NORTH AMERICAN ROCK GARDEN SOCIETY

*The Rock Garden*

# QUARTERLY

WINTER 2020/21

# CONTRIBUTORS

***All illustrations are by the authors of articles unless otherwise stated.***

**Panayoti Kelaidis** is senior curator at Denver Botanic Gardens where he's worked for 39 years. He's been active in NARGS much longer than that, helping cofound the Rocky Mountain Chapter of NARGS in 1976. Panayoti is a keen plant and seed collector with special pride in donating to the NARGS seed exchange. He is serving his third term on the NARGS Board of Directors.

**Mike Smedley** is the deposit officer of Bank of the San Juans, based in Durango, Colorado. He's obsessed with bulbs, growing 12,000 of them in an urban yard. He speaks frequently at bulb sales and garden shindigs. A former newspaperman, Mike has been grubbing in the dirt for much longer than necessary and really doesn't understand why people are into roses. Or daylilies.

**Jeff Wagner** is a nurseryman. He's had his hands in the soil since he was four. He loves plants indiscriminately.

**Mike Heim** has created an incredible plant ark deep in the Northwoods of Wisconsin. Bamboo, cacti, rhododendrons, magnolias, and exotic ferns are some of the plants which greet visitors. In his spare time Mike teaches natural sciences at a tribal college. He and his students have conducted ecological research in the rainforest of Costa Rica and, in cooperation with the National Arboretum, have reintroduced box huckleberries, a relict species from before the Ice Age. Mike would like to see people push the limits of what is commonly thought possible to grow in an area. He himself has a serious case of zone denial.

**Pamela Yokome** is vice chair of the Darts Hill Conservancy Trust Society, head guide, and member of the propagation and labelling groups. She is coordinator of the packaging and distribution side of the seed exchange for the Alpine Garden Club of British Columbia. Her association with AGC-BC began with her initiative to establish alpine garden beds at Darts Hill with a proposal for a joint venture rock garden build and was gifted her first membership to NARGS by David Sellars as a result. Pam is also an avid bonsai grower and collector and enjoys her suburban garden with its over-full beds including a tufa rock garden and greenhouse.

**Kenton Seth** is a practitioner of rock gardening who says he owes everything to the generous plant people of Colorado. He lives and gardens in western Colorado and works as a freelance gardener/landscaper. He promotes landscapes that don't need watering, crevice gardens, and wildflower appreciation, which he documents online at kentonjseth.blogspot.com.

**Bill Stark** stayed in Ithaca, New York, after being a grad student at Cornell University. Bill joined a computer firm, became its director of engineering and then left to start a hi-tech company. Patent lawyers voted him inventor of the year for his adaptive inference AI system. During a business trip to England, Bill visited RHS Wisley and got hooked on rock gardening. Now retired, Bill is building a house and garden on Cayuga Lake.

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**Front and back cover: *Escobaria vivipara*, Mike Heim.**

*The Rock Garden*

# QUARTERLY

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# From the Editor

WRITING THIS AS we come to the end of 2020 all I can say is: it is about time! During this strange year, I've been very grateful to be working on the *Quarterly*. It is an enormous pleasure getting to read, edit, and layout the various articles that go into each issue, and I hope reading this publication has been a bright spot in your pandemic year as well.

Speaking of bright spots, this issue includes articles written to promote an in-person, non-virtual, actual-in-the-flesh NARGS conference planned for this upcoming summer in Durango, Colorado! Panayoti Kelaidis lays out everything they've got planned to make sure this event can be carried off safely. Then he, Jeff Wagner, and Mike Smedley make a compelling case for why you are absolutely going to want to make it out to Durango in July.

Mike Heim wrote two fascinating articles on cacti, both wild and cultivated, in a place most people don't exactly associate with cactus: Wisconsin. His detailed techniques for cultivating these plants will be of great use to other northern gardeners. He describes the cacti he's been successful with, and included a list of his failures. All good gardeners know we learn as much – if not more – from the plants we kill as the plants we keep alive.

From Pamela Yokome, we get an update on a beautiful garden in British Columbia, Canada, which was the recipient of a grant from NARGS back in 2014. It is wonderful to see how this organization helps create beautiful gardens and I'm still drooling over the incredible saxifrages they are growing.

If you are looking for something to keep you busy during the winter, Kenton Seth's article on winter-sowing alpine seeds is the perfect place to start. He lays out just how easy starting alpines from seed can be and gives great advice on avoiding some common pitfalls.

During the COVID-19 shutdown, NARGS has been busy with virtual events, and this summer held a virtual trough contest. I'm thrilled to publish photos of the winners in this issue. They are great inspiration for your own trough planting. And if you are drooling over Bill Stark's incredible trough which won for "Best Trough Design," flip to page 438, where Bill has written a fantastic article on the innovative, light-weight method he used to construct that very same award-winning trough.

The Continental Divide takes a dog-leg bend in Southwest Colorado's verdant San Juan Mountains, trapping plentiful moisture that feeds creeks, streams and the Animas River (the River of Lost Souls) bisecting Durango.

# Convening in a Time of COVID

## Inventing a Safe AGM for the New Normal

Panayoti Kelaidis

AS A WHOLE year of COVID-19 comes to a close, with several waves of this insidious disease cresting around the world, we gardeners are fortunate to have our flowery havens to nurture and support us. But the wonderful hubbub of monthly meetings has transmogrified into Zoom webinars where we catch glimpses of friends and neighbors in little boxes. A few chapters of NARGS have arranged for discrete garden tours with obligate masks and social distancing. The Rocky Mountain Chapter even staged a plant sale of sorts, where members pre-ordered on the web and picked their plants up at a lovely garden, where they could briefly exchange a few masked words with other members who came by at the same time. COVID-19 has reminded us that plant people mean as much to us as plants.

It is impossible, writing this in November of 2020, to say for certain that NARGS can truly go ahead and stage a national conference from June 17 to June 20 of 2021. So much will depend on things beyond our control. But if we could stage such a meeting anywhere, we believe Durango is the perfect place for such a conference; and the community of gardeners in the Four Corners and Colorado will be the perfect hosts to greet you.

Maybe I'm an incurable optimist, but I can't believe a tiny microbe can continue to outwit our nation and the whole world indefinitely. I have no doubt that COVID will still be around next year, but I am also convinced that in that long expanse of time till then we will have evolved powerful means of coping with and outwitting that little bug. We will have the tools by June to stage a safe, exciting, and informative conference not just outside the confines of a Zoom box, but in the shifting cloud shadows of the wildest southern Rockies. It will require careful planning and concerted choreography to ensure everyone's safety, and the chance to achieve and exceed the expectations everyone has for a truly glorious North American Annual General Meeting of NARGS.

In the best-case scenario, Fort Lewis College will provide us with a capacious residence hall that can accommodate any attendees who choose to stay there, with a plethora of nearby options for those who don't. The rooms at the college are spacious and attractive and the projected costs are, quite frankly, ridiculously reasonable. Although Durango has a population of just under 20,000, it has nearly 3,000 motel

and hotel rooms available, not to mention other alternatives. It is a major tourist hub for the Four Corners area, compact and convenient on the one hand, but geared for throngs of visitors. Peak tourist season isn't till July and August. We will have far less competition in June. Best of all, there is a knowledgeable and enthusiastic local community of keen gardeners, many members of NARGS, and a surprisingly numerous botanical garden community, with many who are knowledgeable about native plants, rock gardens, and xeriscaping on hand to help host. This will be the seventh NARGS Annual General Meeting to take place in Colorado in the last 40 years. The Rocky Mountain Chapter is co-sponsoring this meeting, and a large cadre of seasoned hikers and rock gardeners in that group will have an active role, as well as the Four Corners' hosts.

To make this conference work, we are exploring unconventional options. Rather than pay for giant (and expensive) buses as transportation for the conference, what if most attendees drive to Colorado, or fly to Denver or Durango and rent a car? There are at least a dozen passes between Denver and Durango that rise above tree line and mid-June is peak bloom for *Eritrichium nanum, Claytonia megarhiza, Primula angustifolia*, and a wealth of other endemic treasures. We imagine many will want to expand this conference into a family vacation and visit the numerous public rock gardens and vast wildflower options en route to Durango. We still envision some vans with socially distanced spacing for those who prefer not to rent a car.

Fort Lewis College campus

Ancient ruins at Mesa Verde National Park

There are many destinations in the La Plata mountains and other ranges and foothills of the San Juans near Durango, not to mention the rich cultural and botanical byways of Mesa Verde National Park and the steppe landscapes of the Canyons of the Ancients National Park nearby. We envision field trips in small groups in private cars, with a few vans where those who don't want to drive can ride safely and socially distanced. With GPS, a map, and timing from Durango to your destination, you will meet up with a half dozen other participants and have a knowledgeable guide lead you on a hike. You'll return to your room in time for a short rest, and then a bar in the open for some socialization (with caution and social distancing), and catered or barbecue dinners al fresco. Fort Lewis has large outdoor covered areas set up for classrooms designed for COVID teaching that can provide airy, ventilated spaces for presentations, meals, and plant sales. Durango has numerous gourmet catering companies that can provide fantastic fare for meals and daily picnics. Best of all, these strategies are likely to lead to some amazing savings in conference costs. By next June, we are confident that the rock gardeners of North America will be savvy enough and ready to undertake this opportunity. In fact, we think there is sufficient pent-up excitement that it is likely to sell out.

I doubt that many North Americans will be flying to Europe, Asia, or the Southern Hemisphere by next June, but I think lots of us are ready and anxious for a domestic escapade in Durango.

So do hang in there. As the winter progresses a fuller outline of the activities, destinations and expectations of a non-virtual conference will be published on the website and in a future issue of the *Quarterly*. Meanwhile, make sure you clear June 17-20 for Durango!

Until then, stay safe, sow lots of seed packets, and bone up on the rich flora of the Four Corners region!

# Durango

## Where the Four Corners of America's Flora Meet

Panayoti Kelaidis

OF COURSE, EVERY spot on Planet Earth is special, but one could argue that Durango and its setting is the biological ground zero of the United States, if not North America. Elements from far points of the compass seem to meet here.

Right around this beautiful town, you can botanize in sagebrush prairies akin to eastern Washington's Palouse, sharing most genera and even many species with this biome nearly 1000 miles to the north and west. Not far from Durango, in Canyon Country, you can find flora reminiscent of California chaparral including manzanitas, zauschnerias, *Penstemon rostriflorus*, even California redbud. Grassy prairies not far from town resemble the Great Plains in floral makeup.

This part of Colorado is also the only place in the state where a number of eastern wildflowers have disjunct populations. *Aralia racemosa* and *Trautvetteria caroliniensis*, both common in the Alleghenies, are showy links to the eastern American woodland flora here, as is the eastern maidenhair fern (*Adiantum pedatum* var. *pedatum*) which for most of the last century was only known in one canyon on the million dollar highway from Ouray to Durango.

As for the boreal north, the San Juan mountains are the largest, most extensive high mountain complex of the southern Rockies, comprising tens of thousands of acres of alpine tundra filled with Arctic flora.

The dry steppe and pygmy forest around Durango possess many of the northernmost elements of the Mexican madrean flora, southwestern white pine (*Pinus strobiformis*) being a spectacular case in point. I can think of no spot that combines the vegetational extremes of America's cardinal points more succinctly or elegantly.

I recall one of my many forays with T. Paul Maslin, a retired professor of biology at the University of Colorado, which took us to southwestern Colorado to explore and botanize. We stopped to picnic en route on top of Wolf Creek Pass and stumbled on the disjunct population of *Corydalis caseana* subsp. *brandegeei* which I believe is the largest species is this enormous genus. Some of the specimens we found there were over five feet (1.5 m) tall with thick clusters of ivory and pink spurred flowers.

Opposite: Lizardhead Pass
Above: *Corydalis caseana* subsp. *brandegeei*

*Phlox caryophylla*

In vacant lots around Pagosa Springs, we found masses of *Phlox caryophylla*, a highly localized brilliant pink phlox that has yet to become established in cultivation. I remember my shock in one deep canyon in Archuleta County finding a cliff-face festooned with the circumboreal sub-Arctic parsley fern (*Cryptogramma stelleri*) which is known only from a few collections far to the north in Colorado, and generally distributed far to the north in Eurasia. I believe our specimens are still the southernmost known for this fern in North America, if not the world.

*Townsendia* has always been one of my favorite genera, and southwestern Colorado boasts one of the finest, the endemic *Townsendia glabella*, which forms dense mats a foot across and sometimes mounds up like a Patagonian cushion plant. It is not uncommon near Durango, even growing on roadsides, but found nowhere else. The local silver-leaved form of *Penstemon linarioides* has even been championed by Plant Select, unfortunately with the cultivar name 'Silverton' (a town where it doesn't grow). It should have been named for the other end of the narrow gauge railroad, 'Durango', where it's abundant.

*Townsendia glabella*

There is no end of unusual, endemic, and obscure wildflowers in this area, many of them quite spectacular, tucked here or there from the lowest, driest near-desert areas to the highest alpine tundra. But the grand floral displays this area offers are what most visitors find dazzling. Mid-June is usually peak bloom for penstemons, buckwheats, and many composites that comprise some of the showiest elements of the pinyon-juniper forest that dominates Mesa Verde. I have visited this fantastic national park many times. No matter how many times I visit, there is always more to see, studded as it is with so many fantastic archaeological monuments from prehistoric times. The park will be included on many of the tours, but should you choose other hikes, be sure to come early or stay after and explore Mesa Verde, Hovenweep, or Canyon of the Ancients—three of the most extraordinary concentrations of First People's monumental architecture north of Mexico, and all an easy drive from Durango.

In the montane and alpine meadows of the San Juan Mountains (which comprise an agglomeration of smaller ranges such as the La Plata or La Garita mountains, any of which dwarf the mountains in any other state of the US except perhaps Alaska) the monsoonal rainfall pattern extends the flowery season throughout the summer months, but June is the peak of early bloom which includes the widest variety of flowers at all elevations. Fields full of paintbrush and daisies of all kinds bloom prodigally. Colorado columbine (*Aquilegia coerulea*) moves out from aspen groves and can dominate whole meadows at tree line and above with their enormous, waving flower clusters and sweet, lavender-like fragrance. This is the time of year to come and see vast pools of limpid azure wild iris (*Iris missouriensis*) filling the valley

floors—pools that become whole seas of color in South Park this time of year. You are guaranteed to find wide mats of carpeting *Penstemon crandallii* in blue, and fragrant creeping phlox in white or pink just about anywhere sagebrush reigns in the middle elevations in June. And this is when glacier lilies (*Erythronium grandiflorum*) throng Kebler Pass en route to Durango from Denver, one of the great spectacles of the Rocky Mountain flora. *Trollius albiflorus* and *Caltha leptosepala* fill every subalpine freshet throughout the state this time of year and a bevy of tiny mertensias (a half dozen species or more) can be found in all the lowland steppe. Southwestern Colorado boasts *Ranunculus macauleyi*, one of the finest alpine buttercups, abundant in moist meadows at higher elevations here. Honestly, you have to come see it to truly believe it.

*Ranunculus adoneus*

*Hymenoxys grandiflora* with variable checkerspot butterflies *(Euphydryas chalcedona)*.

**References:**

https://www.swcoloradowildflowers.com/ is a wonderful website with a wealth of lovely pictures, keys, and tools concentrating on the flora of this area. It even boasts an app for plant identification for your phone. It also contains a wealth of valuable links and information. This website will be adequate for many participants' basic needs, and it's free.

In *Intermountain Flora*, the authors state that the "Canyonlands section is by far the richest area for endemics in the Intermountain Region" (Volume I, p. 104). This monumental multi-volume flora is not practical as a field guide I'm afraid, but it is a treasure trove of information for the entire west central quadrant of the United States from Durango westward. Definitely worth browsing in a nearby library if you don't own a copy, but we don't suggest lugging this along.

The definitive floristic monograph of the Durango area is *Flora of the Four Corners Region: Vascular Plants of the San Juan River Drainage: Arizona, Colorado, New Mexico, and Utah* (Monographs in Systematic Botany from the Missouri Botanical Garden) by Kenneth Heil, published in 2013. It is available new for about $70 and is definitive, gorgeous, and extremely heavy. Not useful for lugging out into the field, but it is the local botanical bible.

There are a dozen or more compact, handy volumes sold at bookshops in Durango and often at the excellent nurseries there and in Cortez. You may want to wait and pick them up at one of these. I recuse myself from recommending *Wildflowers of the Rocky Mountain Region* published by Timber Press since I'm one of the authors (ahem), but it also applies from New Mexico to Alberta as well.

# A Siren Song or a Vortex?

## Durango and the River of Lost Souls Beckon You

Mike Smedley

YEARS AGO, a bumper sticker appeared: "Durango. Because Every Other Place Just Sucks." It was undoubtedly the harshest, rudest, and most sanctimonious explanation for one's choice of hometown.

Let's just say the local Chamber of Commerce wasn't amused. Nor was the Durango Area Association of Realtors, though I would guess that its members secretly concurred and were privately thrilled.

I still chuckle every time I recall seeing this snarky declaration. The bumper sticker was endemic to older Subarus and Toyota Forerunners, usually featuring roof racks loaded with mountain bikes, skis, kayaks, and whatnot.

The joke was (and still is) that in Durango, the stuff on top of your car is worth way more than your car. Likewise, a Durangoan's "best outfit" is the fleece jacket that's not covered in dog hair. How do you leave Durango with a million dollars? Move here with two million. (Cue the rimshot.)

But seriously, Durango casts a powerful spell. It's much akin to the opening lines of Pat Conroy's novel *The Prince of Tides*: "My wound is geography. It is also my anchorage, my port of call."

While this novel (one of the best books ever written, in my opinion) is set in the South, those words equally describe the magnetic pull of Durango, a Rocky Mountain boomtown fortuitously sandwiched between mountains and high desert, featuring a vista of stark mesas and a sawtooth panorama of peaks.

This geography should absolutely be your NARGS port of call in 2021.


Opposite: Ice Lake Basin. Photo by Kyle Ledeboer.
Above: Downtown Durango.

Within a 50-mile (80 km) radius of Durango, the USDA horticultural zones range from 7a to 3b. Not that zone-denying rock gardeners ever pay much heed to hardiness limitations.

One topographical fact stands out, literally and figuratively. Within that radius, the elevation changes 8,600 vertical feet (2621 m), from the confluence of the San Juan and Animas rivers to the south, thence northward to the summit of Wilson Peak, a fabled "Fourteener."

People 'round these parts call 14,000-foot-tall (4267.2 m) peaks "Fourteeners." (Does that mean enlightened folks using the metric system would refer to these lofty summits colloquially as "Forty-Two Sixty-Seven Point Two-ers?" Um, probably not.)

Even if you have never visited southwest Colorado, you have seen Wilson Peak. It's the mountain image on cans of Coors Light beer. But that's beside the point.

I heard the siren song of Durango in 1984. At first, it was a gentle whisper. Fresh out of journalism school and yearning to be independent, I took the first job offered: assistant news editor of the Durango Herald.

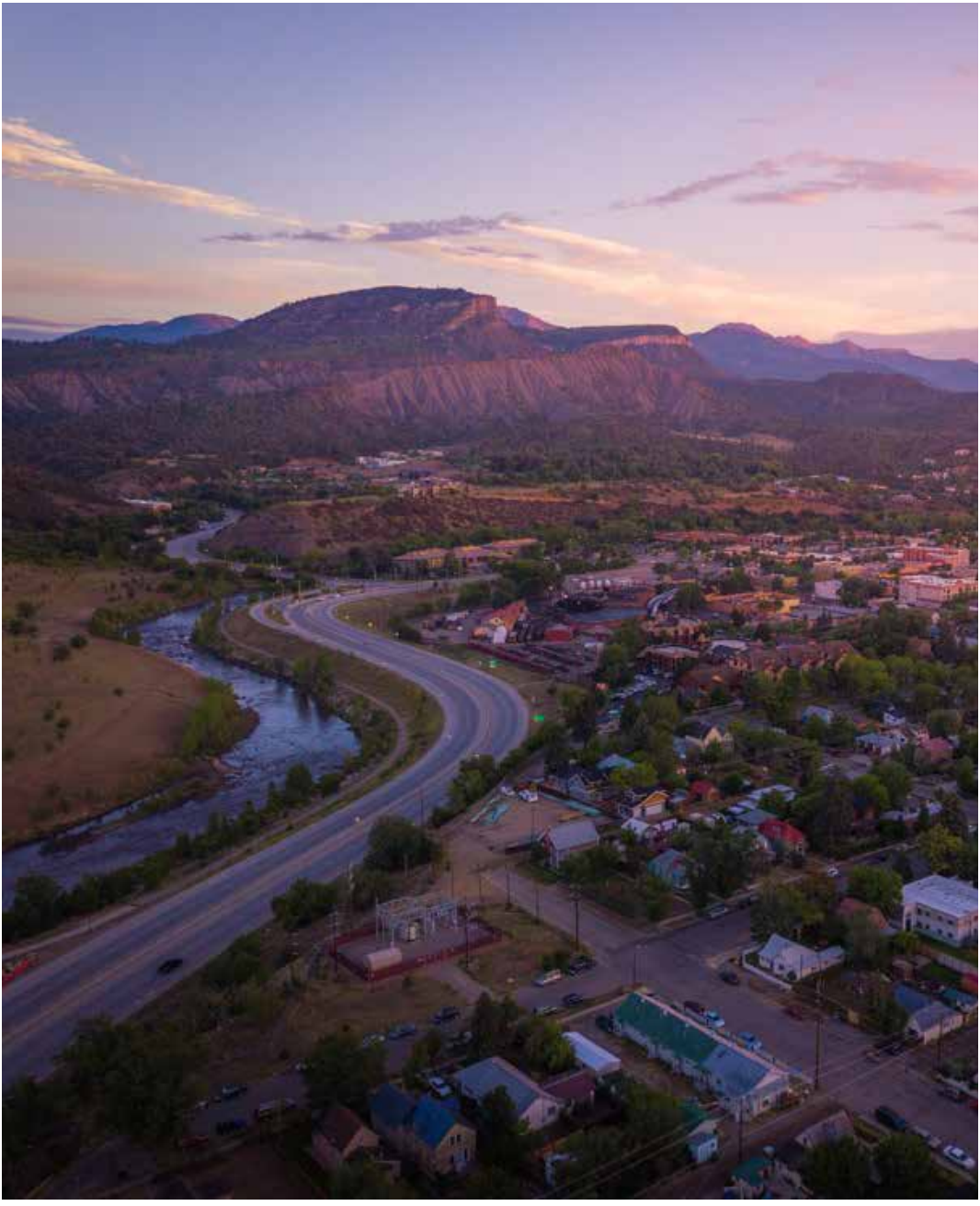
I had never heard of Durango, and to be perfectly honest, I wasn't a fan of small rural towns. In Utah, my erstwhile habitat, small towns are, well, small towns. There's not much there there. Except for a place called Park City, where a summer internship instilled a fondness for touristy mountain towns and where people would inevitably conclude, "it's a wonderful place to visit but..."

I didn't even have a car. But I had my moped. Undaunted, I loaded it into the back of a rented cargo van along with a dozen cardboard boxes containing worldly possessions. In my pocket was a cashier's check for less than a thousand bucks, my life savings. Mom and my stepdad, proud but holding back tears, dropped me off on the doorstep of the one person I knew in this southwest Colorado town and drove back to Salt Lake City.

Durango sort of reminded me of Park City with its bustling downtown lined with Victorian-era brick buildings, and replete with watering holes, art galleries, shops, restaurants, offices, proprietorships, and mercantile establishments.

This place, however, was distinctly different. It had the feel of an authentic mountain hometown, not just a Western-veneered vacation destination. For example, Durango (back then) had a Woolworth luncheon counter that served a killer grilled cheese sandwich, along with chips and a Coke. There was a hardware store on Main. People on the street said "hi" even if they didn't know you.

I planned to live here for a season or two, then move on to The Big City. That was 36 years ago. Siren song indeed. More like a vortex. Who could resist?



Fort Lewis College sits on a bluff overlooking Durango, giving panoramic views of the city and the Animas River.

Top: The Durango & Silverton Narrow Gauge Railroad skirts along the cliffs overlooking the roaring Animas River deep in the San Juan Mountains. This area is accessible only by historic railroad.
Bottom: The famed cliff dwellings of Mesa Verde National Park represent the height of the Ancestral Puebloan peoples, who abandoned their stone cities around the year 1300 after a crushing 23-year drought.

Imagine yourself in Durango on a mid-June morning. It's a crisp 50 degrees (10°C) as the sun rises over the Fort Lewis College campus overlooking town. On a bench perched along the plateau's rim, you enjoy a tall cup of robust coffee and gaze across the verdant small town spread out before you, all bisected by the Animas River, a.k.a. *El Río de las Ánimas* or "the River of Lost Souls." Instead of lost, you feel right at home.

The quiet is pierced by a wailing steam whistle announcing the departure of the world-famous Durango and Silverton Narrow Gauge Railroad. Built in 1881, the line was constructed to haul silver and gold ore from the San Juan Mountains. But after the hard-rock mining panned out, intrepid travelers soon realized the train's unparalleled views and authentic railroading experiences were the precious commodities.

The train is registered as a National Historic Landmark and has starred in a number of movies, including *Butch Cassidy and the Sundance Kid*. If all goes according to plan, the NARGS annual meeting will feature one or more express trips, from the Rockwood Station to Cascade Wye, a two-hour trip that skirts the steep river canyon only accessible by train.

How about an excursion to Mesa Verde National Park for a private tour of the cliff dwellings and the plants endemic to this United Nations World Heritage Site? The park is a mere hour west of Durango. Mesa Verde was established in 1906 to preserve and interpret the archeological heritage of the Ancestral Puebloan people who made it their home for more than 700 years, from 600 to 1300 CE.

Today, the park protects nearly 5,000 known archeological sites, including 600 cliff dwellings that are some of the most notable and best preserved in the United States. Every time I visit the park I'm reminded that the Western frame of reference is indeed provincial. Here a grand and complex civilization thrived a millennium before the Domínguez-Escalante expedition of 1776.

Two Franciscan priests, Atanasio Domínguez and Silvestre Vélez de Escalante, set forth to find an overland route from Santa Fe, New Mexico, to their Roman Catholic mission in Monterey, California. The fathers passed through in August, crossed the River of Lost Souls, and camped at the base of the La Plata Mountains west of Durango and later below the Mesa Verde escarpment.

According to their journals, it was rainy and damp. The mud posed formidable challenges. Fr. Domínguez caught a nasty cold. Nevertheless, the explorers found and recorded the presence of ruins, the first documentation by anyone of European descent of the Ancestral Pueblos in Southwest Colorado.

In Southwest Colorado, an abundance of rock and a love of plants come together to create jewel-box displays, as this stacked fieldstone retaining wall turns into a vertical crevice garden.

So here in Durango, you stand at the crossroads of ancient civilizations, Spanish explorers, railroad builders, gold miners, and cowboys. It's your base camp to continue the proud tradition of curiosity, exploration, and adventure.

Nearby hikes include the southernmost section of the Colorado Trail, the Horse Gulch trail system flanking the city limits, or any of the 72 excursions listed in the definitive book *Hiking Trails of Southwest Colorado*, (West Margin Press, 2020) now in its fifth edition. Some of the hikes might still be snowbound in mid-June. We'll just have to see and update as the meeting draws nearer.

And then there is Durango, itself a place of immense allure. You just can't pigeonhole this town. It's a train town, a cowboy town, a mountain town, a college town, a ski town, a mountain bike town, a river town, a fly fishing town, an elk hunting town, and a mecca for the new work-from-home set.

But for me, it is all that – plus a garden town.

I'm a late bloomer in the horticultural world. Only in 1998 did I develop an interest in gardening. That's when I bought a small townhouse with a postage-stamp-sized moonscape "backyard."

Why not be into gardening for the first half of life? Chalk it up to the ignoble legacy of being the neighborhood kid who mows lawns in summer. I remember cutting my grandma's chemical-drenched bluegrass. She instructed me to apply the fresh clippings throughout her rose bed. Was it any wonder that yard waste rich in Weed-N-Feed and applied a smothering six inches deep would negatively impact hybrid teas? Then again, it was the late 1960s and early '70s, when better living was achieved through chemistry.

Did I say I really hate mowing lawns? It's why I grow buffalo grass (*Bouteloua dactyloides*) exclusively on the front and back yards. That, and it's the ideal foil for the more than 13,000 species tulip and crocus bulbs planted for an audacious burst of spring color and as food for early pollinators.

Horticulture has come a long way since the bad old days, especially here in the water-parched west. A whole new ethos emerged with xeriscape becoming the new normal, and a vanguard of gardeners, including me, were eager to work with nature rather than fight against it.

Local nurseries are on board with the mission, and so are the passionate gardeners of Durango, a hundred strong of whom are members of the Durango Botanic Gardens, a remarkable local group of dedicated folks who created a stunning public garden adjacent to the Durango Public Library.

In 2010, the founding members of the then-named Durango Botanical Society looked at a weed-choked wasteland hillside behind the library and envisioned the perfect spot for a demonstration garden. Bordering the immensely popular Animas River Trail and the narrow-gauge train tracks, this highly visible space now features hundreds of plant specimens in seven distinct areas: Prairie Passion, Xeric Annuals, South African Gems, Alpine Tundra, Montane Forests, Dryland Mesa, and Diné Treasures (a natural-water-only area).

The Durango Botanic Gardens.

Durango's Demonstration Garden is bookended by the Durango Public Library and the Animas River Trail. An award-winning Plant Select test site, it was created and is maintained entirely by Durango Botanic Gardens member-volunteers.

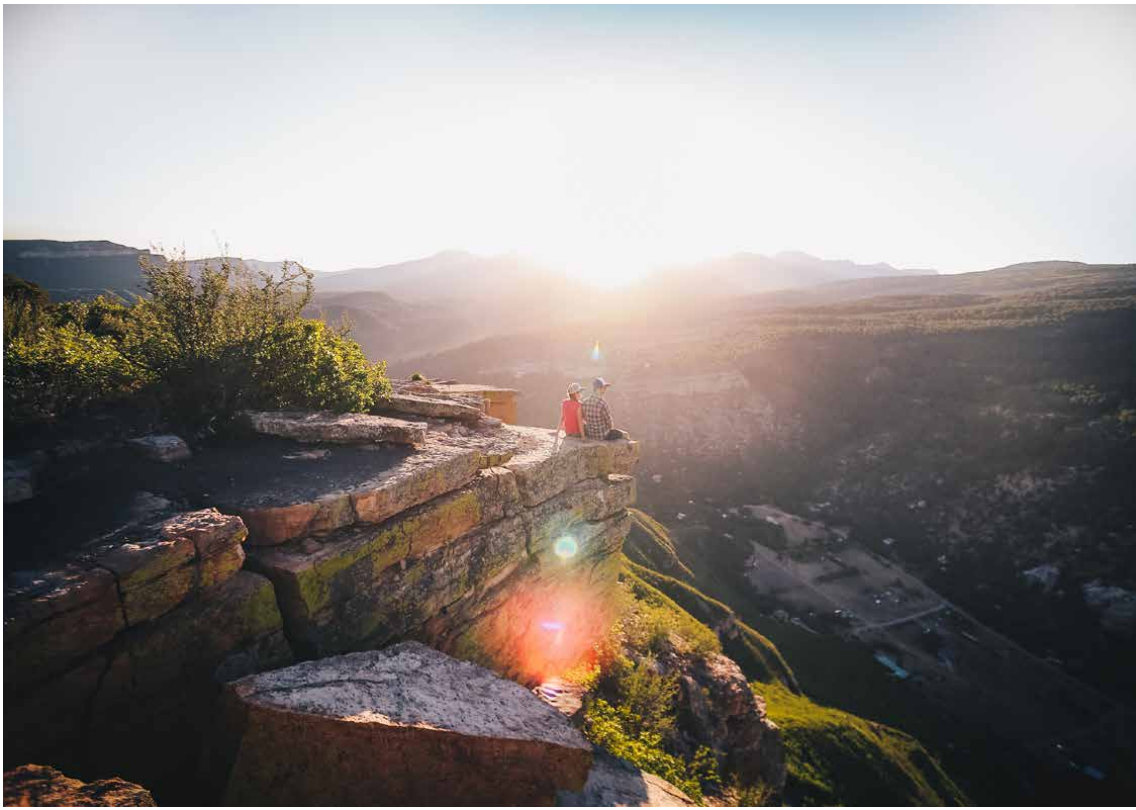
Durango Botanic Gardens has been a game-changer for denizens of dirt and the frustrated folks who often ask "what the heck can grow around here?" The gardens have no gates, do not charge admission, and are maintained by all volunteers who bring their own tools, their loving hearts, and their calloused hands each Saturday morning for a variety of chores to keep the gardens in top shape.

The venue has caught the attention of the regional green industries. It's a Plant Select® Demonstration Garden and the winner of the organization's prestigious Golden Shovel Award in 2016. Durango Botanic Gardens also was distinguished in the NARGS *Quarterly* as one of the 11 must-see public rock gardens in Colorado. The library's rock garden is a crevice garden designed and installed by Kenton Seth and a group of volunteers. A new dwarf conifer collection has been planted along with interpretive signage and local art.

Then there are the bulbs. Durango is mad about geophytes, and I'm partly to blame. Each autumn, DBG hosts a bulb sale at which I offer

part comedy-part scholarly presentations featuring the legends, truths, and outright lies concerning bulbs, corms, and the occasional tuber. A fast-paced slide show ensues, featuring photos that I only somewhat jokingly refer to as "plant porn." The crowd, thusly inspired, goes on a shopping spree. This year, the sale was online. Some 12,000 bulbs were purchased, raising thousands of dollars for a garden that many believed would never succeed. Like I said, this small town is an intriguing place with no equal.

Durango wants you and invites you. The planning team is dedicated to making this work given these extraordinary times. Distancing comes naturally to Durangotangs, as we sometimes call ourselves. We place great emphasis on being outside. The many dozen of great restaurants have found a niche in dining alfresco. So have the six craft breweries, for those thirsting for potent potables after a day of drinking in the scenery. And with two craft distilleries, it begs the question: Do NARGS members prefer their moonshine on the rocks? We'll find out this summer!



It's morning in Durango, with the promise of a sunny day, interesting plants, fascinating geography and a rich cultural legacy that dates far into prehistory.

# Journey of a Plantsman

## Finding a Sense of Place in the Four Corners

Jeff Wagner

OUR 2021 CONFERENCE will bring us to Durango, Colorado, my hometown near the very southwestern corner of the state at the edge of the mighty San Juan Range of the Rockies and the high desert plateaus of Utah, New Mexico, and Arizona. My own route here was a circuitous one from the U.S. South to northern Europe, to the western U.S. to the northeastern U.S. and back again to the Rockies. Durango combines a few parts of all of my favorite places though, of course, its seas are long gone and have left very different impressions in the landscape.

All along the way I have gathered memories of favorite iconic plants associated with each of these places and times of my life. And in each, one or a few very special people have served as mentors in my horticultural education. East Texas, Tennessee, and western New York have served as inspiration in my study of woody plants, especially trees; and the rest are all iconic places of edges: wide open skies, mountains or the sea, and their associated plants and people.

Horticulture in northeast Texas in the sixties was what I might describe as genteel and prescriptive, mostly run by garden clubs and plant societies and sanitized with an entire army's worth of chemical stockpiles. I was most often somewhere in the crown of a beautiful old live oak (*Quercus virginiana*). Dallas was a stronghold and outpost for them and giant old southern magnolias (*Magnolia grandiflora*), too. Ice storms took a toll, but the trees that weathered them were all the more admirable. An old live oak is one of the tree kingdom's most venerable and handsome monarchs.

My college days at the University of the South in Tennessee were all spent in the embrace of The Domain, a ten-thousand-acre forest and one of North America's jewels at the southern end of the Cumberland Plateau. It is an amazingly diverse upland temperate mixed forest of northern and southern plants. Luckily, the university has one of the country's best schools of forestry and their courses were like catnip for a tree lover like me. I was ostensibly studying English literature there, but forestry was my secret indulgence and passion. It was here that I was able to appreciate the magnificence of our native deciduous magnolias, but it was the American beeches that really captivated me. Their sinewy muscular trunks and perfect papery leaves at all seasons are unforgettable, as is the magical light and understory that only a beech wood can display.

Northern Europe, where I lived for eleven years, was the next station on my horticultural pilgrimage and became the foundation of my life as a nurseryman. Not only was I able to learn the trade from the ground up, but I was also able to apprentice in many different nurseries and botanic gardens (including a summer internship at the Royal Botanic Gardens, Kew). The climate has left a shared flora that makes one instantly at home in any of the related countries. It was here that I came to appreciate rock gardening practiced on a high level. I joined the American Rock Garden Society, the Danish chapter of the American Rhododendron Society, and the Danish Dendrological Society. All of them had an international membership with an incredible collective knowledge of their own plants. I, of course, met our American beech's European relative. Beech in Denmark is as close to a living god as anything in this world. It is a touchstone of Danish history and culture. But I especially came to love the wild *Erica* (and *Calluna*) in Scandinavia. They are so tied to place and have such a rugged and admirable beauty that one cannot help but be captivated by them.

I spent my last year in Scandinavia in Alnarp, Sweden, where one of the country's finest horticultural schools teaches graduate students. It is one of the most beautiful, far-reaching, and inspiring places to study. Its libraries and gardens are full of treasures old and new from all over the world. Kenneth Lorentzon, now sadly passed all too soon away, was the best teacher one could ever hope for. His plant knowledge was inexhaustible, his teaching innovative and welcoming, and his human touch and innate sense of humor enhanced everything he did. He was also a natural bond between generations of plantsmen, gardeners, and botanists, and secured the Scandinavian horticultural legacy. His influence at both Alnarp, and especially Gothenburg, is still strong and instantly recognizable.

The plant life at Alnarp must be seen to be believed. Not only are there new treasures among the latest varieties of plants, but they have

*Echinocereus coccineus*

preserved an amazing collection of trees and shrubs that date back to the 1860s. The world champion *Wisteria sinensis* is worth traveling for alone. But as it happened, one of my favorite genera, *Sorbus*, was at the center of several exciting newly introduced plants from Asia. The outstanding tree among them, introduced by the Swedish dendrologist Tor Nitzelius from Ulleung-Do is one of the planet's most beautiful trees. It now has the name *Sorbus ulleungensis*. When I was there, the original seedlings were just coming into maturity for evaluation and selection of a worthy clone.

I returned to the U.S. in 1992 and had the great privilege to spend more than a month at the Arnold Arboretum studying the collections of Joseph Rock from Gansu, China. Not only was that an amazing experience, but having the run of one of the worlds' premier collections of woody plants was a generous bite of heaven. I happened to be back east once more, in Rochester, New York, for just over three years in the late nineties. Rochester has one of North America's richest and best-documented horticultural legacies. It has four parks designed by F.L. Olmsted some with unique plant introductions of E.H. Wilson, Joseph Rock, Charles Sargent, and others, and still with the substantial donation of trees and shrubs from North America's original and most brilliant nurserymen, Patrick Barry and George Ellwanger. I cannot name a single plant from that time, they were simply all of them memorable. But Highland Park, in particular, has the lion's share of them and should be seen by anyone interested in plants.

Lisa, my wife, and I arrived in Durango in 2002 and have enjoyed nearly every day living here since. The scenery, between the San Juans and their outlying ranges and the mountains seen on the horizons of New Mexico, Arizona, and Utah, is incomparable. Not only do we have a large cohort of the southern Rockies' best alpines, but we also have really interesting endemic plants; and since we transition from the high

deserts to the tops of fourteeners (a mountain peak with an elevation of at least 14,000 feet/4,267 m), we have a good share of all their plants as well.

Spring here usually begins *sotto voce* and, if the sun is smiling, bladderworts start to peek from many a nook and cranny. They are welcome, cheerful, tough little plants that hold their own in our stubborn soils and fickle climate.

We hold an annual tradition in our family to celebrate our spring birthdays by traveling to one of Utah's most amazing lookouts. It encompasses several geological epochs and some of the state's best sandstone country, overlooking the famous goosenecks of the San Juan River, the finely sculpted pieces of Monument Valley, and the gateway to central Utah's famous parks: Capitol Reef, Bryce Canyon, and Zion. At this time of year, we are greeted by the intense fiery dark red chalices of *Echinocereus coccineus*, and the prolific bloom of *Purshia mexicana*, as well as many fine penstemons at their peak bloom.

Late spring admits entry to the upper montane and subalpine, depending on the snowpack, and here we find rare glimpses of *Erythronium grandiflorum* and *Aquilegia elegantula,* as well as other of our Rocky Mountain alpines. For myself, I admire the delicate soft green of aspens unfolding.

At the very end of spring, and beginning of summer in mid- to late June, we are gifted a magical moment when the whole of southwest Colorado is alive with plants emerging, blooming, and reaching toward ripeness. This is the time of our 2021 Conference. I revel in all of its glory and, as you can tell, I am too eclectic to settle on any one plant during these days. But I know that come next June you will find many favorite ones of your own.

An alpine meadow in the San Juan Mountains.

# In the Land of the Balsam Fir, Cacti Thrive

Mike Heim

THERE IS NOT much that can compare to the thrill of a good challenge, whether it be bungee jumping or lion-taming. In my case, I get my thrills from the challenge of successfully growing plants in far northern Wisconsin, just about an hour's drive from Lake Superior, where winters can be seriously sub-Arctic. Not just any plants, but the kinds of plants that evoke the response "I can't believe THAT will grow here!" from most folks. Plants like bamboo, blue poppies, large-leaved rhododendrons and, yes, cacti. It is surprising how many people in the Midwest regard cacti as tender houseplants akin to African violets, not realizing that several kinds are extremely cold-hardy, growing nearly as far north as the Arctic Circle.

Nothing quite epitomizes the "Wild West" like cacti, although sagebrush and the notorious tumbleweed come close. Like the latter plants, throughout much of the west certain kinds of prickly-pear cacti (genus *Opuntia*) have taken over vast expanses of what were once grasslands and are considered by many to be pests. Severe overgrazing during the 19th Century led to this catastrophic range degradation; a period of American history that we tend to romanticize, just like Paul Bunyan romanticizes this same period of exploitation and ecological collapse in my region. No, I do not think of this when I look at my cacti. I see beauty and variation, toughness, and adaptability. There is nothing else on the planet that I can grow here that looks like them. As a child vacationing in Colorado, I was fascinated by the spiny clumps of cacti (*Opuntia polyacantha*) which my dear aunt, unfortunately, put her hand into as she was climbing the wall of Big Thompson Canyon near Estes Park.

So how do I do it? How is it that I am able to grow cacti near balsam firs in a Northwoods clearing? Well, as I mentioned, they are tough and adaptable, unlike many other typically western plants. Growing them has certainly been a process of trial and error, with some thorough research into their particular needs thrown in. Before planting cacti, a suitable site must be either found or created. Not all cacti favor the same location. Prickly-pears and cholla in the genus *Opuntia* tend to do best on fairly level to gently sloping terrain, while the hedgehog cacti (*Echinocereus)*, ball cacti (*Escobaria*), and snowball cacti (*Pediocactus*) require sharply drained sites such as the south face of a rock wall for

*Opuntia fragilis* in the snow.

long-term survival. For all kinds, it is vitally important to prevent water from accumulating on the soil in the wintertime. I have grown and killed many cold-hardy cacti, from *Gymnocalycium* to *Sclerocactus*. They all succumbed to that "hardy in Denver" temptation which draws in eastern rock gardeners like the song of the lorelei. And it is not just cacti: fully hardy delospermas and agaves tempt us over and over, never to attain lasting satisfaction. Now we know what those poor male bees must feel like being tricked by bee orchids! The only time these cacti and others overwinter here is when the soil stays relatively dry beneath the snow. That does not happen very often. Inevitably they turn to mush after being deeply buried beneath wet snow for five months.

Here in the Northwoods, there are several unpleasant ways for a cactus to die related either to cold or moisture. The part of a cactus exposed above the snowline can be killed by extreme cold because it was simply not hardy enough for our climate. After all, my cactus bed and I have experienced -42°F (-41°C). Well, sort of. They were covered in snow while I had insulated clothing on. Cold can also damage or kill the plants if they fail to harden off in time for the first hard freeze. This can befall some after we experience an unusually cool and rainy growing season.

A winter-killed *Opuntia* pad.

Too much wetness during winter can suffocate or drown cacti. At any time of year, it is vitally important to promptly remove fallen leaves and other detritus from on and around the plants because, when wet, they will smother them like a plastic bag. Living in the woods, my opuntia bed is subjected to a constant rain of debris. Thus, of all my beds, this one requires by far the most maintenance. I strongly advise anyone who is considering growing cacti in the east to keep the beds small and manageable. The raised beds should only be wide enough so that you can easily reach in with tongs from either side. Strategically place large protruding rocks so that you can lean a hand or knee on them as you work.

Cacti should be located in the hottest, sunniest part of the yard. When I started to build my opuntia bed, I first ringed the perimeter with larger rocks and then filled it in with load after load of coarse glacial sand, sans organic debris, to create a raised bed. Grains of glacial sand have uneven surfaces, unlike beach sand, allowing water and oxygen to pass through. Stones are a cactus gardener's friend. A mulch of various sized stones fitted together will keep weeds to a minimum and prevent rain from splashing sand onto the cactus pads. In our northern clime, darker stones are preferable as they absorb heat. The lighter ones can be saved for an alpine bed. I have also learned that a ground cover of spikemosses such as *Selaginella rupestris* or *S. tortipila* can serve the same purpose. In the east, wild prickly-pears are commonly found growing within mats of these spikemosses.

Here in the Northwoods, it is difficult to provide the good air circulation that cacti crave, so some are beset by fungal infections from exposure to prolonged periods of rain or dew. Certain cacti

appear immune, while in others the infections are minor, with the fungal invasion promptly walled-off. By far the most serious is a fungus which, unbeknownst to me, arrived with pads gifted to me by another Midwestern hardy cactus enthusiast. It is the cactus version of trench foot or leprosy, except that this is highly contagious. I call it the "Black Death," for the initial black spots enlarge and, if not excised, will consume all or most of the pad. If uncontrolled, the infection load is so great that it can even overwhelm the defenses of cacti which are normally immune. Before I realized it, my original opuntia collection was virtually wiped out. A couple of years ago I thought I had eliminated it, but this year it showed up again, apparently from a hidden reservoir at the base of a pad. Please take my advice and excise any sign of infection in a new cactus so that you don't end up with the gift that keeps on giving. A scalpel and tongs are the tools of choice.

After all that, you might think hardy cacti are difficult to grow. On the contrary, I find them relatively easy. They are one of the simplest plants to propagate. Just cut off a pad or head, let it sit in a dry place for about a week to heal over, then plant it out. Each of my prickly-pear pads is planted about one-third into the sand, but I have seen other gardeners simply lay *Opuntia humifusa* pads on the ground where they root nicely. The severed heads of other kinds of cacti are wedged into crevices containing a bit of soil in the face of our rock wall. Many of my cacti were grown from mail-order seed. That is really fun but super-slow. I plant them indoors in June (long warm days, air circulation from open windows) in packs filled with our coarse glacial sand. Once the seedlings are well-developed, I cut down watering to once a week. By the latter part of October, they have gone dormant and watering ceases entirely. Once the packs are bone-dry, I bring them down into the root cellar for the winter. Then at the beginning of March, I bring them up to the windowsill once again and water them thoroughly once a week. An occasional application of a balanced liquid fertilizer will do wonders. By June they will be ready to plant out, at a mere 0.25-0.5 inches (0.6-1.2 cm) tall. Harden them by placing them outdoors in semi-shade for a week before moving them into full sun. Yes, even cacti will sunburn!

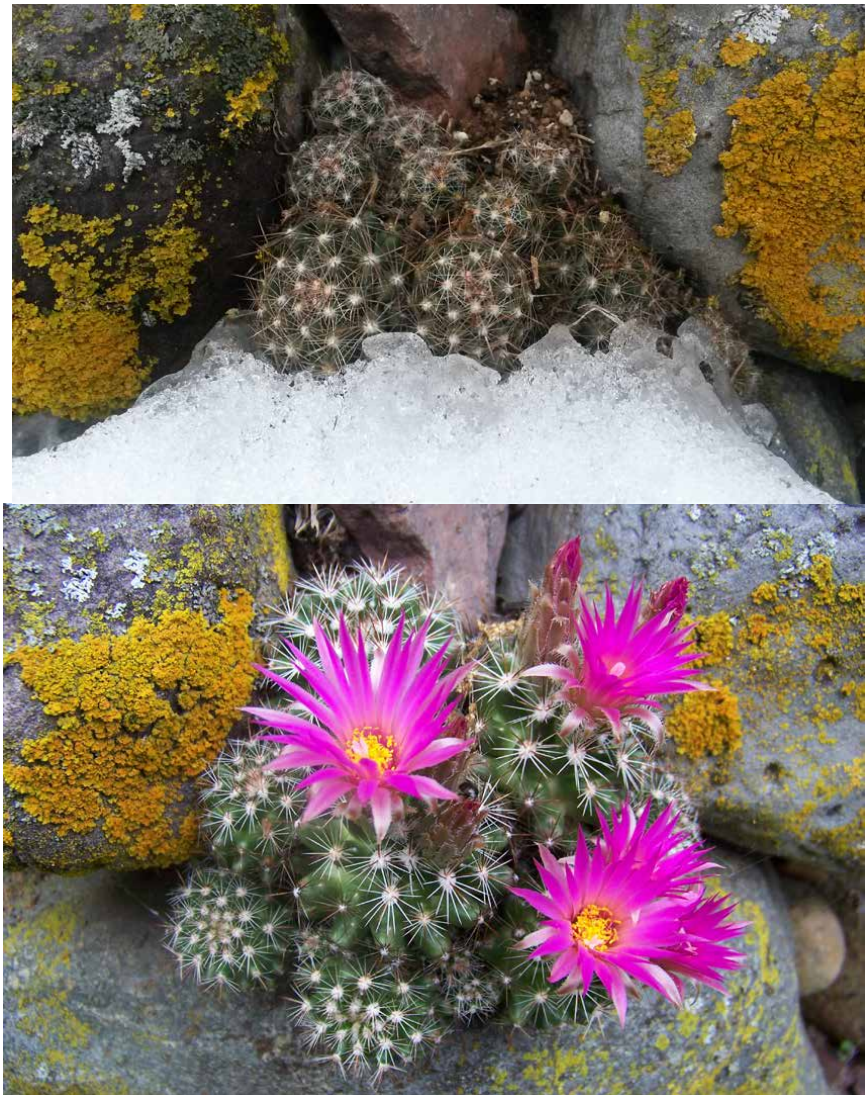
Propagating cacti offers the added bonus of meeting great people to swap with, or scrolling thru some eye-catching online catalogs. If you plan on growing cacti of western provenance in the east, it pays to inquire whether the cuttings or seeds were originally from regions of moister climate, relatively speaking. Those from much of Colorado and points north and east tend to do well here in Wisconsin. The same species from New Mexico and the sky islands of Arizona will not survive here in the long term, as they are intolerant of prolonged winter wetness. Cacti from Nevada and Utah have never survived the winter for me.

*Pediocactus simpsonii* var. *minor* in bloom.

There are four genera of cacti which I successfully grow, with certain species which have, over the decades, proven themselves fully hardy. These genera are *Echinocereus, Escobaria, Opuntia*, and *Pediocactus*. Let's start with the straightforward ones. My single snowball cactus, *Pediocactus simpsonii* var. *minor*, is happily perched on the face of the rock wall. In the wild, they often bloom when there is still snow on the ground, hence the name. It is a Minnesota self-sown seedling of a plant that originated in Colorado. There they can be found up to 11,000 feet (3,353 m) with winter temperatures down to at least -52°F (-47°C). It is the earliest cactus to bloom here, typically in May. Other individuals of this species from Colorado did not survive their first winter, much to my dismay, even though they were planted near my original one. I suspect that their provenance was from an unsuitable environment, as they inhabit a wide ecological range. Snowball cacti reportedly require even sharper drainage than most hardy cacti, acidic soil, and cool summer nights, which explains why it is happy where it is.

Numerous ball cacti, *Escobaria vivipara*, are thriving in the face of the rock wall. All are from the native population in western Minnesota which occurs in an area of less than 2.5 square miles (6.5 square km). They bloom spectacularly in June and afterward offer juicy, delicious fruits. The Minnesota form is the only one that is reliably hardy here, even though ball cacti can be found growing wild in Alberta and

Manitoba and up to 8,000 feet (2,438 m) in the U.S. The western varieties do not survive their first winter and even plants from central North Dakota were killed by a recent wet winter after doing well for two decades. None survive here on nearly level ground. I grew a couple of Missouri pincushion cacti, *Escobaria missouriensis*, for many years on level ground until a particularly wet winter did them in. The species is found from North Dakota southwards. It would be great to find a source and attempt to grow them again, this time in the rock wall.



*Escobaria vivipara* in winter (top) and in bloom (bottom).

*Echinocereus triglochidiatus* (left) and *Echinocereus reichenbachii* subsp. *comanchensis* (right).

*Echinocereus* are my passion and my heartache. I have grown hundreds of seedlings of various sub-zero (-18°C) hardy species and their varieties over the years, with merely a handful surviving. Harsh natural selection at its finest! Two kinds are the surviving champions. Several claret cups (*Echinocereus triglochidiatus*) are doing well in both the rock wall and, surprisingly, in sharply drained level sites. After seeing how well a plant survived the past wet winter in the latter site, I planted out several more seedlings this summer. These should be particularly well adapted since the seed was collected at 8,430 feet (2,569 m) in central Colorado. I am anticipating both the spectacular flowers and the delicious fruits (hence the other name strawberry hedgehog). A large flowering clump in the wild (to 5 feet/1.5 m across!) can reportedly be seen from half a mile (0.8 km) away. Our hummingbirds are certainly anticipating the flowers too. One of three Comanche lace cacti (*Echinocereus reichenbachii* subsp. *comanchensis*) of southwestern Oklahoma provenance has survived and thrived on the edge of the opuntia bed. If it continues to thrive, I may need to change the name of this bed. The green pitaya (*Echinocereus viridiflorus*), found as far north as South Dakota, is generally accepted as the hardiest member of the genus. Its flowers here were deliciously lemon scented. It has never survived for me very long since it is intolerant of wet winters. That puts it at a distinct disadvantage, as its prairie habitat may not have the prolonged wet snow cover that we do.

Finally, we come to the genus *Opuntia*, the prickly-pears and chollas. Once I naively thought that I had a pretty good handle on the different species, but now it just seems to be a taxonomic rat's nest. Simply visiting a single wild population and seeing the awesome variability that can be present makes me throw up my hands in dismay. And joy. Granted, I am not a taxonomist. My interests lie more with plant communities and ecology. So, I'll not go down this rabbit hole and instead will defer to the experts ("lumpers" or "splitters"?) to sort out this complex mess, ideally with the help of biochemical analysis. What is certain is that prickly-pears can be divided into two main groups: those with fleshy fruits and those with dry fruits. Their fleshy fruits, adapted to passing thru digestive tracts, are known as "tunas" and have a delightful raspberry-watermelon flavor.

For the sake of simplicity and my own sanity, I have lumped my hardy prickly-pears into four basic types: common prickly-pear *Opuntia humifusa* and New Mexico prickly-pear *O. phaeacantha* with fleshy fruits, in contrast to plains prickly-pear *O. polyacantha* and brittle prickly-pear *O. fragilis* with dry spiny fruits. The latter group is the northernmost cactus in the world (see my other article on page 417). The *Opuntia humifusa* group includes the eastern forms which are found in all states east of the Mississippi River as well as western types such as *O. macrorhiza, O. cymochila, O. pottsii*, and *O. tortispina*. They are among the most adaptable cacti to our northern clime, having even naturalized in Siberia. Like almost all hardy prickly-pears, the pads wrinkle and contract as they lose water in preparation for freezing weather; otherwise ice crystals would puncture the delicate cell membranes.

*Opuntia humifusa* (top) growing with *O. fragilis* (bottom).

*Opuntia phaeacantha*

On the other hand, the *Opuntia phaeacantha* group, which includes *O. camanchica* and *O. gilvescens*, do not wrinkle and many do not lay down in preparation for winter. Therefore, they tend to be less hardy, although more ornamental. They have the largest pads of the hardy prickly-pears. Reportedly, they can be found north to Wyoming and South Dakota. None of the many commercially available "hardy" forms are in fact hardy here. The cuttings which I had collected in Colorado all came thru their first winter here in perfect shape, as we were blessed with an early spring. The second winter, however, brought a snowpack that lasted into May. That resulted in the loss of about two-thirds of my plants. It's okay though, as I do love seeing natural selection in action. Oddly, all plants originating from a northern outlier population near Boulder, Colorado, perished.

*Opuntia polyacantha* is typically extremely spiny and can carpet the ground for endless miles on some plains, although it does grow to an elevation of 9,300 feet (2835 m). Its range extends from Alberta to Manitoba, and southwards. It is a highly variable group with numerous supposed varieties, many of which possess outstanding beauty even when not in bloom. In some forms, the wrinkled pads take on a gorgeous purple hue in winter due to the presence of anthocyanin pigment which imparts even greater cold tolerance. The smallest of all can be found in the *O. fragilis* group whose pads are only loosely connected to one another. I have tentatively lumped in the western *O. x debreczyi* (formerly *O. rutila*), even though its pads tend not to detach readily and it possesses some other *O. polyacantha* characteristics.

*Opuntia whipplei*.

Chollas are similar to the brittle prickly-pear in that they have barbed spines that cling to passers-by. They differ in their cylindrical stems. I have tried many species, but only one form of one species has proven itself here in the long-term: the prostrate form of Whipple's cholla (*Opuntia whipplei)*, also called the rat-tail cactus. It is native mostly at higher elevations from southwestern Colorado (the Colorado Plateau) southwards, growing up to 8,000 feet (2,438 m). Its pencil-thick stems form an exotic-looking mat, resembling what artists once imagined as the vegetation on Mars.

My trials and errors will hopefully encourage more gardeners to take a stab at growing cacti in supposedly unsuitable climates. Cactus beds this far north are a great conversation starter.

*Opuntia fragilis* 'Bronze Beauty'

# Tried that, killed that:
## Cold-hardy cacti which did not survive the cold, moist environment of northern Wisconsin

*Acanthocalycium violaceum*
*Austrocactus bertinii*
*Corrycactus melanotrichas*
*Denmoza rhodacantha*
*Echinocactus xeranthemoides*
*Echinocereus adustus*
*E. chloranthus*
*E. chloranthus cylindricus*
*E. chloranthus cylindricus* 'Corellii'
*E. chloranthus russanthus*
*E. coccineus*
*E. coccineus gurneyi*
*E. coccineus roemeri*
*E. coccineus* var. *toroweapensis*
*E. dasyacanthus*
*E. delaetii*
*E. engelmannii* var. *chrysocentrus*
*E. engelmannii* var. *variegatus*
*E. fendleri*
*E. fendleri* var. *kuenzleri*
*E. fendleri* 'Odessa'
*E. fendleri* var. *nova*
*E. fendleri* x *lloydii*
*E. fendleri* x *reichenbachii* var. *albispinus*
*E. knippelianus* var. *reyesii*
*E. laui*
*E. ledingii*
*E. pectinatus* var. *rigidissimus*
*E. polyacanthus*
*E. reichenbachii*
*E. reichenbachii* 'Oklahomensis'
*E. reichenbachii* var. *albispinus*
*E. reichenbachii* var. *baileyi*
*E. reichenbachii* var. *baileyi* 'Minor'
*E. reichenbachii* var. *baileyi albispinus*
*E. reichenbachii* var. *baileyi brunispinus*
*E. reichenbachii* var. *caespitosus*
*E. reichenbachii* var. *minor*
*E. reichenbachii* var. *perbellus*
*E. reichenbachii* var. *perbellus robustior*
*E. reichenbachii purpureus*
*E. reichenbachii* var. *nova*
*E.* **x** *roetteri*
*E. triglochidiatus* var. *mohavensis*
*E. triglochidiatus* var. *mohavensis inermis*
*E. triglochidiatus* var. *subnudus*
*E. viridiflorus*
*E. viridiflorus* var. *cylindricus*
*E. viridiflorus* var. *davisii*
*Echinomastus intertextus* var. *dasyacanthus*
*Echinopsis bridgesii*
*E. leucantha*
*E. silvestrii*
*Epithelantha micromeris*
*Eriocyse curvispina*
*Escobaria echinus*
*E. minima*
*E. missouriensis* (thrived for many years. Worth trying again with better drainage)
*E. orcuttii* var. *koenigii*
*E. organensis*
*E. sneedii* var. *albicolumnaria*
*E. vivipara* var. *arizonica*
*E. vivipara* var. *bisbeeana*
*E. vivipara* var. *neomexicana*
*E. vivipara* var. *rosea*
*Ferocactus haematacanthus*
*F. pottsii alamosensis*
*F. wizlizenii*
*Glandulicactus wrightii*
*Gymnocactus beguinii* 'Senilis'
*Gymnocalycium baldianum*
*G. bruchii*
*G. bruchii* var. *calochlorum*
*G. bruchii* var. *calochlorum proliferum*
*G. chubutense*

*G. gibbosum* var. *chubutense*
*G. gibbosum* var. *nigrum*
*G. multiflorum*
*Hamatocactus setispinus* 'Hamatus'
*Lobivia aurea* var. *dobeana*
*L. aurea* var. *leucomalla*
*L. aurea* var. *shaferi*
*L. aurea* var. *sierragrandensis*
*L. chrysantha*
*L. ferox*
*L. haematantha*
*L. jajoiana* var. *paucicostata*
*L. thionantha* var. *variiflora*
*Maihuenia poeppigii*
*M. tetuehelches*
*Maihueniopsis darwinii* var. *andicola*
*Mammillaria hesteri*
*M. heyderi*
*M. heyderi* var. *bullingtoniana*
*M. meiacantha*
*M. sneedii*
*M. sneedii* var. *leei*
*M. (Coryphantha) tuberculosa*
*M. wrightii*
*Notocactus submammulosus*
*Opuntia aurea*
*O. aurea* var. *nicholii*
*O. basilaris* var. *brachyclada*
*O. clavata*
*O. echinocarpa*
*O. engelmannii* var. *texana*
*O. fragilis* 'Barr's Pink'
*O. fragilis x polyacantha*
*O. gilvescens*
*O. humifusa* var. *macrorhiza stenochila*
*O. humifusa* var. *robustior*
*O. kleiniae*
*O. leei* (killed at -27F)
*O. leptocaulis*
*O. littoralis* var. *martiniana*
*O. imbricata*
*O. imbricata* 'Twisted Sister'
*O. macrocentra*
*O. nicholii*
*O.* 'Peter Pan'
*O. phaeacantha* 'Mesa Melon'
*O. phaeacantha* 'Mesa Sky'
*O. phaeacantha* 'Plum'
*O. phaeacantha* var. *camanchaca*
*O. phaeacantha* var. *discata*
*O. phaeacantha* var. *major*
*O. phaeacantha x polyacantha*
*O. phaeacantha x polyacantha* 'Persimmon'
*O. phaeacantha x polyacantha* var. *erinacea*
*O. polyacantha* 'Crystal Tide' (killed by yucca leaves & ants)
*O. polyacantha* 'Nebraska Orange'
*O. polyacantha* var. *erinacea columbiana*
*O. polyacantha* var. *erinacea utahensis* 'Black Knight'
*O. polyacantha* var. *erinacea ursina*
*O. polyacantha* var. *trichophora* 'Grizzly Bear'
*O. pyrocarpa*
*O. pyrocarpa* 'Floragrande'
*O. sanguinocula*
*O. tunicata* var. *davisii*
*O. violacea*
*O. viridiflora*
*O. whipplei,* upright form
*O. whipplei x imbricata*
*Pediocactus robustior*
*Pyrrhocactus andreaeana*
*P. strausianus*
*Rebutia* spp. mix
*Sclerocactus cloveriae*
*Trichocereus candicans*
*T. formosus*
*T. lobivioides* 'Purpureominiata'

# Tiny Prairie Remnants Yield Yet Tinier Cacti

Mike Heim

SOMETIMES IT IS the little things, embedded within and contrasting with much larger things, which grab one's attention. Thus it was for me with the tiny brittle prickly-pear cacti, *Opuntia fragilis,* which grace rocky places within relict prairies in the vast open landscapes of central and western Minnesota.

Mention "Minnesota" to most folks and the name will evoke loons, lakes, and the Northwoods, not some sort of misplaced desert flora. Actually, this popular image (and marketing ploy) applies to just a relatively small portion of the state. Minnesota lies within a major ecological transition zone. As one travels westward thru the state, tree species drop out one by one until a true Great Plains landscape unfolds. It becomes clear why this is when one looks at a precipitation map. Vertical lines cross the state like stripes on a zebra, indicating that the average annual precipitation in western Minnesota is only half that of farther east. Even though the state seems distant from the Rocky Mountains, they still exert a profound effect upon Minnesota's climate by casting a rain shadow, blocking the moisture traveling on the prevailing winds from the Pacific. This is the easternmost extent of the mountains' influence; by the time the winds reach Wisconsin, air masses from the Gulf of Mexico are the great moisturizer.

My unexpected cactus adventure began in late July when Rick Rodich invited me along on a road trip to explore the fascinating and surprisingly diverse plants and plant communities found on remnant prairies and rock outcrops near the western edge of the state. This turned out to be a wise choice for an adventure. With COVID-19 rampaging thru the Midwest, we were glad not to encounter other people in any of the numerous sites we explored. I live in the Northwoods of Wisconsin, so for me, the open environment was a dramatic change in scene. Not only was the open horizon a wonder to behold, but the tapestry of plant communities resulting from slight changes in slope and aspect made for an intricate and beautiful mosaic.

Brittle prickly-pear has long been a familiar cactus to me. Whenever I visit the St. Cloud area of central Minnesota I eventually tire of socializing, excuse myself, and hike to the rounded granite outcrops poking out of the former prairie. Patches of these cacti and other interesting plants such as *Oxalis violacea*, *Artemisia frigida*, and *Talinum* are found there. I also enjoy growing many interesting forms of *Opuntia fragilis* in my cactus garden back home in northern Wisconsin.

Top: Sunset over the western Minnesota prairie.
Bottom: *Opuntia fragilis* growing through the prairie grasses.

Opuntia fragilis growing on a mossy rock.

The brittle prickly-pear's particular claim to fame is that it's the northernmost cactus in the world, growing wild to near the Arctic Circle in the Peace River region of Alberta and British Columbia (latitude 56 degrees north), which imparts extreme cold-hardiness, perhaps down to -75°F (-59°C). So much for cacti being tropical houseplants! It has a wide natural distribution, from Ontario, Canada, to Puget Sound and south to New Mexico. The Colorado Plateau is its center of diversity. For instance, a form growing at nearly 10,000 feet (3,048 m) in elevation near Leadville, Colorado, is completely spineless. In the American Midwest, it is found eastwards to Marquette County in the upper peninsula of Michigan. In Wisconsin, it is listed as a threatened species.

Not all wild populations may truly be wild. Native peoples distributed it widely, for use as Velcro and sewing needles. Medicinally, a cough syrup was prepared from the boiled inner pad. For some tribes, it was an important food in times of famine. Interior British Columbian tribes harvested the inner portion of the pad as food during the spring. They prepared these tiny nopalitos by roasting, boiling, or pit-cooking them for soup or baked them into cakes mixed with berries and fat. And here I thought peeling potatoes was a chore!

Cacti are easy to propagate vegetatively and *Opuntia fragilis* especially so. This species of prickly-pear is often adapted to using animals as hosts to disperse to new locations. Each pad is only loosely attached to the others and is easily dislodged, hence the name brittle prickly-pear. The spines are barbed, so once an animal (or a shoe) brushes by, the cactus pad clings like a bur. Just recently, one of my newly planted pads vanished, leaving a small crater in the sand. I feel sorry for the poor chipmunk who had the misfortune of getting too intimate with it! In the old days, the hooves of buffalo were reportedly a major dispersal mechanism, so this species became abundant along their trails and wallows. A pair of tongs is a useful tool to have along, not only for collecting pads but for removing the occasional pad clinging to a shoe. Sheepishly, I must admit that I have been taken advantage of by this plant for its reproductive ends.

To my eye, all the *Opuntia fragilis* growing wild in central Minnesota appear nearly identical. How thrilling it was, then, to see the incredible amount of morphological diversity in this species along the state's western margin. Not only was diversity remarkable between distant sites, but also within populations located on a single rock outcrop. Differences were apparent in the size and shape of the minute pads, their shade of green, the length and coloration of spines, and the presence or absence of glochids (tiny barbed spines). Some of these forms resemble variants found in Colorado such as *O. fragilis* subsp. *brachyartha*. Introgression with the common prickly-pear *Opuntia humifusa* var. *macrorhiza* is possible in the larger forms with glochids that we found, although Rick and I did not observe this robust species anywhere during our trip. In western North America, *O. fragilis* is known to hybridize freely with the plains prickly-pear (*Opuntia polyacantha)* and Mojave prickly-pear (*Opuntia polyacantha* var. *erinacea*).

On the rock crowning the Minnesota plains, we gazed at the prettier forms of *Opuntia fragilis* laid out like a bed of jewels. Soon their beauty will grace my cactus garden; their spines will glow when the sun shines down on my clearing in the Northwoods.

Variation in *Opuntia fragilis* pads.
Each pad is from a different plant and is typical for that particular plant.

# Darts Hill Garden Park Tufa Alpine Bed

## An Update from a 2014 Norman Singer Endowment Fund Recipient

Pamela Yokome

DARTS HILL GARDEN PARK has long been considered the secret garden of the Metro Vancouver area in British Columbia, Canada. The garden, with its treasure trove of rare and unusual trees, shrubs, and perennials, was the lifework of Francisca and Edwin Darts. It had its start as a logged acreage which, with years of hard work and a little dynamite, became an award-winning fruit and nut orchard before gradually transforming into an internationally known plantsman's garden. The garden was donated to the City of Surrey in the 1990s with the guidance that "Darts Hill Garden Park shall be maintained in perpetuity as a 'Plantsman's Garden' in the spirit of the vision of Edwin and Francisca Darts."

Building the tufa bed.

The completed tufa bed before planting.

Darts Hill's relationship with NARGS and the Alpine Garden Club of British Columbia (AGC-BC) began decades ago with Francisca Darts' membership in both clubs. These relationships were reignited in 2011 with a joint venture project to build two distinct rock gardens at Darts Hill Garden Park. A basalt rock and sand bed was constructed and planted with sun-loving alpines in 2012.

The second alpine bed is a much larger tufa bed with stone steps leading to the top of a small mountain. This bed was built in the fall of 2013 by the same group of volunteers from the AGC-BC and the Darts Hill Garden Conservancy Trust Society volunteers (DHGCTS) and funded by the City of Surrey. In 2014, the Society applied to NARGS for


*Saxifraga* 'Allendale Bamby'. Photo by Susan M. Murray.

a grant from the Norman Singer Endowment Fund and was delighted to be awarded $1,480 U.S. to aid in the purchase of plants for this bed. This grant enabled the purchase and importation of almost a hundred saxifrages from Mendle Nursery in England to establish the beginnings of the collection of porphyrion (Kabschia) saxifrages. Plants were also purchased from Wrightman Alpines and the AGC-BC plant sales. The saxifrages have done very well with few losses and put on quite a show beginning very early spring, so early that at times they have been peeking out from under snow.

The NARGS Norman Singer Endowment Fund is intended to be a resource in support of special, one-time projects that advance the art and science of rock gardening. The funds granted to DHGCTS have greatly enlarged the plant collection growing in these two alpine beds and have attracted new visitors to the garden and led to a very co-operative relationship between the garden and the AGC-BC. Members have enjoyed tours and workshops, held their fall 2020 plant sale in the garden, and have donated many additional plants to the beds. The DHGCTS propagation group has grown many new plants from cuttings of these special saxifrages that are quite difficult to source in America and made them available to alpine gardening enthusiasts. The society is very thankful for the gift from NARGS Norman Singer Endowment Fund.

For more information about Darts Hill Garden or if you would love to read the new book about the garden please see the Darts Hill Garden Park Conservancy Trust Society's website: www.dartshill.ca

*Saxifraga* 'Coolock Gem'. Photo by Susan M. Murray.

Saxifraga in the garden: *S*. 'Satchmo' (top left), *S*. 'Allendale Gremlin' (top right) *S*. 'Paul Gauguin' (bottom left), and *S*. 'Aldo Bacci' (bottom right).
Photos by Susan M. Murray

# Winter-Sowing Rock Garden Seed for the Home Gardener

Kenton Seth

IT MAY SEEM obvious that growing your own plants from seed gives you a variety that breaks the boring limitations of your local garden centers. However, just imagine the breadth and width of the variety open to you: it is literally the whole world. You could get seed from Scotland, Japan, Czechia, and even Patagonia and Africa, collected in the wild and gardens. Your only limit is the earth's troposphere. It's easy to order seed, and it's easy to plant a plant; the interim is the tricky and engaging part.

The majority of saxatile and alpine plants require some sort of winter stratification – time when the seed is both wet and cold – to germinate. The same is true of many other perennials. The few exceptions include most grasses, fiber plants (yucca and friends), most cacti, and some, but not all, asters. Those can be sown in spring, in a greenhouse, windowsill, or under lights at their preferred temperatures without pre-treatment. As an exception to an exception, the mountain ball cactus (*Pediocactus*) needs stratification and thrives being treated like a winter-sown alpine. Most production nurseries, and some hard-core gardeners, do their cold stratification in a refrigerator either as an entire seed tray or as seed in sand or on a wet paper towel in a baggie. This gives you great control but requires perfect timing: once that seed's little internal clock has counted its needed chilling hours, it germinates in the fridge; and you'd better notice what is happening in that bag next to your butter drawer or the seedlings will etiolate and die. Outdoor winter sowing allows seed to get enough – or more than enough – of their chilling needs and to germinate at the ideal spring temperatures it prefers.

Gwen Moore once told me that a New Year's Day seed sowing is a nice tradition. I can see why. On January first, you can sow your own collected seed and will have received the earliest purchased or exchanged seed. Many seed exchange seeds will arrive during January and even February, so it's good to get them sown right away so they get enough chilling time. I once sowed everything on February first, and in my zone 6a climate an early spring that year deprived most of that seed of adequate chilling, so I see that date as a good rule-of-thumb cutoff. This assumes the average longest chilling need is about three months.

**Soil**

I suggest making one good soil mix and sticking with it, having suffered from "media mania" myself for years, trying to create and optimize multiple mixes like a summer-deprived, shut-in mad scientist. Just believe me that there is little benefit to making many different mixes. Find a high quality bagged mix, usually peat-based, like Pro-mix, Sunshine, Black Gold, and the like (in American markets.) I've tried to eliminate peat from my nursery diet, but coconut coir has been disappointing for rock garden plants. Some regions have access to fir bark or other tree composts that work very well. Whatever you do, don't buy the cheap hardware store or Miracle-Gro stuff; it is often either loaded with actual dirt or is mostly unfinished wood fiber compost that will truly disagree with your rock garden seedlings in an ugly way. Then, loosen that mix with something to provide radical drainage for alpine and rock plants. The goal is simply to maintain some air in the mix when it gets wet. One classic example would be one part soilless mix to one part perlite. I've been using scoria, or 1/4 inch (6 mm) sized "lava rock" in place of perlite and love it; pumice is also excellent. I know many successful NARGS friends who do one part coarse sand, one part peat, and one part perlite. My personal favorite, which I'm sticking with for my foreseeable future, is what I call "the trinity": equal parts Promix HP soilless mix, scoria (or perlite), and expanded shale. The expanded shale holds onto nutrition and water for plants that I like to allow to dry out. In place of it, you can use Turface, (U.S. markets), Seramis (Europe), or other calcined clay products that show up for sale as structural concrete conditioner, oil absorbent, or hydroponic medium.

A backyard seed pot area can be as simple as a scrap of geotextile (or ground cloth) in the north shadow of a fence where snow accumulates.

Far Reaches Farm's seed-pots have been sown for the perfect density of seedlings to save space but not crowd seedlings into a pot.

**Sow**

Most rock gardeners sow seeds into two- or three-inch (5 or 7.6 cm) pots in their 32- or 18-pot trays. Use a pot size and make that you have an abundance of, even if it's to use cups with holes poked through the bottom. Fill those pots 1/2 inch (1 cm) from the rim and gently tamp the surface down with a bent finger or bottom of another pot to create an even soil-mix surface. Set your seed on that tamped surface by whatever means is most comfortable to you. Use tweezers if you are fastidious or, my favorite, gently shake or slide them off of a curved slip of paper. This may be the top flap of the envelope the seed came in. Lay down enough seed so that if all of them were to germinate they won't crowd one another too much to be separable. The amount of seed you use is a judgment call; don't be too scared. Just do it and see what works. Here is where you pay attention to seed size. The general rule of thumb is to bury seeds three to four times their size in depth. For super fine seeds like poppies and drabas, that means not buried at all. For the rest, that means either gently sprinkling a pinch of soil on top of the seeds, or, even better, sifting that thin layer on them with a strainer, screen, or colander. This ensures that the soil in direct contact is the finest texture and not lumpy with those soil additives you so wisely used.

**Grit**

Lastly, the hallmark of a rock gardener growing from seed: gravel topdressing. Find a fine gravel or "grit", anywhere between 1/8 to 1/3 inch (3 to 10mm) in size. It may be available as a fine landscape gravel, road grit for icy roads, aquarium gravel, unfortified chicken grit, or stolen from a local ant colony like we often do here in the West. It's always been my struggle to find that happy medium size, about kitty-litter size, so I've finally wound up just using what appears between two seed-cleaning screens when I sift decomposed granite, a very common byproduct of making crushed gravel around here. Apply just enough of this grit to cover the soil mix. Too much and those draba seeds won't be able to get through with their thread-thin necks. The topdressing will help keep snow, rain, or the watering can from splashing your precious seeds away as well as ameliorate moisture fluctuations.

**Soak**

Now you have sown some seed. Time to soak it and chill it outside. I used to use a very gentle sprinkling watering can, but those have gotten harder to find, so I started letting trays of new seed pots soak in a shallow tray of water. I recently found out that this is what everyone sensible has been doing forever. If it is truly cold outside, below freezing most of the day, it is wise to let those new pots be wet and unfrozen, indoors or in your garage, for about a day before you stick them outside. This is because the seed must be moist and imbibe (swell with water) before it starts counting the cold hours, and it may not be able to absorb that water if it's all instantly frozen solid. My heart feels like it's a good omen when I walk out of the garage with a wet tray while it is actively snowing. I leave footsteps to my seed pot area and the snow will gently cover that new tray and slowly coax it into the temperatures of winter.

**Site**

Now, to site your winter-sown alpine seed, you must accept and understand that it is okay for them to become ice cubes in their little trays or lay buried under a snowdrift. This is ideal. Most folks have a spot north of their house or garage that doesn't get winter sun, where the snow lingers the longest. Just occasionally someone will successfully use an eastern exposure, but any sunnier than that and there is a strong risk of freeze-drying those trays on a sunny winter day, or worse yet, drying them out in spring or summer and killing the seedlings.

The best seed tray spots are along paths where you will see them: near garages, porches, patios, potting benches, and hose spigots. Be sure to put your pots in trays to keep them from tipping over like dominoes. It also makes them more easily seen and watered and not just tripped on. Tipping seed pots make a sound even more cringe-worthy than that

Kelly Dodson of Far Reaches farms has insulated and wire-protected their high-tech seed frames. An additional "lid" of two-ply polycarbonate allows them to exclude the excessive winter moisture of far western Washington state.

sound we all know: an alpine plant tipping its gravel on the sound-board of your cardboard box at a plant sale, just like ball bearings lost from the machine in the final turn of your smooth plant-grabbing moment.

If your trays are set on the ground, don't set them on open dirt, but on pavers, concrete, bricks, gravel, weed fabric, any polyester fabric, or even tight hardware-cloth mesh, to keep earthworms, voles, and mice out, as well as to keep roots in. I've used the cheap 70% shade cloth from the hardware store, too. It's good for the trays to get warmth by contact with the soil but not the other things that come with it. Most weak barriers allow roots to grow through the pots and into the soil, ruining them when their taproots are snapped as you lift their pot. This is something to keep in mind if you opt for the otherwise excellent sand-bottomed idea. I look forward to trying polyester felt, which also acts as a capillary mat but is too tight for roots to penetrate. Some folks elevate their trays on wire mesh tables, but this requires the most constant babysitting because of a perched water table and the greater temperature fluctuations off the ground. If things look nicer to you in a box, go ahead and make a wood frame around your little seed baby area. It helps me decrease the number of times I catch a tray corner with my foot and send it flinging into the air to mix with my flying curses.

Also, consider protection from above. An overflowing gutter or gutterless eave will wash your seed pots out biblically. I've had that one thanks to a clogged gutter. North of a house or fence is pretty dang safe, but if you choose the north side of an evergreen, you may want to cover the tops of your seed pots with screen, or again, cheap and lazy shade cloth to keep tree droppings out. You can stretch it to a frame and even put it on a hinge if you are fancy like that. It will be easy to lift off and check on seedlings as they emerge. Most importantly, it's good to let light and natural precipitation penetrate while keeping falling leaves from smothering something precious.

I'd also encourage placing your seed trays somewhere you regularly go with a water hose, since the snow melts away, the days can be dry enough as early as March in Colorado, and we have to start watering to keep the pots moist as all the babies emerge. I usually see first cotyledons in February on my eriogonums or drabas. Now, just keep your trays watered. I find myself watering my seed area every other day most of the growing season to keep it from ever drying out, less in spring and fall. If June rolls around and nothing else has come up and you are not growing-on seedlings in the same place, you can conceivably let the seed zone get dry in summer and resume watering in fall. On the other hand, if your growing area is bright enough in summer, but either shade-clothed or still within shadow, it's a good spot to grow your tiny plants in tiny pots in the summer. Because, as you know, a tiny pot in the full summer sun cooks in mere hours.

**Care**

Give yourself enough tray space for twice what you think you want, because it's wise to keep ungerminated pots at least one more year for double-dormant or super-picky germinators. You can also use that space for pots of separated seedlings, in their own pots. Keep nearby leaf accumulation down, for this harbors slugs and earwigs which use their dark magic to make tiny things disappear at night before you've even seen them. Trays themselves are cool wet hiding places for slugs, so I liberally use diatomaceous earth, beer traps, soy sauce traps, and Bug-Getta Plus (a Carbaryl-based chemical bait) as a last resort to slay my enemies overnight in a desperate time. Not amusingly, hand-hunting slugs at about 11 pm has been the most effective method at keeping them in check for me. It’s fun the first and second nights, but your fourteenth night in a month gets old. Try to limit how much diatomaceous earth dust you use in the pots themselves as it essentially becomes clay when wet, and you don’t want that to clog your soil mix. I dust or blow it under and in between trays. Over the years, I've found that a preference for organic pesticides has led to a population of black widow spiders that really love to live in the divided trays. They ride around with the plants and I have even had them harmlessly crawl over my hands when I displaced them. I try to miss them with my fingers to

avoid friendly fire; widows are just toxic enough to kill a small dog. I let them be because they are the only ally I have against the positively demonic earwigs.

There is truly nothing comparable to watching a full new seed pot germinate. It feels powerful to have, in a tiny pot, what can cover a whole banquet table when they all grow up into mature plants. Let seedlings develop at least their first leaf before fertilizing. Alpines and rock plants generally prosper with a half solution of any fertilizer, and there is still debate as to whether they prefer organic or chemical fertilizers.

Separating all the babies from a seed pot into their own containers is called pricking (or, pricking out), and there is a window in which to do this starting when they are large enough to handle and safely move and ending when they become so entangled by root or stem that separating them means destroying them irreparably. Overgrown seed-pots can also become etiolated from all those plants competing, leaving you with leggy, sad, pricklings.

Do not despair when pots don't germinate at all. Just check that you didn't make a mistake and then perhaps blame the seed source to relieve your conscience. If you are growing seed from all over the world, or many sources, having half come up is good, since transit, storage, identity, and even poor seed health are more likely with diverse sources. You'll get a clear benchmark of a good crop when you grow your own garden-fresh seed of an easy species. Relish that, celebrate the win, and be glad your friends will quit bugging you about giving them some of that robust plant they've pestered you for.

Prick out seedlings once they have gotten large enough to handle.

There is nothing like watching a pot of seeds begin to germinate.

Don't expect all of your seed to become garden plants. Just try, learn, enjoy what you get, and repeat. Some, like gentians, are very slow, taking several years to fill a two-inch (6cm) pot. Others, like erigeron, can bloom their first year from seed.

Perhaps even better than seamlessly providing enough chilling hours for seed, the great advantage to home winter-sowing outdoors is that seedlings germinate at the ideal time in spring to take advantage of their favorite temperatures and weather (be it early or late) for best development at their most tender stage in life. To make life easier, you can even include your warm-blooded plants' seed and those that don't require stratification in your seed-pot zone. They will simply come up later in the spring or summer.

The practice of winter-sowing will enrich you with plant strains passively improved for your climate and garden, and free you from the oppressive constraints of the same boring five stonecrops and five thymes from the big box store. It is an investment into years of pleasure watching your babies grow, a satisfaction growing something yourself from seed to seed, and a passport to enjoying the most cutting-edge and newly-discovered exotic gems that may never be available as plants. For me, winter sowing is a winter ritual and sanity defender. I even installed a used wood stove in my shop almost specifically to cozy up those midwinter days of cleaning seed and sowing it. It also turns out wood stove-top popcorn is genuinely better.

# NARGS Trough Photo Contest Winners

Best Trough Photo: Thomas Soulsby, "Spring No. 3."

People's Choice: Michael Bone, "Steppe Themed Trough."

Best Trough Design: Bill Stark, “Stucco Triplex.”

Best Use of Troughs in the Garden: Abbie Zabar, “Fall Wall Troughery.”

# Building Stucco Troughs

Bill Stark

OVER THE LAST 16 years, we have developed a new type of trough that is lighter and much less likely to break than hypertufa troughs. We've never had one break! These strong "stucco troughs" can have more complex shapes and they can be larger, providing space to create more elaborate rockeries, landscapes and planting schemes that can enchant viewers. They are easier to move about the garden, into your garage for winter plant protection and to garden shows and fairs where they can help attract new members to your NARGS chapter. The stucco trough below measures 36 inches long and 24 inches wide (91 x 61 cm). It weighs 19 pounds (8.6 kg) empty and 157 pounds (71 kg) planted. It's thin walls free up more space for plants

Stucco troughs can be large and complex while still being very light-weight.

Stucco troughs are based on the tough synthetic stucco wall technology (EIFS) used in many commercial buildings. A stucco trough consists of a foam core, fiberglass mesh that is glued to both inside and outside surfaces of the foam core with spray adhesive, a thin layer of surface bonding cement that is embedded into and covers the glass mesh and a very thin layer of hypertufa on the visible surfaces of the trough. A stucco trough's strength is primarily due to the long glass fibers woven into the mesh. A limitation of the thin cement layers is that you can't have deeply textured walls.

You can build one by yourself, but we like building stucco troughs at our Adirondack Chapter's workshops where members help one another. Stucco troughs are messy to build and their thin cement layers dry out quickly in the sun, so Mary and I erect an open tent on our lawn with plastic-covered tables underneath. About 20 feet (6 m) from the tent, we place a card table for spraying adhesive, sawhorses for draping drying mesh, and a box fan. We supply a water hose, garbage can, shop-vac, sanding block, wire cutters, ruler, permanent markers, paper towels, two large mixing bowls, and the trough ingredients (listed later in this article) which cost about $16. A cement mixer isn't needed. Members prepare the foam core before the workshop. Workshops take about four hours if the participants are prepared. First-timers should build a simple rectangular trough and practice the process of wrapping their core with paper and tape.

Adirondack Chapter members at a stucco trough building workshop.

## Step by step building instructions

*Step-by-step photos by the author and Kathy Purdy.*
*A detailed materials list is at the end of the step-by-step instructions.*

### Prepare the foam core

The easiest foam core is a cut-down styrofoam shipping box. You can reduce the height of your box by cutting it with a serrated knife, hot-wire tool, or saw. It's easier to apply the mesh later if the cut is straight. Consider what you want to grow before you cut. A deep box will weigh more but is a better growing environment for many plants. A shallow box looks better, like a bonsai container, but will require more frequent watering and will kill some plants faster.

Fill in any depressions in the foam box with Great Stuff Gaps & Cracks spray foam. Mist the box and the spray foam with water to speed its cure rate and give a better texture. Cut off the excess spray foam with a serrated bread knife or saw.

If your shipping box has thick walls (about two inches, 5 cm), you can get considerably more area for plants and rocks by removing a two and half inch (6.35 cm) deep wedge of foam from the top inside edge of your box so that the remaining top edge is 3/4 inches (2 cm) thick. It'll be easier to wrap this area with the stiff glass mesh if you are careful to make a smooth and even cut as you remove the wedge. Mark guide lines where your cut will enter and exit the foam.

If you can't find a shipping box with the dimensions that you desire, you can make a rectangular core of any size by gluing together one-inch (2.5 cm) thick extruded foam insulation boards purchased from a building supply store. Use a foam compatible adhesive and push two-inch (5 cm) finishing nails into the joints.

You can make a complex core out of one-inch (2.5 cm) extruded foam and/or commercially available foam shapes with nearly endless design possibilities although some designs will be more difficult to wrap with mesh than others. First, determine your view lines and then draw possible designs on paper. The trough in the photo on the following page is a study in hiding the awkward appearance of tall walls. Views of a twelve-inch (30 cm) high section for growing conifers and daphnes are blocked by eight inch (20 cm) and then five-inch (13 cm) walls. The left side of the twelve-inch (30 cm) high section is cantilevered so that its full height isn't visible from the front. I was also channeling Frank Lloyd Wright's house Falling Water. Since surface bonding cement is waterproof, you can build a water garden with narrow rills and deep pools surrounded by plants. You can design a core that reminds you of a favorite building, landscape, cityscape, or garden. Devotees of Lutyens/Jekyll gardens could include a beloved feature from Hestercombe in a trough. At the extreme, troughs can become carved sculptures with planting pockets.

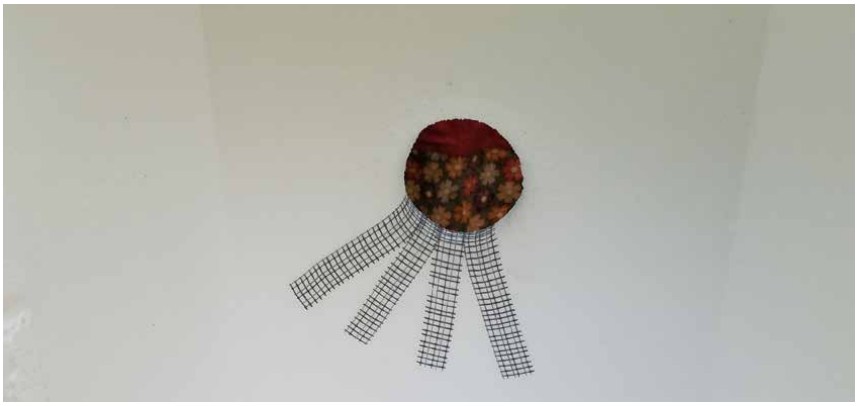
Top: A prepared core with side handles filled with spray foam and sanded smooth.
Bottom: The same foam core transformed into a completed, planted trough.

**Cut the drain hole(s)**

Use a hole saw to cut a drainage hole or holes in the bottom of your foam core. I always use a single two-and-a-half-inch (6.35 mm) hole per section because larger holes are easier to wrap with fiberglass.

**Sand the core**

Wear old clothes, a hat and a dust mask, and have your shop vac ready. Use 50 grit sandpaper on a sanding block to round off all edges to a minimum radius of a quarter-inch (6.35 cm) so that you can easily wrap them with the glass mesh and the edges will be more resistant to impact damage. This includes the edges of the drain hole(s). Dull any shiny foam surfaces with the sanding block. Vacuum the core and yourself. Place your core in a garbage bag or wrap it with a thin plastic drop cloth to keep it clean and keep it out of the sun. You'll later use the bag or drop cloth to cure your trough. Your core is now ready for the workshop.



Drain hole being wrapped with fiberglass tape.

**Gather supplies**

If making the trough at a workshop, you'll need to bring your prepared foam core, a dust mask, a plastic one-quart or larger bowl, sharp scissors, a misting spray bottle and two wood blocks about four inches (10 cm) shorter than your core.

**Wrap the drain hole(s)**

Lightly spray adhesive around the drain hole(s). Cut one half inch by six inch (1.27cm x 15.24 cm) strips of the gray self-adhesive fiberglass tape. Insert the tape through the drain hole and, pulling both ends of the tape tightly so that the tape will stretch and lay flat, stick the tape to the hole. Slightly overlapping tape strips, work your way around the hole.

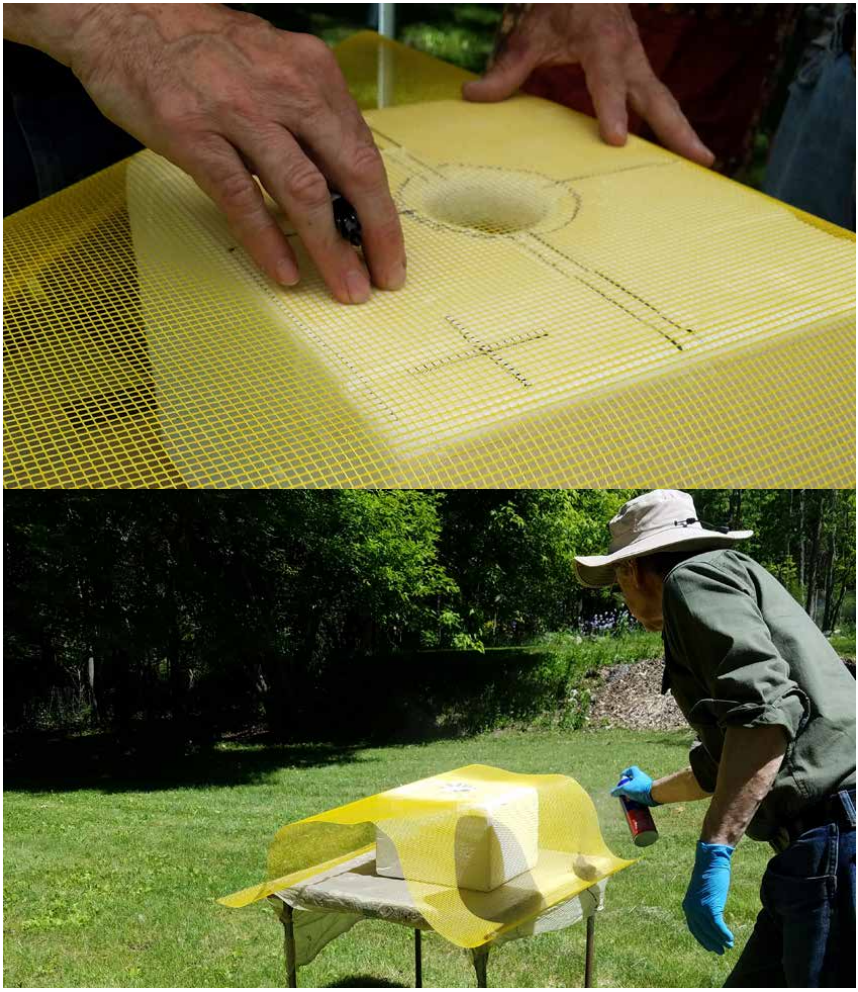
**Wrapping the Core with Mesh**

These steps are easier to follow if you cut and wrap paper around a cardboard box as you read them. These instructions are for a simple, rectangular core. Discussion of working with more complex cores follows.

**1)** Prepare the mesh. Cut enough mesh to wrap it across the bottom and sides of your core plus at least eight inches (20 cm) so that the mesh can go over the top edges and onto the internal walls for at least two inches (5 cm). If your core is too large, you can use multiple pieces of mesh, overlapping them by two inches (5 cm). Place your foam core upside down on the spray table. Use a ruler to position the glass mesh over the core. Using a permanent marker, outline the drain hole (mark where there is no curvature from your sanding the edges of the drain hole) and make two reference Xs on both the glass mesh and the underlying foam. The holes in the glass mesh are large enough that a permanent marker easily marks both. Flip the glass mesh over and write "glue" on the mesh. Cut out the outline of the drain hole on the mesh.

**2)** Apply adhesive. Wearing your mask and nitrile gloves, position yourself upwind of the spray table. Conserve the spray adhesive by placing the glass mesh, with the "glue" side facing you, on top of the inverted core. When you spray the mesh, most of the adhesive will go through the openings in the mesh and hit the core. After spraying the mesh, drape it, glue side up, over a sawhorse. Finish spraying adhesive on the outside of the core.

**3)** Wait a couple of minutes for the adhesive to partially dry. With a helper, position the mesh, with the "glue" side down, over the inverted core. Align with the hole and the two reference "Xs" and lower the mesh onto the bottom of the core. Press the mesh down with your



Top: Mark the drain hole and reference Xs on the mesh and core.
Bottom: Spray mesh and core with adhesive.

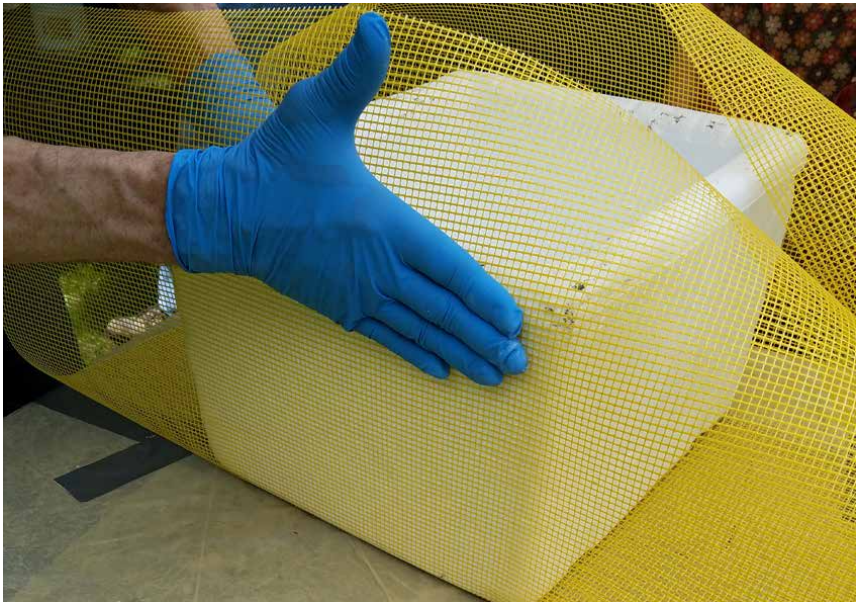
hands using sweeping motions from the center so that ripples don't form. If, at any time, the mesh stops sticking well to the foam, spray another coat of glue on both.

**4)** Starting with your gloved hands on the core's bottom, press the mesh down the long side walls of the core using a sweeping motion. Don't allow any ripples to form in the mesh. Flip the core over and continue sticking the mesh to the long vertical walls.

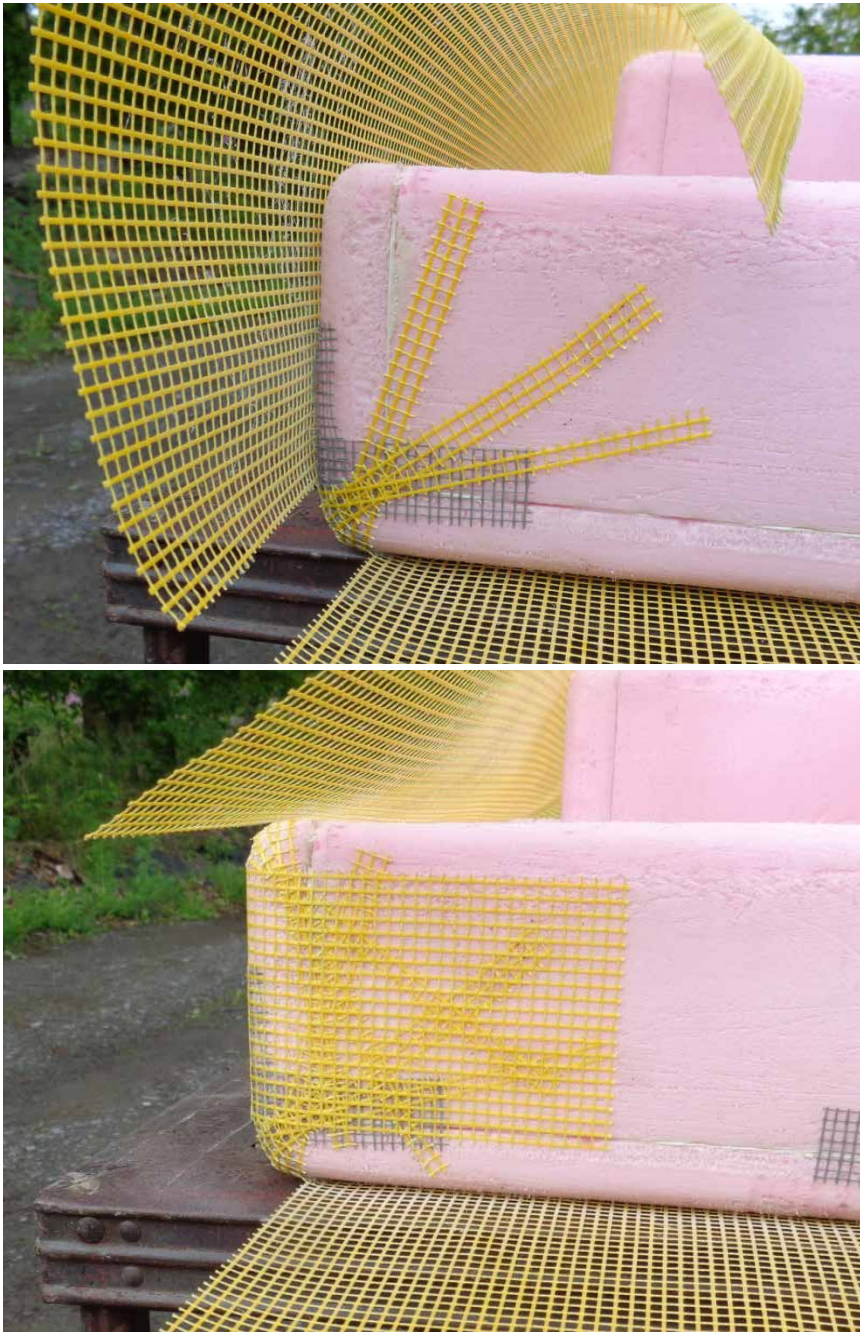
**5)** Spray adhesive on the wall tops and the interior of the core.

**6)** At the bottom corners cut narrow fingers in the curved portion of the mesh. Cut enough fingers so that the remaining mesh flaps will lay flat when they are stuck to the core. The width of the fingers depends on the radius of the corner – fingers that are too wide won't lay flat. The fingers should be three or four inches (7 – 10 cm) long and end on a flat surface, otherwise, the ends tend to stick in the air. Pulling on the end of a finger and keeping it flat on the core surface, stick each finger onto the core. The fingers will cross each other as shown in the photo on page 67. Spray the attached fingers with glue because we will soon be folding more fingers and mesh on top of them.

**7)** Repeat step six for the top corner above it. After you have folded the top fingers down, fold the flap of mesh (left over from cutting the fingers from the left long vertical side) over them. It's better to stick down fingers first and then cover them with a flap because it eliminates the possibility of the fingers becoming loose while we're applying the surface bonding cement.



Smooth the mesh onto the core with gloved hands.



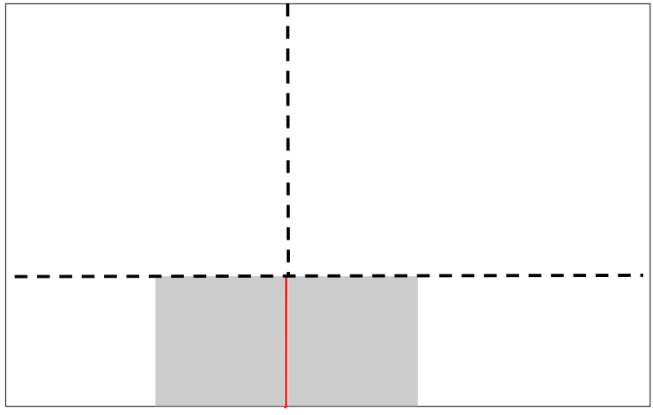
Top: Cut and fold down narrow fingers of mesh at each of corners.
Bottom: Fold the wide flaps of mesh down over the fingers.

**8)** On a rectangular core, repeat steps six and seven on the other outside corners.

**9)** We're now ready to fold the long flaps into the interior of the core. Your core's inside corners may be sharp 90-degree angles or they may be curved if you used a shipping box. You may need to make small cuts or cut additional fingers so that the stiff mesh will lay flat without any bulges on the interior wall of the long side. Using sweeping motions, stick the flap to the long interior wall. Before you press the flap into the vertical corners, check that the mesh will not end on the curved part of the short wall's top. If it does, cut a strip of mesh off of the top of the flap so that the mesh only lays on a flat surface. Now push the ends of the long flap into the corners and then stick it on the interior of the short wall.

**10)** Spray the flaps already glued to the internal and external sides of the short walls and stick the remaining two flaps onto the short external walls, over the top, and onto the short internal walls. Again, depending on the shape of the corners, you may need to make some short cuts in the flaps so that they lay flat.

**11)** At this point, the external bottom, the external walls, and the upper parts of the internal walls have been wrapped with the mesh. The drawing below illustrates how a piece of mesh is cut and folded to fit into a lower internal corner. Cut along the red two-inch (5 cm) long dotted line and fold along the dashed lines. The two lower flaps will overlap each other in the area shaded gray and the mesh will fit into a sharp corner. If the internal corner is curved, then the red line will need to be replaced by a series of two-inch-long (5 cm) fingers.



Cut on red line and fold along the dotted lines to fit the mesh into the interior corner of the trough.

Cut the four internal corner mesh pieces large enough so that they overlap the external wall flaps and each other by at least two inches (5 cm) so that the internal walls are covered. If there are any gaps left, cover them with overlapping patches that fold down onto the bottom by two inches (5 cm). Stick on a rectangular piece, with the drain hole cut out, to cover the interior bottom.

**Wrapping Complex trough cores**

I can't describe all the options for wrapping more complex cores, but I can give you some general rules:

Never end a piece of mesh on a curve.

If a piece of mesh goes over a curve, extend the mesh at least two inches (5 cm) past the curve.

Try to overlap thin fingers of mesh with larger flaps.

Never butt two pieces of mesh together. This would create a weak joint. Always overlap by two inches (5 cm).

Spray the bottom mesh with adhesive before overlapping it with another layer of mesh.

Try to avoid too many layers of mesh. We want to be able to work the surface bonding cement through the layers of mesh and into contact with the foam. Too many layers will get in the way.

A complex trough completely wrapped in mesh.

Think ahead and practice with paper. For example, if your core has a wall that dead ends into a taller wall at a right angle, you'll need a piece of mesh that fits like a saddle over the top of the shorter wall. At the curved top of the shorter wall, you'll have to cut fingers that will spread out on the taller wall. It's difficult to anticipate all the wrapping challenges you might run into. If you make a mistake, you can always slap another piece of mesh over the gap.

You can't wrap large sheets of mesh around a sphere, but you can cover it with small overlapping patches of mesh. The patches can be larger if you switch to a lighter weight and stretchier EIFS mesh. You can also wrap a sphere with the FibaTape cement board tape that we use on the drain holes. You can't wrap very complex shapes like a foam human head (available on the web) but, as long as it isn't structural, you can spray adhesive on it to serve as a bonding layer and then apply the surface bonding cement and hypertufa without the mesh layer.

**Prepare the drainage screen**

Cut a piece of quarter inch (6.35 mm) metal hardware cloth rodent screen so that it sets slightly inside the drain hole and a fiberglass insect screen that's about two inches (5 cm) larger than the hole.

**Apply surface bonding cement**

At workshops, we mix the surface bonding cement with premixed water and bonding agent in a large mixing bowl. A little cement goes a long way, so we dole it out one pint at a time into member's smaller bowls. Wearing nitrile gloves, work the surface bonding cement into the mesh using a circular pattern with your fingertips. Start at the drain hole, then the inside of the box, and then the outside. Make sure that the cement is making good contact with the underlying foam. Make sure that you only see the gray of the surface bonding cement with none of the brightly colored mesh showing. I usually do all the box's surfaces and then go back and apply a second coat of surface bonding cement so that I can't see any pattern of the mesh. If the cement starts to dry out, mist it lightly with water. If the cement was mixed more than 30 minutes ago, throw it out.

**Insert rodent screen**

With the trough inverted, jam the metal rodent screen into the drain hole so that its cut wires stick into the foam. Dab some cement where the screen contacts the trough. Place the fiberglass insect screen over the hole and attach it to the bottom with a small amount of surface bonding cement.

**Apply hypertufa**

Clean out your bowl and fill it with a small amount of hypertufa with bonding agent. Use a swirling pattern with your gloved fingers to apply a thin coat of hypertufa to the visible surfaces of the trough. Use just enough to cover up the cement, the thinner the better. Start with the

Smooth surface bonding cement over the mesh, ensuring good contact with the foam.

trough upside down to get to the lower edge and then flip it over and put it on wood blocks to do the rest. On a warm day, the hypertufa can start to dry (not cure) while you're working, so I hold a water bottle in my left hand and mist the hypertufa when it starts to stiffen. After I've covered an area, I'll pat the surface with my fingers once and then again at a right angle to provide a slightly irregular surface. You could also use a steel trowel for a smooth surface. On an early trough, I applied a thicker layer of hypertufa so that I could have a rough surface. It tripled the weight of the trough and I've never done it again.

**Cover the trough**

Place smaller troughs in plastic bags, and wrap larger troughs with a thin plastic drop cloth. Keep your trough out of the sun.

**Apply texture**

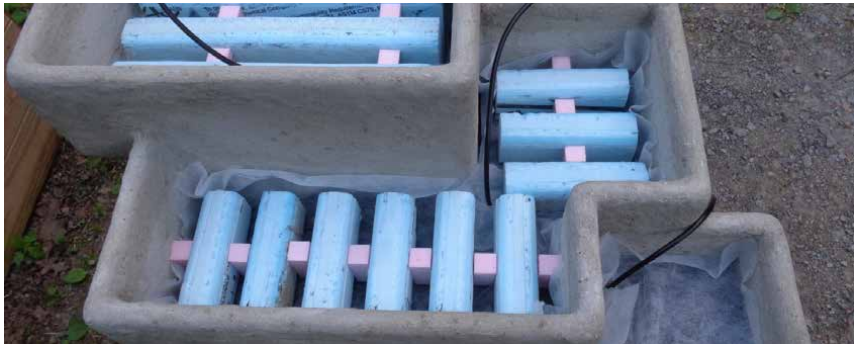
After one or two days, you can lightly brush the outside of the trough with a plastic brush to give the surface some texture or to remove any glossiness caused by the plastic wrappings. Don't let the surface dry out!

**Let cure**

Keep the trough covered and moist for at least a week. Then you can put it out in the rain to neutralize its alkalinity.

**Materials list:**

- Nitrile Gloves: 5 mil gloves from Harbor Freight work well. You will need four gloves per trough.
- A dust mask
- A plastic one quart or larger bowl
- Sharp scissors
- A misting spray bottle
- Spray glue: Be aware that some spray adhesives dissolve foam. We use Loctite Spray Adhesive High Performance 200 Middleweight Bonding High Initial Tack, Wood, Metal, Acrylic, Fabric, Polypropylene & PVC. You can build about two troughs per 13.5 oz can.
- EIFS Fiberglass Mesh: Do not use fiberglass cloth that is intended for repairing boats and cars because the cloth does not have an alkali resistive coating. Use 4.5 oz per square standard weight EIFS stucco mesh. It usually comes in 38 inch (96 cm) by 150 foot (46 m) rolls. I've never used the self-adhesive mesh that is now available but I plan to try it because it could make trough construction faster and simpler. Available online and at specialty building supply stores. You can make roughly 20 troughs per roll.
- Fiberglass Tape: Two-inch (5cm) wide. FibaTape Cement Board Tape, Alkali-resistant. One roll is enough for many troughs.
- Hole screen materials: Quarter inch (6.35 mm) hardware cloth and fiberglass insect screen.
- Surface bonding cement: I don't use the standard EIFS base coat because it isn't rated for below grade use. Instead, I use waterproof and fiber-reinforced surface bonding cement which is stronger than the base coat. I've used several different brands and I think that Quikrete Gray Quikwall is the best for troughs. It has a 30 minute working time, so I mix small batches in a bowl. Wear your mask while mixing! Mix with one part acrylic fortifier to two parts water by volume to a toothpaste consistency. You can make about four troughs per 50 pound (23 kg) bag.
- Acrylic bonding agent: Use Quikrete Concrete Acrylic Fortifier (No. 8610). Dilute one part fortifier to two parts water by volume. I dilute the acrylic before the workshop so that I can quickly mix it with the surface bonding cement and the hypertufa. A one gallon (3.78 l) bottle is enough for about eight troughs.
- Hypertufa: By volume use one part Type 1 Portland cement, one and a half parts fine vermiculite and one and a half parts peat moss sifted through a quarter inch (6.35 mm) screen. Mix with one part acrylic fortifier to two parts water by volume to a toothpaste consistency. Don't use fibers. I mix up the dry ingredients just before a workshop and then make small batches in a bowl as needed.



Crevices made from foam reduce the weight of the planted trough.

**Techniques to minimize weight in the planted trough**

**Foam board crevices**

Crevice gardens have been built out of stone, tiles, and concrete. You can also use foam boards. In the trough above, I used two inch (5 cm) thick blue extruded foam board that are two inches (5cm) shorter than their container's width and spaced apart with one inch (2.5 cm) pink foam. I remove the pink foam spacers as I fill the trough with soil. The blue boards are cut so that their tops are three and a half inches (9 cm) below the surface so that there's no interference with most root balls. The foam can be easily broken off with pliers if there is any interference. To further lighten one trough, I added two-inch (5 cm) square cubes of foam on top of the blue boards. They were plucked out if they interfered with a plant or a stone. I was initially concerned that carpenter ants would nest in the unprotected foam but that has not happened.

**Lightweight soil mix**

My trough mix is (by volume) three parts washed sandy gravel consisting mostly of decomposed shale collected about ten feet from the base of a waterfall and sifted through a half-inch (1.27 cm) screen, two parts fine vermiculite, one part forest humus, one half part sifted peat moss and one eighth part sifted compost.

**Stone minimization**

In place of heavy stones, I've used driftwood, lava, tufa, and curved stainless steel retaining walls. The steel walls provide interesting level changes with a contemporary feel and take up no space so you can plant more plants. Traditionally, we've been told to set stones deeply into the ground so that they will look settled. I look for stones with flat bottoms that I can plant only an inch deep or I cut a stone in half to create a flat bottom. If the stone is then unstable, I'll drill it and epoxy in a fiberglass dowel to stabilize it.

When working with tufa, I often use many small stones instead of large pieces. I used masonry screws, epoxy, and steel brackets to fasten together a series of small tufa stones to create a retaining wall for the trough pictured at the beginning of this article.

NORTH AMERICAN ROCK GARDEN SOCIETY

Bulletin Board

*Winter* 2020/2021

volume 79 | 1

## President's Message: Winter 2020/2021

It's late November as I write this and today began with 10° F (-12°C) and crisp air, gently blowing over the garden. There is still a kiss of snow on some of the shrubs, like various smaller daphnes and on groundcovers, such as wooly thyme and paronychia. The scent of wood stoves burning reminds me it is really, finally, fall. I use my winter barn coat, albeit unbuttoned, to walk the dogs. The snow won't last long because another warm spell is due our way. Ah, wind currents! But winter snows are coming.

The year has been unprecedented in my area in Connecticut: a long hot summer with little rain. Luckily, we made up water levels during October and November with rainfalls. But I am not planting out yet. During this COVID time we have been confined in more ways than one. Not much of what I planted out after May 15th has survived due to drought. But that made time for other things. We have a new way to communicate with fellow gardeners. In July, NARGS launched a virtual conference: TAPROOT with great success. Signups came from almost 300 members as well as generous donations. Again, we thank all of you for your support, especially from a NARGS budget point of view.

In November, we held our first Study Day: *NARGS ROCKS Troughs, Coast to Coast: Celebrating Gardening with Rock Plants in Containers*. Over 250 of you signed up for this virtual study day. And we held our first photo contest. Ideas were as plentiful as clematis seeds on the autumn wind. I know I will build more troughs next year! And rearrange the plantings in many of the existing ones. (Just an FYI: you can still buy a ticket to view all the Study Day videos on the NARGS website to watch on your smart phone, computer, or TV at your leisure.)

The Study Day virtual events were inspired by the previously held, old Study Weekends, and regardless of COVID, these virtual events appear to be here for a while. The next one will be held on Saturday, February 6, 2021 (mark your calendars), organized by Mike Kintgen of the Rocky Mountain Chapter. The topic is

crevice gardening! And it has an all-star lineup. First session will be: Paul Spriggs (British Columbia) *How did we get here? A Brief History of Crevice Gardening* with tips and tidbits; Kenton Seth (Colorado) *Crevice gardening for the Masses and Recent News* on boiled down tips as well as what's new and exciting; and Jeremy Schmidt (North Carolina) *From Big Rocks to Little Rocks* on crevice boulder construction with a Southeast focus. Excited yet? I sure am! After a two-hour break (for Zoom fatigue) the next session will present Susan Sims (Utah) on *Dryland Crevice Garden/My Crevice Garden*; Jay Akerley (British Columbia) *Crevice Gardens for Small Spaces*; and Roslyn Duffus (Nova Scotia) *From the Mighty to the Modest* on recycled concrete and limestone gardening of Bicentennial Botanic Garden at Truro. Each program is expected to last 45 minutes. And remember, it will be recorded so you may watch at your leisure. Check on the nargs.org website for details.

For me, I couldn't be more pleased with the topic. My first exposure was a crevice garden built in South Sandisfield, Massachusetts, during the last century by Josef Halda. I think the climate differences for plantings accounted for the lack of enduring plants. But I was awed by the form of it. Then in 2003 upon a visit to Czechia (Czech Republic), I saw what else could be done! Lucky me as I saw the intimate, small vertical crevice garden of Jiří Papoušek. My mind was opening new doors. Then came the fresh tufa garden construction of Vojtěch Holubec, built with cranes by lifting large boulders over his wall into the garden! His ideas rocketed to the top of my wish list. My husband, Rod, and I went home and started building. When I returned to Czechia for the first Skalničky International Rock Garden Conference in 2007, my wish list expanded exponentially from all the great Czech garden constructions we toured. What a talented lot of garden designers. My husband was excited also, so when we had a visit from Zdeněk Zvolánek, the two of them built a saxifrage altar while I went off to work. Over the past twenty years Rod and I have experimented in the garden with various types of rocks, depending on availability. Here in Connecticut, we "grow" rocks every spring. It was during last spring in 2020 that I finally finished the sax altar with a tufa crevice wall as suggested by David Sellars. My vision from Vojtěch Holubec's garden was a reality. And the time came courtesy of COVID confinement. Now comes the fun of planting. But that is another subject. My advice: plan to get a ticket to the next Study Day event on Crevices!

Elisabeth Zander, President NARGS

nargspres@gmail.com

North American Rock Garden Society
2020 Year-End Report
December 2020

Dear NARGS members,

The NARGS Board continues to appreciate your support in numerous ways, both through volunteer service to the society and financial support. We value your interest in our on-going goal to encourage and promote the cultivation and conservation of rock garden plants and to expand the knowledge of their value, habits, and geographical distribution.

Despite COVID-19, the year 2020 has so far been a good financial year for NARGS; however, we will still be dependent on year-end donations to cover our expenses for the remainder of 2020 to get 2021 started. TAPROOT and NARGSROCKS were great successes and brought us new members and brought our budget into a positive situation year-to-date. Postponement of the Traveling Speakers Tour cut our expected expenses. Postponement of the members' Tours and Adventures program for 2020 because of COVID-19 has, however, left a financial hole as the year closes. We intend to return to both activities—in much the same fashion—as soon as feasible. Whether we can regain some of our tour revenue in 2021 is uncertain.

Under the pandemic relief program (CARES Act), U.S. taxpayers can deduct up to $300 given to a nonprofit organization and take the standard deduction as well. NARGS is a qualified 501(c)(3) nonprofit organization. Taxpayers who donate up to $300 now can typically deduct that amount from their IRS gross adjusted income in addition to taking the standard deduction. Individual taxpayers are eligible for their cash only (credit card, check) donations in the spring when they file their return for 2020. Consult your tax professional for further details. Act now before the year closes. Help us balance our budget. This deduction may not be around for 2021.

During 2020 we switched printers of our publication, *The Rock Garden Quarterly*, edited by Joseph Tychonievich. The transition went smoothly, and we anticipate a savings in printing and mailing costs. Because of this projected savings, there are no plans to go to fully digital-only issues.

During 2020, the COVID-19 pandemic impacted several planned NARGS activities, including the cancellation of the annual meeting, "Foresight 2020," in Ithaca, New York, organized by the Adirondack Chapter and spearheaded by Carol Eichler (New York). We had to postpone the Travelling Speakers Program, which was being funded by an anonymous, generous donor, and headed by Rosemary Monahan (Massachusetts). In addition, we had to postpone the 2020 NARGS Tours and Adventures Program, headed by David White (North Carolina), because of the pandemic.

With the COVID-19 pandemic affecting so many activities worldwide, including plant societies, NARGS paved the way and became a vanguard in organizing virtual conferences. We were the first plant society to host

a virtual study day by Zoom in June with Taproot 2020, which highlighted rock gardening in the Rocky Mountains, eastern and western Canada, the U.S. Southeast, Missouri, the Great Lakes area, New York, Connecticut, and the Czech Republic. A month later in July we organized a NARGS annual meeting and awards day, also virtually, and in November we hosted a third event—a study day on trough rock gardening. And we have planned another study day on crevice rock gardening on February 6, 2021. Our thanks to all the participants and moderators, particularly Elisabeth Zander and Panayoti Kelaidis, who spearheaded the effort and helped make the virtual events so successful. We appreciate the strong, favorable comments from many of you.

Preparation for the 2020 - 2021 Seed Exchange has been going on for the past few months, led by Laura Serowicz (Michigan), Joyce Fingerut (Connecticut), and the many chapter members who volunteer to sort, pack, and mail the seeds that you order. We thank the Siskiyou Chapter that is handling the main seed distribution (deadline to order seeds in the main round is January 31) and the Great Lakes Chapter that will process surplus seed orders beginning March 1.

Looking ahead to 2021, the Rocky Mountain Chapter is organizing a NARGS Annual Meeting in Durango, Colorado, June 17 - 20. Details will be announced in our future issues of the *Quarterly*.

We welcome three new board members Ed Glover (Wisconsin), Susan Snare (New Hampshire), and John Willis (Maryland), and we thank departing board members Valerie Myrick (California), Marianne Kuchel (Vermont), and Steve Whitesell (New York) for their service to the society..

Your continuing individual membership helps support the seed exchange, annual meetings and study weekends, traveling speakers, and our publication, *The Rock Garden Quarterly*. However, your membership dues don't fully cover these activities that you value. As a result, we depend on your additional financial support to continue our member services. In the past twelve months, 347 of you have made contributions to NARGS to support our various activities. Plus, there were 229 members who joined or rejoined our society during this period. However, we continue to be impacted by a net declining membership.

Thus, we continue to need your financial support at year-end to start 2021 with a cash reserve. We hope you will again consider a donation to NARGS for our Annual Fund. In the U.S., a reminder that NARGS is a 501(c)(3) tax-exempt organization, and your donation may be tax deductible to the extent permitted by law.

You may make a donation on-line on the NARGS Web site at www.nargs.org and click on the "$Donate" button, about mid-way down on the left side. You may donate on-line using your credit card or your PayPal account. Or you may donate by check in U.S. funds (payable to NARGS) or by mailing credit card information to: NARGS, POB 18604, Raleigh, NC 27619-8604 USA.

Please join us in making a year-end gift to NARGS. Thank you for helping NARGS remain a champion of the North American rock gardening community.

Respectfully,

NARGS Officers and Board of Directors

## NARGS ROCKS
## CREVICES
## A Virtual International Study Day

Saturday, Feb 6th, 2021

Paul Spriggs, Kenton Seth, Jeremy Schmidt, Susan Sims, Rosyln Duffus, and Jay Akerley.

### Paul Spriggs

*How did we get here? A Brief History of the Brief History of crevice gardening*

Crevice gardening is not new, yet in modern rock gardening circles, it is the catchword of the day. In the past ten years, it seems that crevice gardens are popping up everywhere as more and more rock gardeners learn about their aesthetic and horticultural potential. Simply put: crevice gardens are the best way to grow rock garden plants. But why did it take rock gardeners this long to make it a movement? In this talk, Paul will look into the history of crevice gardening in the broad context of international rock gardening. He will follow the lineage that has brought us to where we are today through a close up look at key figures, their gardens, and the plants they grow.

**Kenton Seth**

*Crevice Garden Construction for the Masses, and Recent News.*

Kenton will be giving a plain-speak talk that is a prototype for crevice garden construction guidance aimed at the general public, and he asks you for help: feedback from his peers on palatability and clarity of the message so we can share this garden style with everyone. The latter half will be news of most recent innovations, gardens, front lines, and people in the crevice garden realm.

**Jeremy Schmidt**

*From Big Rocks to Little Rocks*

The chronicle of stone is simple but enduring…it is a natural progression from big rocks to little rocks, brought to life by flora. Brevity and perpetuity cultivated together; Jeremy gathers stones in the garden to voice this story. Jeremy will share his tactics for creating dynamic crevice and boulder installations.

**Susan Sims**

*Between A Rock and A Hardscape, or When Schist Hits The Fan*

Crevice gardening presents a whole new world of plants to the dry land gardener and, a whole new array of challenges. If you are dealing with trying to fit a new and ambitious crevice garden into an existing, mature home garden surrounded by kids and trees on all sides, solutions aren't easy, or obvious. And, it turns out, you can carefully study, view, draw, and help build crevice gardens, but it doesn't make you an expert. Some things have to be learned. This talk details the ongoing construction of a limestone crevice garden, as well as other local examples along the Wasatch Front, Utah, in order to bring a bit of steppic, desert, and alpine plant treasures into our gardens.

**Roslyn Duffus**

*From the mighty to the modes*t

The new limestone crevice garden at Dalhousie Agricultural Campus, Nova Scotia, Canada, to a small crevice using recycled concrete.

**Jay Akerley**

*Crevice Gardens for small spaces*

Let's talk about crevice gardens for small spaces. Yes, postage-stamp sized spaces! Jay will share inspiration and ideas from familiar friends and his natural surroundings in British Columbia and beyond. He will also also discuss his experience building budget-conscious crevice gardens accommodating tight geographic constraints and maximizing microclimate opportunities.

# New and Rejoining Members

*Welcome to all those who joined or rejoined between August 1 and November 17, 2020.*

Amershek, Mark, Denver, CO
Ames, Lon, Barre, VT
Anticoli, Carol, West Tisbury, MA
Appling, Talinna, Duvall, WA
Baker, Lesley, Crediton, Dev., UK
Baldwin, Margaret, Baltimore, MD
Balistrieri, Carlo, Lake City, SC
Bavaro, Terry, Manhattan Bch, CA
Bayton, Ross, Bremerton, WA
Beck, Kathy, Prescott, WI
Bergelin, Lynn, Bainbridge Is., WA
Bennett, Edward, Pittsburgh, PA
Benson, Bettina, Bridgehampton, NY
Bernthal, Karen, Saint Paul, MN
Berry, Janice, Anchorage, AK
Beutler, Linda, Portland, OR
Bibkewich, Jude, Edmonton, AB
Blois, Nancy, Baltimore, MD
Bloyer, Michael, Saint Paul, MN
Burzese, Joanne, Butler, PA
Channing, Sherley, Harpers Ferry, WV
Chappell, Linda, Raleigh, NC
Conklin, Barbara, Towaco, NJ
Dallefeld, Kyle, Ankeny, IA
Devereux, Olivia, Silver Spring, MD
Douglas, Dan, Snohomish, WA
Drzyzgula, Cathy, Redmond, OR
Eterno, Becky, Longmont, CO
Fraser, Sharom, Sarnia, ON
Fredericks, Pinky, New Brighton, PA
Gavenda, Lorrie, New Egypt, NJ
Garr, Marietta, Hanover Twp., PA
Giegold, William, Nykoping, Sweden
Goldsworthy, Jim, Desert Hot Spgs, CA
Gregory, Elaine, Kirkwood, NY
Havassy, Nancy, Oakland, CA
Heller, Jeffrey, Needham, MA
Horn, Sandy, Cary, NC
Howshar, Erik, Aurora, CO
Immel, Margaret, Castleton, VT
Johnson, Greg, Jamison Centre, ACT, Australia
Kornack, Thomas, Plainsboro, NJ
Letmanski, Jake, McHenry, IL
Lilly, Michael, Summerville, SC
Little, Janet, Erie, PA
Lockard, Judith, Pittsburgh, PA
Loomis, Amanda, Westminster, CO
Manczak, Donna & Rick, Denver, CO
Mank, Roberta, Alton, NH
Mason, Jeff, Pickering, ON
McChesney, Terry Kay, Oberlin, KS
Merewood, Anne, Chestnut Hill, MA
Moltubakk, Anne, Tustna, Norway
Morris-Smith, Leslie, Wyndmoor, PA
Nieuman, Wiert, Houten, Netherlands
Nikonova, Maria, Paphos, Cyprus
O'Connor, Janet, Vancouver, BC
Offeren, Peter van, De Punt, Netherlands
Peterson, Elaine, Montauk, NY
Phillips, Richard, Menlo Park, CA
Pryor, Jeanette, Littleton, CO
Rafferty, Jennifer, Ludlow, Shorp., UK
Romanes, Gwen, Prospect Bay, NS
Ross, Matthew, Kennett Sq., PA
Segoviano, Joshua, El Paso, TX
Shaw, Beverly, Fort Collins, CO
Shumacher, Erica, Virginia Beach, VA
Stewart, Carol, Surrey, BC
Stewart, Martha, Katonah, NY
Swann, Michelle, Neston, Ches., UK
Urtecho, Paula, El Sorbrante, CA
West, Cliff, Chestertown, MD
Wieczoreck, Paul, Hineburg, VT
Zale, Peter, Kennett Square, PA

# NARGS Donations

Donations to NARGS between August 1 and October 31, 2020.

To support the seed exchange, educational tours, *Rock Garden Quarterly*, the general fund, and in memory of Malcolm McGregor.

Urban Forestry Organization (New York)
Adelman, Elizabeth L. (Wisconsin)
Blade, Robert Logan (Washington)
Brown, Alison (Maine)
Bush, Allen (Kentucky)
Church, Clara A. (California)
Clark, Susan (Massachusetts)
Cromwell, Cynthia (North Carolina)
Darling, Eric H. (Massachusetts)
Dodge, Marianne (Maine)
du Toit, Helen (Massachusetts)
Dumont, Judith (New York)
Egerton, Graham (New York)
Eichler, Carol (New York)
Evanetz, Susanne (British Columbia)
Fluet, Amy (Wyoming)
Goldman, Doris A. (Pennsylvania)
Goldsworthy, James (Washington)
Grushow, Jane (Pennsylvania)
Hamel, Anita (Maryland)
Lease, Deborah L. (Ohio)
Lee, Nora (Ontario)
Leighton, Pete (New Jersey)
Levy, Sterling R. (Nova Scotia)
Maran, Mary M. (Pennsylvania)
Milano, Phyllis (Connecticut)
Moscetti, Paula J. (New Jersey)
Patten, Teresa (Colorado)
Poehnelt, Daniel (Wisconsin)
Schneider, Paul H. (New York)
Scott, Caroline (Alberta)
Sierra, Mary (Maryland)
Smith, Carole P. (Ohio)
Straub, Peter S. (California)
Swanberg, Joan (Virginia)
Vaxvick, Linda L. (Alberta)
Ward, Bobby (North Carolina)
Willis, John (Maryland)
Wysocki, Raymond (New Jersey)
Zander, Elisabeth B. (Connecticut)

## The following recently became NARGS Patrons:

Beelman, Clare (Montana)
Berlin, Marc (Maine)
Cromwell, Cynthia (North Carolina)
Fitzpatrick, John (Maryland)
Jaynes, Craig (Ohio)
Lockhart, Bruce (Massachusetts)
Maran, Mary M. (Pennsylvania)
McCassey, Mary Jo (Washington)
Tsutakawa, John (California)
van Berkum, Peter (New Hampshire)
West, Joan H. (New Mexico)
Willis, John (Maryland)


**We have learned of the death of the following NARGS members:**

David E. Joyner, Edwall, Washington
Kelley Leonard, Jacksonville, Oregon
Susan Reznicek, Ann Arbor, Michigan

## NARGS Service Award

**Barbara Cooper and Bella Seiden (Ontario Chapter)**

Barbara and Bella have been members of the Ontario Rock Garden & Hardy Plant Society since 2005. They started our chapter's Super Plant Sale in 2009 and were in charge in 2013. They were chapter vice-chairs in 2011 and left that position to take over the speakers programme in 2012.They book international speakers and share them with other Canadian and some U.S. plant societies. All the travel and lodging are arranged for the speakers, dividing the cost of travel so as to have it affordable for all societies involved. Speaker arrangements take some special people to organize, and that in our opinion, is why our members join our society and stay. Barbara and Bella find top quality speakers, and they never hesitate to take input from any with requests for speakers and topics. They have been active with our chapter's seed exchange every year with packaging and order pulling. Currently members of the NARGS speaker tour committee, Barbara and Bella are dedicated to making our meetings world class. Every society should have a Barbara and Bella! (Recommended by Arie Vanspronsen and Jeff Mason)

# *Help NARGS and new rock gardeners grow.*

**Give a gift membership to the North American Rock Garden Society and introduce someone to a world of passionate gardeners.**
**Give access to the seed exchange, *Rock Garden Quarterly*, tours and adventures, meetings and study weekends.**

**Recipient information:**

First Name: _____
Last Name: _____
Email: _____
Phone: _____
Address: _____
_____

| Membership (Circle one): | US/Canada | International |
|---|---|---|
| Household | $70 | $75 |
| Individual | $40 | $45 |
| Student | $15 | $15 |

Mail with check payable to the North American Rock Garden Society to P.O. Box 18604, Raleigh, NC 27619-8604

**Or visit nargs.org/join**

# Seed Exchange

Despite droughts, despite record extremes of weather, and despite the COVID-19 pandemic (or, perhaps, because of it), the members of NARGS have still managed to contribute donations to our Seed Exchange. We extend our thanks to all the wonderful Donors. They make the Seedex – and, so, all of NARGS – the vibrant and exciting and useful resource that it is.

Those donated seeds pass to the capable hands of Laura Serowicz, our Seed Intake Manager who tops up the latest taxonomy and creates the database that creates the Seed List. She oversees every phase of the complex exchange, from seed receipt to order placement and fulfillment.

Additional help has always been forthcoming from a reliable group of chapters and individuals who divide and re-package the donated seeds, so that the bounty can be shared with as many members as possible.

While the fulfillment of orders always begins in early January, there is still time for members to place an order, even in the Main Distribution (which closes on January 31) – and certainly during the Surplus Round (March 1 – 21).

We are ever so grateful to the two chapters who are filling the orders this year: Siskiyou (Main Distribution) and Great Lakes (Surplus). They both agreed to handle these responsibilities before the pandemic made every part of life so much more difficult, but they have worked out routines to accomplish all the tasks, while also keeping all the volunteers safe. Due to the need for gatherings of fewer workers, properly distanced, the fulfillment of the seed orders may take a little longer, so please be patient.

Members in countries of the European Union, the United Kingdom, and Japan may place their orders in the Main Distribution only; no orders in the Surplus round. But you have our assurance that NARGS will obtain the necessary phytosanitary certificates required by your governments for all incoming seeds. The seed inspections for the phytos will take place in February, after the close of the Main Distribution. With these orders also having to pass through your country's customs, the seeds will probably not reach you before the end of February or early March.

Members who are planning to order seeds electronically, must have their current email address on file with our Executive Secretary Bobby Ward (nargs@nc.rr.com), so that the system will recognize them as valid members. Please contact Bobby if you are a new member or have recently changed your email.

If you need a print copy of the Seed List and order form, contact me immediately:

Joyce Fingerut
537 Taugwonk Road
Stonington, CT 06378
U.S.A.
alpinegarden@comcast.net

I wish you all continued good health, and hope that the germinating seeds offer you a glimpse of new life for your gardens and a brighter future.

Joyce Fingerut, Director
NARGS Seed Exchange

## Book of the Month

Do you like to read about rock gardening and horticultural subjects? Please share your useful insights with other members and get a free review copy of the book for your efforts. Reviewers are always sought for the NARGS website Book-of-the-Month feature. In return for submitting a 300-400-word review of the book of your choice, the book will be sent to you free of charge. Select your own title for review or suggestions can be provided. Please contact Steve Whitesell at elysium214@aol.com for more information.

## Upcoming NARGS Meetings

Durango, Colorado, June 17 - 20, 2021

Ithaca, New York, 2022

Nova Scotia, Canada, 2023

## NARGS 2021 Nominations for Online Election

## May 3 through May 16, 2021

*Recommended by the NARGS Nominating Committee, consisting of Ed Glover, chair; Mike Bone, Judith Brown, Brendan Kenney, Sarah Strickler, and Bobby Ward*

**Panayoti Kelaidis** nominated for president (Colorado): "My love of rock gardening goes back to my childhood in the 1950s, growing up in Boulder under the shadow of the Rockies, inspired by Paul Maslin's masterpiece rock garden a few blocks away, and helping my brother-in-law build my first garden at my parent's house when I was barely 10 years old. Fast forward more than a half century--I have not only helped create the Rock Alpine Garden at Denver Botanic Gardens, but have spoken at most NARGS chapters repeatedly, and visited dozens of rock gardens around the globe expanding my understanding of the art. My vision for NARGS is for us to pave the way for the Millennial generation to come aboard as members and eventually take the helm and move our society onto a much wider scope and really pave the way for rock gardens and rock plants in every home and garden." [Panayoti is currently serving as vice president and chair of the Awards Committee.]

**Todd Boland** nominated for vice president (Newfoundland): Todd lives in St. John's, Newfoundland, where he works as the chief horticulturist at the Memorial University of Newfoundland Botanical Garden. He is the chairperson of the Newfoundland chapter of NARGS. Since 2009, he has been the author of the NARGS website "Plant of the Month" feature and is the administrator of the on-line image gallery. He is a regular contributor to *The Rock Garden Quarterly* and has spoken to gardening groups across North America as well as in the U.K. and New Zealand. He has published six botanical guides to the flora of Atlantic Canada and most recently published his first gardening book *Perennials for Atlantic Canada*. His companion guide, *Shrubs and Vines for Atlantic Canada* will be released spring 2021.

**Sarah Strickler** nominated for recording secretary (Virginia): "A NARGS and Potomac Valley Chapter member since 2009, I have served as program chair and newsletter editor for our chapter. I spent more than 30 years in book publishing, my last position as marketing manager for a niche publisher. Once bitten by the horticulture bug, I was also employed as a gardener at the U.S. National Arboretum for six years, where I rotated throughout the collections. I currently maintain a handful of gardens in the metro Washington, D.C., area. Keeping rock plants alive in my Arlington, Virginia, garden can be challenging due to increasingly hot, wet, and humid summers, but I try anyway. Trips with NARGS to the Italian Dolomites and Scotland were a big inspiration. I welcome the chance to help NARGS move forward."

**Richard Lane** nominated for treasurer (North Carolina): Richard H. Lane is owner of Lane Financial Services in Raleigh, North Carolina, where he specializes in internal audit and individual income tax consulting. Previously, he was the General Auditor for First Citizens Bank, an Audit Director for the Bank of America (Formerly NCNB), and General Auditor for the Bank of North Carolina. He has been a part of audit management at the manager, director, and chief audit executive level for 25 years. He is a Certified Internal Auditor, a Certified Financial Services Auditor, a Certified Public Accountant, a Chartered Bank Auditor, and a Certified Information Systems Auditor. [Richard is currently filling the unexpired term of the previous treasurer.]

**Tony Avent** nominated to board of directors (North Carolina): Tony is founder of Plant Delights Nursery and Juniper Level Botanic Garden in Raleigh, North Carolina. He is a plantsman, plant breeder, plant researcher, and plant explorer. Tony has been a missionary and dynamic force in introducing horticulture to a national market for a public ever demanding new plants and diversity in the landscape. He has been profiled and quoted in scores of magazines and

newspapers as he is widely accepted as a horticultural visionary. Tony is the author of *So You Want to Start a Nursery*, a textbook used in plant nursery courses. He is currently an adjunct faculty member at North Carolina State University.

**Mariel Tribby** nominated to board of directors (Missouri): "I live in St. Louis and have just completed seven years as a Senior Horticulturist at the Missouri Botanical Garden. I manage three rock gardens and a perennial border, which serve as my primary gardening outlet. I joined NARGS in 2012 while a student at Longwood Gardens, then joined the Gateway chapter in 2014. I was the chapter chair for two years, and continue to serve as the chapter liaison to NARGS. Being a NARGS member is very important to me as a connection to the wider rock gardening community and its knowledge base. The meetings, study weekends, and tours I've attended have been great opportunities to meet others and discover new plants and design ideas. I would like to continue serving on the board to help build our online presence, share the benefits of our society and engage with potential and existing members." [Mariel is currently a member of the board of directors and head of the social media committee. She is eligible to be re-elected to a second three-year term.]

**Peter Zale** nominated to board of directors (Pennsylvania): Peter earned his doctoral degree from The Ohio State University in 2014. As Associate Director, Conservation, Plant Breeding and Collections, at Longwood Gardens he is responsible for curatorial activities, the plant breeding program, the plant exploration program, and the orchid conservation program. Peter has published over twenty articles in trade, specialist, and peer-reviewed journals, and he designed and participated in over twenty plant exploration expeditions throughout the United States, Japan, Vietnam, Myanmar (Burma), the Republic of Georgia, Azerbaijan, and China. He is an avid home gardener and plant collector with an interest in a wide variety of rare geophytes, hardy herbaceous and woody plants. Peter has recently been developing a crevice garden to house a variety of alpines and rock garden plants.

## NARGS 2021 From-the-Floor Nominations

Election of President, Vice President, Recording Secretary, Treasurer, and three Board Members

**The dealine for submittals is January 31, 2021**

The names of those proposed by the Nominating Committee can be viewed on the NARGS website < www.nargs.org> and in this issue of the *Quarterly*. There is now opportunity for members to nominate FROM THE FLOOR no later than January 31, 2021. The combined list of candidates will be published on the NARGS website by April 1 and in the spring 2021 *Quarterly* (dispatched no later than the end of March 2021).

Online election will be held May 3 through May 16, 2021. All active members will be mailed a link shortly before the election opens. Your email address will admit you. If you are a member and have never verified your email address, please do so as soon as possible. You may contact Bobby Ward (nargs@nc.rr.com) for help. The www.nargs.org website will have a notice when voting begins, as well as a copy of the voting-site link on the News page.

A from-the-floor nomination for any post may be emailed to Ed Glover, Nominating Committee Chair no later than January 31, 2021: glover@oncology.wisc.edu

The Nomination must include:

1. Name, chapter (if applicable), email address, and position for which each person is nominated. (The nominee must be a member of NARGS).
2. Bio of the nominee (100 words or less, written by nominee)
3. Picture of nominee (shoulder length)
4. Note of acceptance from (new) nominee indicating a willingness to be NARGS director (three-year term) or officer (two-year term), if elected.

All nominations and required nominee information must be received by January 31, 2021.

## NARGS Traveling Speakers Program on Hold

Unfortunately, due to COVID-19 virus, the Traveling Speakers program is temporarily on hold. As soon as we have updates, we will post them on the NARGS Web site under "Latest News." Also, you may want to contact your local NARGS chapter leaders for new information when scheduling returns.

---Rosemary Monahan, head Speakers Program

## NARGS Tours and Adventures On Hold

Planning for NARGS Tours during 2021 continues to be disrupted by the health and travel uncertainties associated with the global COVID-19 virus.

If you have questions, contact nargstours@gmail.com

--David White, chair Tours and Adventures

## Norman Singer Endowment Applications

## Due March 1, 2021

NARGS expects to award grants in 2021 to one or more projects that advance the art and science of rock gardening. Guidelines for submittal of applications and selection of projects, as well as the application form, are posted on line. The deadline for submittal of applications is March 1, 2021. Grant recipients will be announced in June at the NARGS annual meeting in Durango, Colorado.

# NARGS Awards Nominations
## Due March 1, 2021

Nominations are due to Panayoti Kelaidis, chair of the Awards Committee, by March 1, 2021. Please send electronic nominations only, please. Email to: Panayoti at telesonix@outlook.com; and to the two other members of the Awards Committee: Mark McDonough: antennaria@aol.com and Don LaFond: plantjunkies@gmail.com

**Award of Merit:** Established in 1965, this award is given to persons who have made outstanding contributions to rock and alpine gardening and to the North American Rock Garden Society. In addition, the recipients will be people of demonstrated plantsmanship. The recipient must be an active member of the Society.

**Marcel Le Piniec Award:** Established in 1969, this award is given to a nursery person, propagator, hybridizer, or plant explorer who is currently actively engaged in extending and enriching the plant material available to rock gardeners. This may be a joint award if two people have worked closely together. The recipient need not be a member of NARGS.

**Edgar T. Wherry Award:** Established in 1973, this award is given from time to time to a person who has made an outstanding contribution in the dissemination of botanical and/or horticultural information about native North American plants. The works must be scientifically sound, but may be written for popular readership and do not have to be specifically about rock garden plants. Generally, the award recognizes a body of work or a lifetime of literary effort rather than a single work (see the Carleton R. Worth Award). The recipient does not have to be a member of the Society.

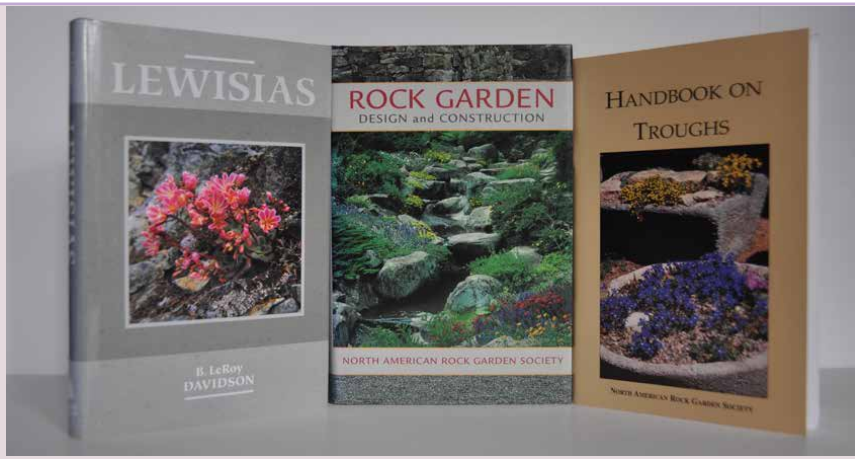
**Carleton R. Worth Award:** Established in 1985, this award is given to an author of distinguished writings about rock gardening and rock garden plants in a book or in magazine articles. The Award may also be based on an Editor's body of work for a Chapter Newsletter. The recipient does not have to be a member of the Society.

**Marvin E. Black Award:** Established in 1990, this award is given to a member of the Society who excels at promoting membership in NARGS; organizing study weekends, national, and international meetings. They should also be involved in such activities as planning trips to study plants and to meet other plant people. The emphasis shall be placed on a member who has helped other people to reach their potential in the plant world. The recipient must be a member of the Society.

# NARGS Awards Nominations
## Due March 1, 2021

**Linc & Timmy Foster Millstream Garden Award:** Established in 2006, this award is for an outstanding contribution to the North American Rock Garden Society for creating a superior garden. This is not meant to be a competition, but to recognize members' great gardens across the various styles and regions of the United States and Canada. Since there is such a wide range of possibilities in style and climate regions, it has been decided there needs to be four categories of gardens. They are: the Container Garden, the Alpine Rock Garden, the Woodland Garden and the Special Garden. Any of these gardens must be a private garden to eliminate unfair institutional advantages. This award is meant to reward the creation of gardens, which meet a wide standard set by the North American Rock Garden Society, and reflects well on that society. The Millstream award should be submitted with a short one-page essay (300-500 words--that can be published in the Rock Garden Quarterly) with 3-7 images (preferably sent at 1 MB, but with higher resolution backup available if the garden is to be featured in the Quarterly). The recipient must be a member of the Society.

**Frank Cabot Public Garden Award:** Established in 2018 this award is given to a public garden that excels in furthering the purpose of the North American Rock Garden Society in promoting the construction and design of rock gardens; the cultivation, conservation, and knowledge of rock garden plants and their geographical distribution; and the public outreach through plant exploration and introduction of new garden-worthy species. The award is limited to great public gardens in the United States and Canada that meet high standards in the creation of public rock gardens. Since there is such a wide range of possibilities in climate and geographic regions, there are four categories of public gardens that may be considered for the award. They are: the Container Garden, the Alpine Rock Garden, the Woodland Garden, and the Special Garden. The Frank Cabot Public Garden Award should be submitted with a short one-page essay (300-500 words--that can be published in the Rock Garden Quarterly) with 3-7 images (preferably sent at 1 MB, but with higher resolution backup available if the garden is to be featured in the Quarterly).




## NARGS Book Store:

***Lewisia*** $10
***Rock Garden Design and Construction*** $20
***Handbook on Troughs*** $7
Prices include shipping.
Contact Dave Collura (nargsbooks@gmail.com) to order.



## NARGS Chapters (meeting place/area) and Chairpersons or Co-Chairs

| | |
|---|---|
| Adirondack (Ithaca, NY) | John Gilrein <basecamp@alum.syracuse.edu> |
| Alaska (Anchorage & Mat-Su Valley) | Florene Carney <snowfire@mtaonline.net> |
| Allegheny (Pittsburgh, PA) | Sandra Ciccone <slmciccone@comcast.net> |
| Berkshire (Stockbridge, MA) | Joyce Hemingson <jhem1022@gmail.com> |
| Calgary Rock & Alpine Garden Society (Calgary, AB) | Patti O'Keefe <president@crags.ca> |
| Columbia-Willamette (Portland, OR) | Terry Laskiewicz <fritillaria_3@hotmail.com> |
| Delaware Valley (Philadelphia, PA) | Janet Novak <janet@indri.org> |
| Fells (Newbury, NH) | Thelma Hewitt <thelmakh@gmail.com> |
| Gateway (St. Louis, MO) | Mariel Tribby <mtribby@gmail.com> |
| Great Lakes (Southern MI) | Holly Pilon <plantscape_design@yahoo.com> |
| Hudson Valley (Westchester Co, NY) | Don Dembowski <dondembowski@optonline.net> |
| Long Island (Oyster Bay, NY) | Donald Ohl <donohl@yahoo.com> |
| Manhattan (New York, NY) | Brendan Kenney <ny10014@aol.com> |
| Mason-Dixon (Norrisville, MD) | Marika Sniscak <marika123@verizon.net> |
| Minnesota (Minneapolis/St. Paul, MN) | Rick Rodich <rrodich@juno.com> |
| New England (Waltham/Boylston, MA) | Estelle James <runtyandstel@netscape.net> |
| Newfoundland (St. John's, NL) | Todd Boland <todd.boland@warp.nfld.net> |
| New Mexico (Santa Fe/Albuquerque, NM) | Robin Magowan <magowanrobin@gmail.com> |
| Northwestern (Seattle, WA) | Kendall McLean <kendallforest8@outlook.com> |
| Nova Scotia (Halifax & Truro, NS) | Roslyn Duffus <roz.lakeside@gmail.com> |
| Ohio Valley (OH & surrounding states) | Joan Day <jdayham@earthlink.net> |
| Ontario (Don Mills, ON) | Jeff Mason <jeff@masonhousegardens.com> |
| Ottawa Valley (Ottawa, ON) | Rob Stuart and Jane Lund <president@ovrghs.ca> |
| Piedmont (Raleigh, NC) | Cyndy Cromwell <cacromwell2000@yahoo.com> |
| Potomac Valley (Alexandria, VA) | Barbara Rose <roserose@verizon.net> |
| Québec (Montreal, QC) | Réné Giguère <apulsatilla@netscape.net> |
| Rocky Mountain (Denver, CO) | Kathleen Stewart <kcstewart1568@yahoo.com> |
| Sierra (Sonora, CA) | Nancy Piekarczyk <NanPiekarczyk@gmail.com> |
| Siskiyou (Medford, OR) | Jean Buck <buckjean11@yahoo.com> |
| Wasatch (Salt Lake City, UT) | Tony Stireman <tstireman@gmail.com> |
| Watnong (Far Hills, NJ) | Roxanne Hiltz <hiltz@njit.edu> |
| Western (San Francisco Bay area, CA) | John Tsutakawa <jtsutakawa@sbcglobal.net> |
| Wisconsin-Illinois (Madison-Chicago) | Damon Smith <damonsmith@hotmail.com> |

## NARGS Structure

The officers of the North American Rock Garden Society consist of a president, a vice-president, a recording secretary, and a treasurer. The officers are elected by the membership.

The Board of Directors of NARGS consists of the four above-named officers, the immediate past president of NARGS, and nine elected directors.

The affairs of NARGS are administered by an Administrative Committee (called AdCom) consisting of the president, vice-president, recording secretary, treasurer, and one director-at-large, selected annually by the NARGS officers from among the nine elected directors.

## Officers

| | |
|---|---|
| President | Elisabeth Zander nargspres@gmail.com<br>127 North St., Goshen, CT 06756-1202 |
| Vice President | Vice President: Panayoti Kelaidis telesonix@outlook.com<br>1244 S Quince St., Denver, CO 80231-2513 |
| Recording Secretary | Joyce Hemingson <jhem1022@gmail.com><br>44 Rock Hall Rd., Colebrook CT 06021-7072 |
| Treasurer | Richard Lane <rhlane01@gmail.com<br>4904 Hermitage Dr., Raleigh, NC 27612-2762 |
| Director-at-Large | Brendan Kenney, nycbeard@gmail.com<br>5 1/2 Jane St, Apt. 4R, New York, New York 10014-6017 |

| | |
|---|---|
| Immediate Past President | Betty Anne Spar <bettyannespar@gmail.com><br>5051 N Grey Mountain Trl, Tucson, AZ 85750-5942 |

## Directors of the Board

| | |
|---|---|
| 2018-2021 | Mariel Tribby, Saint Louis, MO<br>Michael Guidi, Denver, CO<br>Judy Zatsick, Fairfax Station, VA |
| 2019-2022 | Cyndy Cromwell, Cary, NC<br>Brendan Kenney, New York, NY<br>Jerry Rifkin, Merion, PA |
| 2020–2023 | Ed Glover, Mount Horeb, WI<br>Susan E. Schnare, Andover, NH<br>John Willis, Frederick, MD |

## Managers

| | |
|---|---|
| Executive Secretary | Bobby J. Ward (919) 847-6374<br>P.O. Box 18604, Raleigh, NC 27619-8604<br><nargs@nc.rr.com> |

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