *L. disepala* seed collected south of the Park boundary has been available in the past, and I now have several small plants that I hope can be persuaded to flourish in my rock garden near sea level in the northern San Francisco Bay area.

Many have suggested that this species and *L. rediviva* should have similar requirements in cultivation. Like other lewisias, *L. rediviva* does best in a loose, well-aerated (i.e., well-drained) soil. Protection from summer heat is very important. A north-facing slope or midafternoon shade suit *L. rediviva*, and cool conditions are probably even more important for *L. disepala*. Both species experience summer dormancy, which is a critical time for them. The issue of watering is particularly controversial. *L. rediviva* is generally kept fairly dry except during the spring growing season. Some growers say that there should be no watering in summer after the flowering period. Others provide a little moisture all summer. It is usually not possible (or necessary) to duplicate the natural environment exactly, especially when a species such as *L. disepala* grows at 5000 to 9000 feet (1524–2744 m). Probably the requirements for optimum cultivation of *L. disepala* will depend on local conditions such as soil composition, temperature range, and humidity—and probably some other factors that have not yet been considered. That is one of the things that makes this hobby so much fun. If *L. disepala* proves not too difficult to grow and becomes available through cultivated seed and vegetative propagation, I see no reason why it should not become popular with many rock gardeners.

## *Narcissus cantabricus* and *Narcissus romieuxii*: Jewels of horticulture

WALTER BLOM, Albany, Oregon

Some forms of *Narcissus cantabricus* and all forms of *Narcissus romieuxii* originate from the mountain slopes of Morocco and Algeria in North Africa. These are perhaps the “oldest” (or most “primitive”) species of daffodils that we know of. Where and how they evolved, however, remains a secret of nature, as is the case with the many other species in the genus *Narcissus*.

*Narcissus cantabricus* in its various forms (at least half a dozen botanical subspecies and varieties are recognized) occasionally produces seven or eight segments in the corona, the outer part of the daffodil flower. The corona is then more robust than those of its neighbors with the normal six segments.

During the 1950s, Douglas Blanchard (father of John Blanchard, a present leading expert on the genus) introduced several hybrids—‘Jessamy’, ‘Muslin’,

'Poplin', 'Taffeta', and 'Tarlatan'—from crossing *N. romieuxii* × *N. cantabricus* and the reverse cross. They are tetraploid ( $2n=28$ ). Later, Glenbrook Bulb Farms introduced similar hybrids such as 'Fyrro' and 'Smarple'. Some of these are offered by Nancy Wilson, a daffodil grower in California.

Some years ago, Nancy Wilson presented me with an extensive variety of both species from the collection of James Wells, author of *Modern Miniature Daffodils* (Timber Press, 1989). As a grower of daffodils by profession, I started making selections based on the criteria of free flowering, performance of the plants, and steadfastness of the bulbs (that is, minimizing their frequent tendency to split up into small offsets).

Through the years I have also learned that some selections hardly multiply, in particular selections of *N. cantabricus* subsp. *monophyllus*. Others, in contrast, increase vastly, by 100 percent or much more annually. From among the latter, in 2003 I registered several with the Royal Horticultural Society's register for daffodils in London: *N. cantabricus* 'Silver Palace', a selection of subsp. *foliosus* flowering November to February; *N. romieuxii* 'Chinese Ivory', flowering February–March; *N. cantabricus* 'Peppermint' (photo, p. 123), November–January; and *N. romieuxii* 'Floral Feast' (photo, p. 123), December–February. A few more are to follow this year. Some registered varieties can be purchased through Nancy Wilson's catalog (see the advertising section of this issue).

Unlike some others, I grow most of my plants in a natural way, outdoors in raised beds. Climatic conditions in Oregon's Willamette Valley allow me to do this. Both these species are hardy outdoors here in USDA Zone 8, although a sudden deep frost may kill them; they do better if the temperature drops gradually. Protecting the plants with a layer of wheat straw helps them survive even in severe winter weather. However, as the accompanying photographs show, they are superb pot plants when grown in the cool conditions of an alpine house or bulb frame. They often receive awards at the winter shows sponsored by Britain's Alpine Garden Society. With their fairly short stature and unobtrusive narrow foliage, they are also among the best spring bulbs for small rockeries and even troughs. Some forms of *N. cantabricus* have long enough stems to be useful as a miniature cutflower, lasting remarkably well in a cool room.

## *Lupinus arcticus*

ANNA LEGGATT, East York, Ontario

We arrived at Bathurst Inlet Lodge in Nunavut on July 4, 2003. I had barely said "Hello" to our hosts before I headed to the tundra, which was in full flower. The predominant color was blue and white. Sheets of *Lupinus arcticus* scented the air, interspersed with mats of *Dryas integrifolia*. Tangles of various willows (*Salix*) had silken catkins. Pink spots proved to be *Pedicularis arctica* with the occasional *P. lanata*. The latter was mostly past its peak, with only a hint of the earlier woolly balls.



*Lupinus arcticus* (photos, p. 122) is a typical though small lupine, generally producing several spikes from a basal clump of foliage. These spikes grow to about 25 cm (10 inches) high, lengthening as the flowers fade. The typical pea flowers of blue and white are held on the top three-fifths of the stem, gently perfuming the air. Some plant I saw had flowers of a more intense blue.

We found the plants mostly on older beaches well above sea level, possibly around 30 to 50 meters in elevation. The turf was continuous, indicating that the plants were not pioneers. The soil was gravelly, with permafrost less than 30 cm (1 foot) down. The area is in fact almost a desert, with a total of about 28 cm of precipitation per year, more than half of that as snow.

Sea ice still floated in places on the Inlet when we arrived. A week later, its blue haze had nearly faded away. Snow patches on the hills had shrunk, with the moisture feeding vast patches of *Eriophorum* spp. (cotton grass). Birds and archaeology are other fascinating lures of the area.

A good reference for the flora is Page Burt's *Barrenland Beauties: Showy Plants of the Arctic* (Outcrop Ltd., Northern Publishers, Yellowknife, Northwest Territories, revised ed. 2000).

## *Primula abchasica*

JOHN AND JANET GYER, Clarksboro, New Jersey

A primrose flowers in Philadelphia on a balcony 14 floors above Chestnut Street. Even in its rugged, windy environment, it is a mound of red flowers with small yellow eyes, set against a foil of soft green foliage. Its delicacy belies its rugged constitution and its tortuous history.

This is the Abchasian primrose (photo, p. 126), introduced in 1965 by Lincoln Foster to members of the American Primrose Society (APS) and the American Rock Garden Society. Foster grew his plants from seed from the Leningrad Botanic Garden via the Botanic Garden at Linz/Donau, Austria, which in 1956 donated it to the APS seed exchange. He germinated three plants, two of which thrived in sandy peat soil beneath pines and produced smooth foliage and flowers individually set on hairless stalks, bountiful in spring and a few in fall. In two years, Foster had 86 plants from divisions of one typical individual. The third of his initial plants was a "Jack-in-the-green" type with "curious frilled green petticoats beneath the corolla."

At this point the history of the Abchasian primrose begins to twist. Foster's plants set no seed. He crossed his thrum-eyed (functionally male) *P. abchasica* with a pin-eyed (functionally female) white-flowered *Primula vulgaris* and obtained both pin and thrum offspring. The flowers looked little different from the *abchasica* parent, but they could be crossed to produce seed.

In November 1965, Mrs. Z. T. Artiushenko sent Foster two plants and some seed of Abchasian primroses she had collected or grown from seed gathered in the Caucasus. She wrote that fragrant, yellow-flowered *P. vulgaris* grew on the

edge of broad-leaved forests north of Sochi. South of Sochi she found *P. sibthorpii*, similar to *P. vulgaris* but pink-flowered. In the forests she found *P. abchasica*, fragrant and with “a purple perianth and a yellow throat bordered by a brown rim.” She grew all these species beautifully in Leningrad, apparently in her own garden. Since she did not report hand-pollinating her *abchasica* plants, it is possible that her garden seed was hybrid. Nevertheless, seeds and plants from her are the origin of the Abchasian primrose as it is now grown in North America.

By the end of 1965, Foster had four *P. abchasica* accessions: two from his first seeds, his *vulgaris* × *abchasica* hybrids, and the new Leningrad material. He began to distribute his plants through the APS and ARGS, and to individuals. One recipient, Doretta Klaber, noted in her book *Primroses and Spring* how *P. abchasica* differed from *P. sibthorpii*; she particularly admired the former’s tendency to bloom in both spring and fall.

In 1965, Henry Francis du Pont was intrigued to learn from Foster’s APS article that the Abchasian primrose flowered in the same period as the mauve *Rhododendron mucronulatum*, light yellow corylopsis, and hellebores that he had planted near the Pinetum at Winterthur, his home in Delaware. He thought the purplish-red petals and yellow eye of the primrose, grown as a ground cover, would complement the shrubs. He asked Foster to sell him plants. Foster offered five as a gift and 50 at \$1.00 each, but he wanted to keep a supply for the ARGS propagation exchange. The Abchasian primrose, he said, was unique in that it did not suffer from red spider mite, bloomed prodigiously, and divided like an amoeba.

These divisions from one of the first typical plants were not expected to set seed, so du Pont later asked for another clone and obtained a second shipment of 50 plants in 1966. As du Pont and his staff were then transforming Winterthur into the world’s premier museum of early American decorative arts, its garden staff diminished for awhile, but the Abchasian primrose persisted on the Hellebore Walk and in the Quarry Garden. In the March–April 1981 issue of *The Green Scene* (magazine of the Pennsylvania Horticultural Society), Harold Bruce, curator of plant collections at Winterthur, wrote glowingly of the landscape color produced by the primrose and its companion plants. The accompanying photographs all show the typical form of this primrose, not the Jack-in-the-green version.

By the early 1990s, time and the primrose’s inability to produce self-pollinated seed had taken their toll. A number of healthy pin type (female) plants grew on the Hellebore Walk, and a few thrum type (male) plants survived in the Quarry Garden. Since my wife, Janet, and I were doing volunteer research on seed propagation of the Winterthur trillium collection, the Garden Department asked if we could do the same for the Abchasian primrose. The first year’s hand pollination resulted in only three seed pods because of the short supply of pollen from the Quarry. The present propagation stock is based on plants from this seed.

Soon afterward, a friend of Winterthur gave the garden pin-type plants with Jack-in-the-green flowers, apparently derived from Foster’s “clone 2.” The gift plants were divided and the divisions grown on and set out along the Hellebore

walk. No seed was produced by crossing them with pollen from “typical” thrum flowers.

*Primula abchasica* seed germinates normally. Between 10 and 20 percent will sprout soon after planting, and most after a period of cold stratification. I have had good luck by planting in the fall in a greenhouse just kept from freezing. Temperatures between 35° to 45°F (2°–8°C) are apparently enough to satisfy its chilling requirement. The seedling plants like good moisture levels and well-aerated soil. Seedling populations have can range in flower color from rather muddy rose to the bright purple-red of the “type,” so seed parents should be selected carefully.

In the garden, the plants like a fairly acid soil. Ours grow best in compost mixed with stone. Quartz pebbles are best because crushed limestone can produce iron deficiency symptoms. Quartz pebbles may also frustrate rodents that might prey on the primrose roots. The plants should be divided every three years to keep crown rot at bay. They need summer moisture, but in the winter they can be severely damaged by the frost heaving often associated with wet soil.

The Abchasian primrose, though relegated to the status of a variety of *P. vulgaris* by most current authorities, remains a beautiful, rugged plant adapted to survive not just its recent genetic bottleneck, but also the environment of the average garden and the 14th floor balcony from which it brightens the Philadelphia skyline.

## References

- Artiushenko, Z. T. *Quarterly Bulletin of the Alpine Garden Society* 30.2 (June 1962), p. 111.  
Foster, H. Lincoln. *Quarterly of the American Primrose Society*, summer 1965, pp. 90–91.  
Foster, H. Lincoln. *Quarterly of the APS*, winter 1966, pp. 13–14.  
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## *Allium aaseae*

MARK McDONOUGH, Pepperell, Massachusetts  
JAY LUNN, Hillsboro, Oregon

*Allium aaseae* is a rather rare onion endemic to Idaho—a beautiful little sessile species with ample, deep pink flowers that fade to white (photo, p. 117). Its pair of narrow, channeled leaves are much longer than the flowering stem and tend to lie on the ground. It has an extremely restricted distribution in southwestern Idaho on sparsely vegetated sandy foothills near Boise.

At one time, *A. aaseae* was listed as an endangered species, but it has since been removed from federal candidate status, though it remains a sensitive species, monitored by several agencies. Finding significant information on highly local native flora—especially our native onions—is almost as hard as finding the plants themselves, so it is encouraging to find that the state of Idaho, along with

the Nature Conservancy, the Natural Heritage Network, and the Idaho Conservation Data Center, maintains an exemplary web page on *A. aaseae*, including photos: <[http://www.state.id.us/fishgame/info/cdc/plants\\_A-D/allaas.htm](http://www.state.id.us/fishgame/info/cdc/plants_A-D/allaas.htm)>. The rest of the site offers a wealth of information on Idaho's native plants and animals.

The images on the web page are typical of the plants where the accompanying photograph was taken, but the subject of the photo was an over-achiever for some reason. It is an early bloomer, found by Jay Lunn at its peak just when nearby *Primula cusickiana* was fading.

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Mark McDonough's comments are adapted from his chapter in *Bulbs of North America* (NARGS/Timber Press, 2001).

# How to enter the 2004 Photo Contest

This year's prizes for first place in each category are one-year gift memberships in NARGS for the recipient of the winner's choice, and a grand prize of a fine illustrated book. Please include a cover letter with your name, return address, and a list of entries sent. Please ensure that it is easy to match the information on your slides, prints, or digital files with the list!

Each person may enter up to 10 photos per class, as prints, slides, or digital files on CD (**not e-mailed!**). If submitting your entry on CD, please include a list *on paper* with the names of the files for each item. Send all entries to the Editor: Jane McGary, 33993 S.E. Doyle Road, Estacada, OR 97023, USA. The deadline for receipt of entries is **September 1, 2004**.

All materials submitted will be returned by November 2004, except for award-winners to be published in the 2005 volume of the *Rock Garden Quarterly*, which will be returned later. By entering the contest, you grant NARGS the right to publish your photograph one time in the *Rock Garden Quarterly* and to post it on the NARGS website; however, you retain copyright.

**Labeling.** Write your name on each item sent; for prints, write the information on a paper label in pencil and stick it on the back. Be absolutely sure your *name* is on *every* slide. It is helpful to include your name in the file names of digital images, e.g. "Anderson.Pyrola.asarifolia."

**Prints.** Home-processed digital prints may not be of sufficient quality to be competitive, despite high-quality original images. Do not send *framed or matted* prints.

**Digital images.** Be sure that your digital files can be opened in a Windows XP Professional system using Adobe Acrobat, Photoshop, LView Pro, or other Windows application. The best results are obtained with high-resolution ("fine" or "very fine") jpeg or tiff files. Each image must be submitted as a *separate file* with a unique name.

## Classes:

Class 1: Portrait of a plant in the wild. Image should be centered on the plant, but extreme close-ups are less desirable than photos showing the entire plant.

Class 2: Natural scene featuring wild plants. The plants should be clearly visible, but this is to be a “scene,” not a “portrait”; that is, a broad view of the habitat should be shown.

3. Portrait of a plant in cultivation. Extreme close-ups are less desirable than views of an entire plant. Plants illustrated should be *suitable for rock gardens* in the broadest sense—i.e., small in scale.

Class 4: Rock garden scene, showing both landscape and plants. Vignettes of small areas are often more artistic than a broad view; however, this is not the class for “portrait” of individual plants.

We look forward to seeing your photos!

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# Books

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***Columbines: Aquilegia, Paraquilegia, and Semiaquilegia*** by Robert Nold.  
Portland: Timber Press, 2003. 192 pp., 45 color photos, 8 watercolors and line drawings by Cindy Nelson-Nold. Hardcover, \$24.95. Available at a discount from NARGS Book Service.

*Reviewed by* CARLO BALISTRERI, Bronx, New York

Bob Nold, bon-vivant and contrarian of the rock garden set, has a new book out. *Columbines* is the first modern-day treatment of the confusing genus *Aquilegia* and the latest word on its close relatives, *Paraquilegia* and *Semiaquilegia*. As implied by its common-name title, this is a gardener's guide, not a botanical text.

Although Nold's borrowed quote from Reginald Farrer about the "debatable land strewn with the corpses of botanists dead in mutual war over its varieties and sub-species" refers to *Aquilegia pyrenaica*, it could easily apply to the entire genus. Nold has done horticulture a valuable service by compiling this information, and his work may even coax some able, or insane, botanist to take another look—which, he concludes, is desperately needed, even though it would likely make his book outdated before its time.

Nold acknowledges that *Aquilegia* taxonomy is impenetrable and that every look at the genus results in a new but temporary conclusion. He makes no claim of completeness and emphasizes that his effort is an amalgamation of the efforts of others.

The book begins with introductory material and information on cultivation. Nold's well-known laissez-faire approach to the latter subject means there's little concrete advice on growing these plants, but this may reassure those who regard each plant that comes into their hands as a delicate creature unable to survive without constant coddling.

Nold's tongue is planted firmly in his cheek. If you don't know that already, he may confuse you—as when he characterizes the botanist Philip Munz (his primary authority) as a splitter who covers 67 species (Nold himself covers 65) and "300,000 varieties." His own strange little phrase, "much of a muchness" describes the situation. Too much of anything is not a good thing. The book drips

with sarcastic comments and humorous quips. Some may object to the interjection of this style into a book that is, at first glance, a serious horticultural work, but it does make the going easier (which can't always be said for Nold's love of long adjectives—keep your dictionary handy). More judicious editing might have held the quips to a more tolerable level. Cut through the fun he's having, though, and the information is sound. Despite his often self-deprecating accounts of personal experience, Nold is widely known as an excellent grower with an enviable Denver garden, and there is serious merit to this book.

One area that is a bit confusing is propagation, which he states in the first sentence is “easy” and spends the next pages expounding on, explaining several different methods for germinating seed without recommending one as the best for the genus. Warm with light, indoors cool nights, outdoors for the winter, refrigerator sown, midsummer sown, spring sown, under lights with cold . . . a newcomer trying to grow columbines from seed cannot help being confused. Throwing your hands in the air and trying any of them at random may work, but there must be a “best” or “easiest” method.

The chapter on names has some interesting musings, including some not often heard. The most common explanation of the meaning of *Aquilegia* derives it from Latin *aquila* ‘eagle’. Nold abandons this in favor of a German derivation meaning “water-finder,” which he relates to the nectar in the flower's spurs. Just one chapter earlier, however, he mentions their preferred streamside habitat—a more logical explanation of the name's origin.

The history lessons Nold sprinkles throughout the book sometimes interrupt its flow, and some readers will be tempted to skip them. Those with even the faintest interest should read them. Taxonomy is all about process, and it's a fascinating account of the history of a genus.

Nold is not so lucky when it comes to geography. His keys to the species are prepared by continent, and he introduces them: “Obviously Europe and Asia are one continent. . . .” Not in my sixth grade; a careful editor would have changed “continent” to “land mass.”

Regarding the graphics, there are simply too few. The photography is workmanlike and the line art serviceable. The watercolors by Cindy Nelson-Nold are flat-out gorgeous. Why aren't there more?

Nold vastly overstates the difficulty of importing seed. He asserts that new phytosanitary requirements for seed make it “virtually impossible” to import columbine seed and plants into the United States, and that “it is safe to say that most columbine seed will now never reach this country.” This is simply not true. It is more inconvenient, but the regulations are not bans, and seed continues to flow through organized exchanges and commercial ventures. Private seed traders may not like the permit requirement, but they are still able to ship seed as long as they comply.

In the species accounts Nold really settles down to work, and it's here that the primary value of the book lies. He provides a major service by collecting the literature and presenting it in accessible form. Whether or not you like his “key-by-continent” approach, the descriptions of the species are valuable when one is



attempting to ascertain identities in this Halloween horror of a genus, where plants regularly masquerade under names other than their own. Unfortunately, the species accounts and discussion often create as many questions as they answer. Nold is candid about not being a botanist, and, in his defense, even the botanists haven't been able to figure things out.

There is little or no new taxonomic work here, and Nold makes no bones about it. He is a scribe, and his is a synthesis of the available literature. He has "resisted the temptation of including my own conclusions in some instances." A tenth chapter with his musings might have been a fitting conclusion to the book, which ends abruptly after an enlightening discussion of hybrids and oddities.

***Penstemons: An Interactive Guide with Photos*** by William R. Gray. CD-ROM, privately published, 2003; \$25.00 from the author at [cyberflora@xmission.com](mailto:cyberflora@xmission.com).

*Reviewed by* ROBERT C. MCFARLANE, Englewood, Colorado

If you love penstemons you need this program. It is a very useful addition to the library of anyone who loves penstemons. It is just the thing to browse on a cold winter's day when you're thinking of all the wonderful plants you're going to see and grow next spring. It was created as a companion to the recently published, "Growing Penstemons; Species, Cultivars and Hybrids" by Dale Lindgren and Ellen Wilde (Infinity Publishing, Haverford, PA 02003). It has over 800 photographs including 222 of the 284 listed species of penstemons plus many cultivars and hybrids, all in breathtaking color. The computer program is easy to install and easy to manipulate with simple clicks on icons to navigate.

Dr. Gray has transferred much of the information from the Lindgren/Wilde book along with most of the slides from the American Penstemon Society slide collection into the data bases of the program and more is expected as new photos are obtained and the program is updated. The data for each penstemon species is arranged in card file format with one page devoted to each species. On that page is shown general and cultivation information for the species, up to six photos and a map of most of North America showing the state locations where the species can be found. In addition there are a number of other icons which can be clicked to do other things such as magnify the photos to full screen size, obtain more detailed species information on anthers, staminode and botanical classification, find cultivars developed from the species (primarily North American), write or retrieve personal notes on the species and even add or retrieve your own photos of the species. I found that being able to view the color photographs of a species right next to its description is very desirable and helpful in learning how to identify it in the field. A nice feature of the magnified photographs is that the name of the photographer is shown below each.

The program provides several ways to retrieve information. The simplest is to either enter the species name or pull down a menu with all of the species names

on it and click on the one you want. There is also a clever and useful search and sort capability where you can sort penstemons by color or state. For example, to find all of the red penstemons found in Colorado I simply clicked on Colorado, Red and Search and up came a list with more names than I had remembered. The list shows the botanical name, common name, subgenus, section and subsection for each species. A simple click on a blue button next to the species name takes you immediately to the species page described in the last paragraph.

Another feature that I found very useful is the ability to print the species page including one user-selected photo. This is easily done and useful for field, and in my case, garden identification, by being able to take the photos to the plants.

In addition to the descriptions of 284 penstemon species there are listings for 131 cultivars and hybrids. The majority of these have been developed in the US and Canada. The large number of European developed cultivars and hybrids are not available in this program. The author states that there are still sixty-some species with no photos with many of these being from Mexico. No doubt that if this program is successful the number of species with photos will increase and hopefully we will finally have one single accessible source of photos and descriptions for all penstemon species—and cultivars and hybrids as well.

The computer program comes on one CD and will load on either a Macintosh (System 8 or higher) or Windows (Windows 98 or higher) operating system with at least 25 megabytes of free space on the hard drive. I installed the program on my computer with Windows 98 in just a couple of minutes with no problems. The installation guide is located in the middle of the jacket cover and I found it reasonably easy to follow. The basic installation stores the program on your hard drive and keeps the data bases with the photos and descriptions on the CD. After installation, the program can be accessed by simply double clicking the icon on the desktop of your computer. This is the manner in which I have used and reviewed the program. As an alternate you may load the entire photo library on to your hard drive if you have 150–200 megabytes of extra space to devote to it. If you do this you do not have to have the CD in place when accessing the program. The author states that by copying the photos on to your hard drive you get a faster and smoother display. I didn't do this but found the basic installation quite satisfactory.

Two very interesting features of this program are the ability to add your own photos and notes to any species you wish. There is space for up to six additional photos per species. I found adding the notes quite straightforward but did not try to add my own photos. To accomplish this requires you to scan your photo into the correct format, then place it in a User Library APS photo folder and finally add it to the appropriate species file. The resulting User Library photo folder, like the photo library provided with the program, may or may not be copied on to your hard drive.

This program written in a very professional manner by Dr. Gray owes an enormous debt to Ellen Wilde and her encyclopedic knowledge of penstemons and careful maintenance of the APS slide collection for many years.

The CD is available directly from the author and from the following:

APS Book and CDs, c/o Ellen Wilde, 110 Calle Pinonero, Santa Fe, NM 87505  
Utah Native Plants Society, [www.unps.org](http://www.unps.org)

Save Our Canyons, [www.saveourcanyons.org](http://www.saveourcanyons.org)

Dr. Gray states that part of the proceeds from CD sales will go to the work of the APS.

## **Penstemon Books: An Opinionated Compendium**

*Review article by* GINNY MAFFITT, Sherwood, Oregon

There is a small but interesting collection of books, a magazine, and a CD on the genus *Penstemon* that are reasonably priced and fascinating for “penstemaniacs” who make this large group of North American plants their hobby. As we prepare for a summer of growing and plant-hunting in the wild, we are helped by the following works. (See also the review of the new penstemon CD-ROM guide in this issue.) Most if not all of these titles are available from the NARGS Book Service.

*The Gardener’s Guide to Growing Penstemons*, by David Way and Peter James (Timber Press, 1998, \$29.95, ISBN 0 88192 4245). Written by British authors, this is primarily a discussion of penstemon hybrids from around the temperate world. Featuring a color photograph on almost every page, it gives the botany, history, cultivation, propagation, pests, diseases, and surveys of both species and hybrids. The pictures are primarily of hybrids. While supplying scientific nomenclature, the discussion is very readable. It can be read straight through or dipped into for specific information.

*Growing Penstemons: Species, Cultivars and Hybrids*, compiled by Dale Lindgren and Ellen Wilde (American Penstemon Society, 2003, \$17.95, \$4.50 S&H, from Infinity Publishing, 519 West Lancaster Ave., Haverford, PA 19041-1413 or [www.buybooksontheweb.com](http://www.buybooksontheweb.com)). This is the newest penstemon bible, written by two of the most knowledgeable American penstemaniacs and amended by others around the country with localized, up-to-date growing experiences. A paragraph is given to each species, with description, cultivation, and seed germination information. Other chapters include Society history, propagation, and hybridizing. Appendices offer tips for beginners, finding plants in the wild, nurseries, botanical gardens, and sources of seeds, plants, and supplies. Color photos of several dozen species appear on the covers only.

The *Portfolio of Penstemon Species* has whole-plant portraits of more than 100 species on loose pages. Another APS project, it is available for \$12.00 plus \$3 shipping (overseas orders, \$9), from Ellen Wilde, APS Books & CDs, 110 Calle Pinonero, Santa Fe, NM 87505.

*Northwest Penstemons: 80 Species of Penstemons Native to the Pacific Northwest*, by Dee Strickler (Flower Press, 1997, \$29.95 from the author at 192 Larch Lane, Columbia Falls, MT 59912), was the book I had been waiting for. What were those other shrubby, evergreen pents besides *P. cardwellii* and *P. rupicola*,

and how many species were there? (Answer: ten in sub-genus *Dasanthera*.) How many pents live in Oregon? (About thirty.) Each species enjoys a full-color page plus a page of line drawings, an area map, and minute explanations of stamino-ode, calyx, corolla, leaf shape, and so on, all necessary for field identification. The author and his well-traveled wife, Clair, went to every site given in herbarium lists to photograph each species, visiting some in successive years. There is a simple-to-use key using English descriptors, as well as good botanical drawings at the end, and a good index.

***Penstemons*** by Robert Nold, with photographs and illustrations by Cindy Nelson-Nold (Timber Press, 1999, \$29.95), does for all North American penstemons what the previous book does for Northwestern ones. Here is detailed information on all known species of *Penstemon* and the related genera *Chelone*, *Chionophila*, *Keckiella*, *Nothochelone*, and *Pennellianthus*—a formidable task. The style is humorous and readable; as Nold says, it isn't a true monograph because there are so many inconsistencies in taxonomic viewpoint from section to section. He uses divisions favored by the American Penstemon Society, mostly created by the botanist David Keck. There are beautiful watercolors as well as many pages of color photographs, but certainly not of all species. While the information is not keyed to plant identification, there is a complete list preceding the species of the four subgenera with their sections and subsections. With at least 280 species, these bring some order to the array! The chapters cover an overview, cultivation, morphology, habitat, hybrids, cultivation, propagation, pests and diseases. Appendices cover societies, glossary, plant sources, reading lists, and bibliography. This is a great book to take road-botanizing at penstemon bloom time.

***Penstemons: The Beautiful Beardtongues of New Mexico***, by Jean Heflin with photographs by Bill Heflin and drawings by Dewitt Ivey (1997, \$20.00 from Native Plant Society of New Mexico, c/o Lisa Johnston, 1814 W Currier Av., Artesia, NM 88210; <NPSNM.UNM.edu/merchandise/booklist>), truly reflects penstemons of the Southwest. Arranged in alphabetical order, it has color photos of all 72 plants, including some subspecies. Growth habit, flowers, leaves, calyx, and stamens are clearly described. The herbarium source and locale of each is also given. Drawings of salient plant parts and a brief discussion of garden cultivation and germination are provided. This is a beautiful book to own and a valuable one when viewing wild pents in bloom.

***Key to the Genus Penstemon and Its Related Genera in the Tribe Cheloneae (Scrophulariaceae)***, by Robin and Kenneth Lodewick (1999, \$15.00 from Kenneth Lodewick, 2526 University St., Eugene, OR 97403), is a complete and simple key to the huge genus. It lists the plants twice, once in the group key then in a quick key that has only two main descriptors. Following is a list of all species, including five related genera, with *Penstemon* broken down by subgenus and section. Drawings of salient corollas, sepals and anther sacs are shown, with a good glossary.

***Penstemon Nomenclature: Including Genus Penstemon and Five Other Genera from the Tribe Cheloneae***, by Kenneth and Robin Lodewick, based on Ralph Bennett's *Penstemon Nomenclature* (3rd ed., 2002; also available from the author), is a

synonymy for the penstemon nerds who wonder whatever happened to *Penstemon filifolius* or *flagelliformis* or *flaviflorus*. This text can settle arguments. The list itself is followed by a chapter of arcane information on the naming of penstemons, with some texts in Latin as well as English. The Lodewicks also published a *Penstemon Field Identifier* illustrated with line drawings and might be persuaded to sell you a copy.

***Primula***, Revised Edition, by John Richards. Portland: Timber Press, 2003.

386 pp., 84 color photos, 111 color illustrations, 10 b/w photos, 15 line drawings. ISBN 0-88192-580-2. Hardcover, \$39.95 (Canada \$54.95).

Available at a discount from NARGS Book Service.

*Reviewed by* JAY LUNN, Hillsboro, Oregon

When John Richards's *Primula* was first published a decade ago, it was the latest comprehensive treatment of the genus available. A glance at the dust jacket of his second edition suggests the changes inside. I especially noticed the photograph of the peculiar *P. woodwardii* taken by Harry Jans in Qinghai, China: now, that is an unusual and appealing primrose!

This is a book about species of *Primula*, and the myriad hybrids or cultivars are rarely mentioned. Two-thirds of this book is devoted to describing the approximately 430 species of *Primula* currently recognized. There are 256 pages in the section "Synopsis of the genus *Primula*" (201 in the first edition), allocated to the particulars of the species. The first edition contained only a key to the sections of the genus. Once you determined the proper section, you had to go to the species descriptions and sort through all of them to determine what species you possessed. The current edition contains not only this key but also a "Key to species" at the head of each section. That makes it much easier to find a name for the plant you are attempting to key out.

Most of the 111 species depicted in the 19 color illustrations by Brigid Edwards (the same as in the 1st edition) are of plants common in cultivation. Most of us will be able to find the species primulas we grow depicted in these fine color plates. In contrast, the color photographs mostly represent little-known species that rarely appear in publications, and most were photographed in the wild, showing their natural habitats. The 34 new photographs occupying 7 pages are all beautiful images. Most of these were contributed by Anne Chambers, Chris Grey-Wilson, Harry Jans, David Rankin, Margaret and Henry Taylor, and Richards himself.

These and the earlier photographs portray plants that will rarely find their way to our gardens, but much has changed in the past decade, and we might be surprised in the future. It is astonishing that new species are still being found, one in, of all places, Italy: *P. albenensis*, depicted in a photograph by the Taylors. This charming plant is in cultivation, and I surely would like to get my hands on seed of it.

The first section in the book is "A Short History of the Exploration, Introduction and Cultivation of *Primula*." Some readers may not find this part very interesting, but I like history and enjoyed it. The author has filled in the historical gap between the two editions.

"The Cultivation of *Primula*" contains portions on temperature and humidity, soil and composts, propagation, pests and diseases, and "special conditions." This part of the book should be of much interest to gardeners, although it is a bit slanted to cultivation in the United Kingdom. The author has updated this section since the first edition, now mentioning the use of gibberellic acid for seed germination and a systemic control for vine weevil that is not available in the United States.

Next comes the heavy reading: "The Evolutionary History of *Primula* and its Relatives," "The Most Important Biological Characters Used in Sectional Classification in *Primula*," and "Heterostyly and Homostyly." Most readers may want to skim these sections, but it is interesting to learn how DNA is being used as "incontrovertible evidence" to confirm or supersede speculations about biological relationships. All primrose growers who are interested in seed production should become familiar with heterostyly and homostyly.

With the exception of a very good glossary, references, and an easy-to-read index in the back, the remainder of the book is devoted to information about each species. This includes detailed descriptions of the plants, their distribution, information about their cultivation, and natural hybridization. Richards has made some changes in classification and has added information on new species that weren't recognized when the first edition appeared in print. If you are fortunate enough to grow species of *Primula*, you should find information about your plants in this book.

Is there anything that disappoints me in this book? Absolutely, and I place the blame for this on the editors. The pages of photographs typically have one caption in the upper right-hand corner in the form "Plate 99 (Left, below) . . . , Plate 100 (Left centre) . . . ," and so on. I find it cumbersome to figure out which plate goes with what image. In the first new page of photographs, the editors made the mistake of showing that the identification of the plate could actually be put under the appropriate image, as I think all should appear. Moreover, the photographs are a hodgepodge of image sizes, so the layout is much less appealing than it could be.

In the past decade, more and more seed of this genus has been collected in the wild, some identified only as *Primula* sp. or misidentified altogether. Misidentified seed, such as that of *P. beucherifolia* (see Plate 28), has repeatedly appeared in seed lists. (From my experience, this seed always produces plants of a closely related species like *P. polyneura* or *P. cortusoides*.) Someone out there needs this book as much as I do! If you already have the first edition and aren't particularly interested in growing the species, you may not want to invest in the new edition. If you are growing *Primula* species and you need to identify or confirm their identity, this is the book for you.

***So You Want to Start a Nursery*** by Tony Avent. Portland: Timber Press, 2003. 340 pp., 105 b/w photos. Hardcover, \$24.95. Available at a discount from NARGS Book Service.

*Reviewed by* ERNIE O'BYRNE, Eugene, Oregon

Visit Plant Delights Nursery in North Carolina (the subject of an article in this journal's winter 2004 issue) and you will be so impressed with the smooth-running operation and efficiency evident in all directions, that you might think to yourself, "This guy ought to write a book." Well, the good news is that he has; and there isn't any bad news, unless you might be laboring under the illusion that the nursery business is just a simple pastime to while away the idle hours.

This book is an invaluable guide for anyone even remotely considering starting their own nursery. Moreover, all nursery owners would fervently hope that it will be read by their customers so that they might better understand what is behind those "high" prices. Tony Avent has done an admirable job of presenting the many facets of beginning both small operations and very large ones, balancing very nicely hints for success in both types of business.

Avent's inimitable style is present throughout, providing solid, no-nonsense, practical information with a wry wit and self-deprecating commentary. Those who have heard his popular lectures will have some idea of how enjoyable the book is to read. He begins by challenging the dictum of the great teacher, plantsman, and gardener J.C. Raulston that "There is no way a specialty nursery can possibly make a profit without doing something illegal."

In a book awash with helpful photographs and tables, Avent leads you step by step through the complete process of nursery building, from the gleam in the gardener's eye to the end processes of liquidating the nursery when you've had enough fun. He expertly guides you through the myriad decisions that must be made constantly by the nursery owner and dispassionately analyzes the pros and cons of various directions and methods, giving information suited to all sizes of operations, from "mom and pop" micro-nurseries to multimillion-dollar operations. Wholesale or retail, on-site or mail-order, purchasing or leasing, advice about operations—the nuts and bolts of growing, dealing with pests and pesticides, employees, customers, and marketing—it is all here.

If you are still thinking about starting that nursery after reading this book, just don't say that nobody warned you!

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**Correction:** The book *Native Shrubs and Vines of the Southeast* by Sam Jones and Len Foote, described as out of print in Ann Armstrong's review article in winter 2004, p. 53, is still available from Timber Press.



## NARGS COMING EVENTS

**Annual Meeting:** May 5-8, 2005, "Newfoundland and Labrador: Rock Garden of the North Atlantic." Host: Newfoundland Chapter, Fairmont Hotel, St. John's, Newfoundland. Registrar: Bodil Larsen, Box 50517, SS#3, St. John's, NF A1B 4M2, Canada; <blarsen@mun.ca>.

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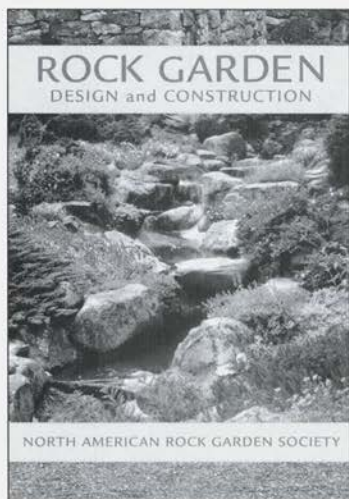
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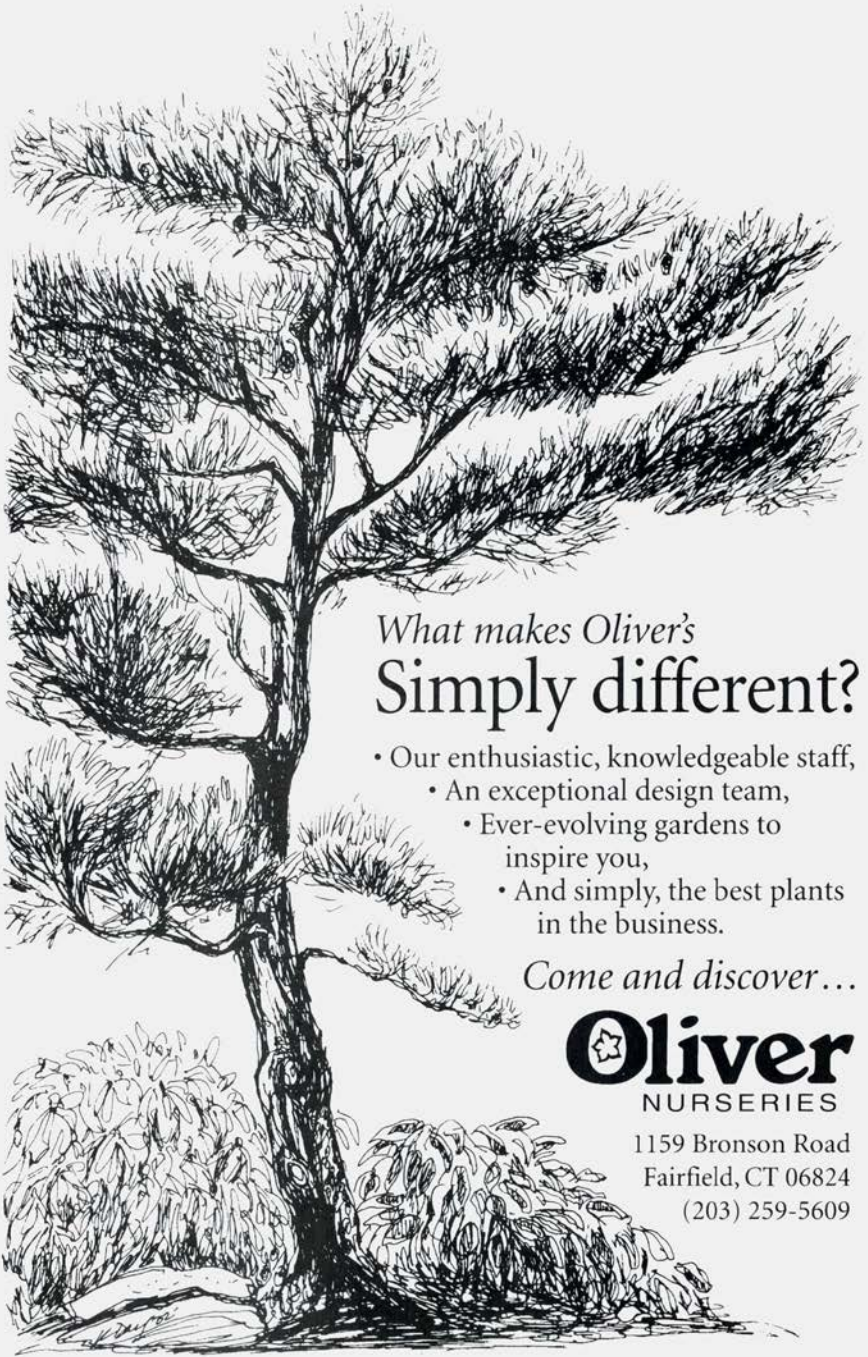
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*Primula\**, revised edition. John Richards. Illustrations by Brigid Edwards  
Timber Press. 386 pp, 84 color photos, 111 color illustrations. . . . . \$32

*Columbines: Aquilegia, Paraquilegia, and Semiaquilegia\**, Robert Nold.  
Watercolors by Cindy Nelson-Nold. Timber Press. 193 pp, 45 color  
photos. . . . . \$20

## OTHER TITLES OF INTEREST

*Growing Penstemons: Species, Cultivars and Hybrids*, Ellen Wilde and  
Dale Lindgren. Infinity Publishing, 2003. 151 pp. Written by members of  
the American Penstemon Society; describes all 279 species, 32 color photos,  
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*Rock Garden Design and Construction\** Edited by Jane McGary. Timber  
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