

# Plants *on the* Rocks

Taking inspiration from the beauty of native plants growing on and around rocks in wild places, the author offers ideas for using these plants in challenging garden settings.

ARTICLE AND PHOTOGRAPHS BY KAREN BUSSOLINI



One of the author's Connecticut neighbors encouraged the hardy fragrant sumac (*Rhus aromatica*) 'Gro-Low' to colonize this rocky slope along a hillside driveway.

HAVING SPENT a good portion of my childhood daydreaming on mossy ledges threaded with Canada mayflowers, wild strawberries, and trout lilies, I have always been drawn to rocky places inhabited by plants. When I need to calm myself from life's stresses, one of my most effective visualization techniques is to recall a weathered mountaintop in New Hampshire's White Mountains where crevices are jammed full of lowbush blueberries and three-toothed cinquefoil (*Potentilla tridentata*).

In my own Connecticut garden, the beauty of an enormous hemlock—seeded long ago into a cliff face and now painted with lichens, mosses, and polypody ferns—regularly inspires me to hoist myself up the hillside for a closer view. I treasure these volunteers that thrive in places I'd never attempt to plant, so over the last few years I have spent time investigating how—and why—these relationships work in different regions. For me, regionally native plants and rocks embody the architecture of nature and speak powerfully of place.

Throughout North America, plants enticingly colonize rocky areas of all kinds, from mountaintops to rock slides, outcrops, volcanic formations, crumbling sandstone, limestone ledges, and gravelly depressions. Counterparts to these rock formations, both natural or constructed, are found in most of our yards. Exposed bedrock and glacial rocks are unavoidable in my region. Stone also abounds in the built landscape, in sidewalks, stone terraces and steps, stone walls, and gravel driveways and paths.

Plants with the tenacity to colonize these difficult niches visually soften the hard surfaces and tie them—both aesthetically and ecologically—to the rest of

## CHARACTERISTICS OF GOOD ROCK COLONIZERS

There are certain physiological characteristics that help rock-dwellers survive and squeeze out the competition. Shallow roots anchor plants and find nourishment in tiny pockets of duff or thin soil atop ledges. Rhizomes (underground stems) and stolons (horizontal stems that emerge above ground and form roots where they touch the ground) allow plants such as Canada mayflowers (*Maianthemum canadense*) and creeping phlox (*Phlox stolonifera*) to colonize thin soil. Plants with fibrous root systems, such as Christmas ferns (*Polystichum acrostichoides*), fill up the cracks with a network of fine roots.



*Heuchera villosa* 'Autumn Bride' and 'Atropurpurea' seeded themselves in limestone steps in this Pennsylvania garden.

In order to withstand fluctuations in temperature and soil moisture, rock dwellers often have fleshy roots or leaves to store water, leaves that are small and basally arranged, leaf surfaces covered with hairy or waxy coatings, or silver coloration. Buckwheats (*Eriogonum* spp.) and other mat-formers spread out, shading out the competition while cooling and conserving water for their own roots. Plants that sucker or self-layer, such as fragrant sumac (*Rhus aromatica* 'Gro-Low'), worm their roots or stems around obstacles to send up shoots, or set down roots wherever they find soil.

Penstemons produce great numbers of small seeds that wash into tiny cracks with rainfall. Other plants that send out airborne seeds or spores, including mosses and ferns, also utilize this winning strategy.

Some rock colonizers combine several of these adaptations, and success often runs in families. In the wild, diverse goldenrods (*Solidago* spp.), penstemons, heucheras, pussy-toes (*Antennaria* spp.), junipers, phlox, and members of the heath and saxifrage families occur in and around rocks throughout North America. Many of these plants are good choices for cultivating in the crevices of stone walls and in rocky garden sites. —K.B.

the garden and the surrounding landscape. The scenes that inspire us in nature—especially those close to home, where soil and climate are likely to be similar—can inform us about gardening in, on, and around stone.

For instance, while visiting an Arkansas mountaintop estate a few years ago, I wondered why someone had risked life and limb to plant magnificent silver filigreed American alumroot (*Heuchera americana*) on treacherous crumbling limestone ledges below the manicured lawn. Then it dawned on me that these plants, which had failed to flourish in the carefully prepared soil in my own garden, were growing where they wanted to be, not where someone had planted them.

Sometimes, as in the Arkansas garden, desirable plants colonize rocks spontaneously. But you can't count on such serendipity. Near my home, purple loosestrife, a pernicious wetland invasive, blooms in the dry joint between pavement sections on a bridge. By proactively planting appropriate native rock colonizers that get the upper hand fast,

you can prevent unwanted plants from taking root first.

### REGIONAL RECOMMENDATIONS

In his fascinating book, *The Granite Landscape: A Natural History of America's Mountain Domes, from Acadia to Yosemite* (Countryman Press, 2002), ecologist Tom Wessels notes how similar plant communities form on glacier-scoured mountaintops across the country. This holds true for alpine plants from limestone regions as well. Of course, not many of the species well-adapted to grueling mountaintop conditions will tolerate the heat, humidity, competition, soil chemistry, high nutrient levels, and lack of snow cover in gardens at lower altitudes. Serious rock gardeners who cherish these alpiners construct special crevice and scree beds with just the right pH and drainage to cater to their plants' needs. The rest of us, who want to create plantings that require little maintenance, need to seek out plants that are adapted to existing garden conditions. To get recommendations for rock-dwelling plants to supplement my own ex-

perience, I spoke with several experts in different regions of the country. (Additional plant recommendations can be found in the web special linked to this article on the AHS website, [www.ahs.org](http://www.ahs.org)).

### NORTHEASTERN ROCK COLONIZERS

Some of the plants Wessels observed on granite mountaintops can be seen growing naturally on rocky ledges at the Coastal Maine Botanical Garden in Boothbay. Among these are heath family members—such as lowbush blueberry (*Vaccinium angustifolium*), black huckleberry (*Gaylussacia baccata*), and bearberry (*Arctostaphylos uva-ursi*)—along with bunchberry (*Chamaepericlymenum canadense*, formerly *Cornus canadensis*) and a tapestry of mosses and lichens. These plants thrive in Maine's cool climate and acidic, nutrient-poor soil—even at sea level. Other ledge inhabitants, including hay-scented fern (*Dennstaedtia punctilobula*) and polypody ferns (*Polypodium virginianum* and *P. appalachianum*), are equally adapted to rocky areas throughout the East.

William Cullina, the botanic garden's plant and garden curator, does as much editing as planting. Cullina nurtures existing ledge communities by removing blackberries and overly aggressive bracken fern in garden areas. He plants desirable natives, including mosses, on and around raw, new stonework and unearthened ledges. Eventually, newly cultivated areas will blend seamlessly with the extraordinarily beautiful natural landscape.

Ana Hajduk, a garden designer, adopts a similar strategy in a client's more temperate, less-acidic New York woodland garden, employing unfussy eastern plants whose native range extends from the Deep South to Canada. Stone retaining walls and steps were built over and around ledge outcrops, soil was removed to expose ledge in places and added to make even paths and planting beds in others. She planted vigorous hay-scented ferns to rapidly cover areas underlain by thin soil. Dainty but tough foamflowers (*Tiarella cordifolia* 'Running Tapestry') drape over retaining walls, blooming in spring with eastern red columbine (*Aquilegia canadensis*) growing between stones. She thins and transplants the prolific foamflowers throughout the garden and scatters columbine seeds to keep the combination going. *Solidago rugosa* 'Fireworks' and white wood aster (*Aster divaricatus*, syn. *Eurybia divaricata*) naturalize in ledge fissures in dry shade and are easy to remove where they are not wanted.

## PLANTS FOR THE SOUTHEAST

The Southeast is certainly not known for alpiners, but Jan Midgley, an Alabama nursery owner and author of several Southern wildflower guides, says there's no lack of native rock dwellers that are well-adapted to garden settings.

Among the plants she has seen growing in sandstone glades and rocky outcrops are perennials such as native asters, greater tickseed (*Coreopsis major*), blazing stars (*Liatris* spp.), woman's tobacco (*Antennaria plantaginifolia*), azure bluet (*Houstonia caerulea*), and pineywoods dropseed (*Sporobolus junceus*), a grass she considers worthy of a spot on a rock wall.



**Northeast natives such as hay-scented fern, bunchberry, and Canada mayflower mingle naturally on rocky ledges at the Coastal Maine Botanical Garden.**

Woody vines such as crossvine (*Bignonia capreolata*) and yellow jessamine (*Gelsemium sempervirens*) will root into cracks and scramble over rocks.

From her observations of plants growing on or near limestone outcrops, she suggests that wild petunia (*Ruellia humilis*), American alumroot (*Heuchera americana*), fragrant sumac (*Rhus aromatica*), native prickly pear cactus (*Opuntia humifusa*), the annual *Sedum pulchellum*, and bird's-foot violet (*Viola pedata*) would make themselves equally at home in neutral to alkaline garden

## Resources

**Chasing Wildflowers** by Scott Calhoun. Rio Nuevo Publishers, Tucson, Arizona, 2007.

**The Encyclopedia of Grasses for Livable Landscapes** by Rick Darke. Timber Press, Portland, Oregon, 2007.

**Ferns for American Gardens** by John T. Mickel. Timber Press, Portland, Oregon, 2003.

**Native Ferns, Moss & Grasses** by William Cullina. Houghton Mifflin Co., Boston, Massachusetts, 2008.

**Rock Gardening: A Guide to Growing Alpines and Other Wildflowers in the American Garden** by H. Lincoln Foster. Timber Press, Portland, Oregon. Reprinted 1982.

## Sources

**Eastern Plant Specialties**, Rahway, NJ. (732) 382-2508. [www.easternplant.com](http://www.easternplant.com).

**High Country Gardens**, Santa Fe, NM. (877) 811-2700. [www.highcountrygardens.com](http://www.highcountrygardens.com).

**Prairie Moon Nursery**, Winona, MN. (866) 417-8156. [www.prairiemoonnursery.com](http://www.prairiemoonnursery.com).

**Prairie Nursery**, Westfield, WI. (800) 476-9453. [www.american-natives.biz](http://www.american-natives.biz).

**Siskiyou Rare Plant Nursery**, Talent, OR. (541) 535-7103. [www.siskiyourareplantnursery.com](http://www.siskiyourareplantnursery.com).

settings such as a limestone terrace or along a cement foundation or marble-chip walk.

## SOUTHWESTERN ROCK DWELLERS

While exploring the dry west for his book, *Chasing Wildflowers*, Tucson garden designer and author Scott Calhoun thought the breathtaking beauty of the wild plant communities he saw might make it harder to design gardens. Instead, he gained a



***Dudleya hassei*, a California native succulent, sprawls happily over a rock outcrop at the San Diego Botanic Garden.**

new appreciation for stone in the designed landscape, an expanded palette of plants to try in garden settings, and a refined sensibility of what sustainable gardening in the desert is all about.

Desert wildflowers are mostly annuals; their survival strategy is to lie dormant until winter rains allow them to germinate, bloom extravagantly, set seed, and disappear. The ability of these plants to thrive in poor, rocky, often alkaline, soil recommends them for use in unimproved soil with gravel or decomposed granite mulch, and in places where digging is impossible.

Calhoun points out that while we think of rocky places as dry, rocks actually create microclimates by holding water in their fissures. Throughout the dry West he spotted cacti and yuccas in rocky places and noticed that agaves, *Echeveria* spp., and *Dudleya* spp.—rosette-forming succulents that look like a cross between agaves and *Echeveria*—grow almost exclusively on rock.

Penstemons and buckwheats (*Eriogonum* spp.) inhabit rocky niches throughout the West. Both genera grow

best on poor, dry soil. Calhoun recommends rock penstemon (*Penstemon baccharifolius*), a two-by-three-foot South Texas native that has leathery green leaves and coral pink tubular flowers in summer; Eaton's penstemon (*P. eatonii*) found on scree slopes in Utah canyons, but just as happy in hot Tucson gardens; and canyon penstemon or desert beardtongue (*Penstemon pseudospectabilis*), a shrubby, upright plant that bears rosy to purple flowers. Calhoun likes to combine canyon penstemon with yellow-flowered buckwheat varieties such as selections of *E. wrightii*. Another yellow-flowered selection, *E. umbellatum* var. *aureum* 'Psdowns' (Kannah Creek®) is recommended for colder Rocky Mountain gardens.

## NORTHWESTERN ROCK COLONIZERS

People often think that it rains all the time in the Pacific Northwest, but rain is rare all summer, and mountain ranges create huge rain shadows in areas to the east, making conditions there more comparable to drier desert regions. Throughout the Northeast, geology and climate have conspired to foster astonishing plant diversity, which in turn has attracted adventurous gardeners who seem to grow everything beautifully, even on rocky ground.

On a recent drive through the Columbia River Gorge, I spotted glossy evergreen creeping mahonia (*Mahonia repens*), red flowering currant (*Ribes sanguineum*), and snowberries (*Symphoricarpos* spp.) adorning a crumbling moss-covered cliff. These familiar garden shrubs seem like ideal choices to colonize rocky, hard-to-dig slopes in home landscapes not only in this region but possibly in sections of the Rockies and the Northeast.

The West Coast is home to hundreds of rock-colonizing manzanitas (*Arctostaphylos* spp.), most of which, according to Sean Hogan, owner of Cistus Nursery in Portland, Oregon, are only suitable for gardens in western Oregon and California. One ex-



***Eriogonum allenii* and 'Thai Silk' California poppies, California fuchsias, and variegated yuccas combine well in this gravel garden at Northwest Garden Nursery in Oregon.**

ception is bearberry, or kinnikinnick (*A. uva-ursi*), a species that also thrives in upper New England and adjacent eastern Canadian provinces. Many fine cultivars of this plant are available. Bearberries are hardy to USDA Zone 2, but will sulk or waste away if not provided with very acidic soil and good drainage.

I also found inspiration at the wholesale Northwest Garden Nursery, west of Eugene, Oregon, where Marietta and Ernie O’Byrne’s gardens overflow with

cultivars such as ‘Select Mattole’, which has silver leaves, and the green-leaved selection, ‘Dublin’.

### TIPS FOR SUCCESS

Rocky places can be challenging to plant and maintain. The key to naturalizing natives in the garden—getting them to not just live, but to reproduce—is to put them where they want to be, and give them what they need, but to avoid pampering them. If they prefer nutrient-poor,

sustaining colonies. When building a rock wall, planting between stones as you go gives roots a firm foothold.

Experimenting often yields unexpected successes. For example, Pennsylvania-based designer Larry Weaner likes to plant a few prodigious self-seeders such as *Penstemon hirsutus* at the top of a rock outcrop and let seeds wash down into cracks where seedlings will out-compete everything else.

One of my Connecticut neighbors planted a few small ‘Gro-Low’ fragrant



In this Connecticut landscape designed by Larry Weaner, *Penstemon hirsutus* thrives on a dry ledge and ostrich ferns fill damp pockets in the rock.

color and dramatic contrasts. The dry garden’s fast-draining, rock-studded raised beds are edged with chunks of an old concrete sidewalk and mulched with gravel. Smooth river rocks embellish and serve as place markers for small dormant bulbs. Delicate ‘Thai Silk’ California poppies dance lightly among the stiff upright blades of various variegated yuccas. Mounds of silver-leafed *Eriogonum umbellatum* and *E. allenii* are at home in the rocks, along with well-behaved low-growing California fuchsia (*Epilobium canum*, formerly *Zauschneria californica*)

gritty, acidic substrate, fill the cracks with fast-draining decomposed granite; give woodlanders rich, water-retentive leaf mold. Water to establish, but don’t overdo water or fertilizer.

Finding the right plants can be a challenge, but make sure you purchase plants from responsible nurseries; don’t dig plants from the wild however tempting that may seem. If you have any moss inhabiting your rocks, ferns are likely to appear, so avoid dislodging the moss. In tight spaces use small plants—nursery plugs are ideal—to encourage development of self-

sumacs in full baking sun on almost solid rock and loose blasting debris beside his mountaintop driveway. He discovered that if you break off a branch tip and stick it into the ground, or if you skin some bark from the bottom of the branch and weigh it down with a rock, it will root. The sprawling stems trap leaves and debris that improve the soil—just the way they do in those wild rocky places near and far. 🌿

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Garden photographer, author, and lecturer Karen Bussolini gardens on a rocky mountainside in Connecticut.