NORTH AMERICAN ROCK GARDEN SOCIETY

The Rock Garden

QUARTERLY

SPRING 2020

CONTRIBUTORS

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

Betty Ann Addison For nearly 50 years, Betty Ann has passionately pursued growing, propagating, and photographing rock garden plants. Internationally known, she has lectured widely and designed and built several public rock gardens. Her Gardens of Rice Creek nursery in Minneapolis, Minnesota, has supplied alpine, conifer, and rhododendron enthusiasts with rare plants, many found nowhere else. The Minnesota Chapter of NARGS, going strong for 45 years, was founded with her inspiration.

Todd Boland lives in St. John's, Newfoundland, Canada, where he works as the research horticulturist at the Memorial University of Newfoundland Botanical Garden. He is the chairperson of the Newfoundland chapter of NARGS. He also maintains the "Plant of the Month" feature and the image galleries on the NARGS website. Photography is his other passion and has led to his publishing six books on the wildflowers, trees and shrubs of the Atlantic Canadian provinces.

Kaj Andersen and his wife wife Minna live in northern Denmark, near Frederikshavn, not far from Bangsbo Botanical Garden. Both work as volunteers in the Crevice Garden at Bangsbo. They have been interested in alpine plants for over 30 years, and travel every year to the European mountains. They have given talks for over 25 years in almost all countries in Europe. They operate a small alpine nursery growing plants only from wild-collected seed from all over the world.

Harry Jans, from the Netherlands, studied Garden Design & Maintenance, but has been employed since 1982 by the Ministry of Transport, Public Works and Water Management. He is a passionate plant explorer and is a founding member of the Dutch Rock Garden Society. He is a regular lecturer at conferences and study weekends in Holland, Germany, England, Denmark, Scotland, New Zealand, USA and Canada. He has written several articles on various alpine plant subjects. His website www.jansalpines.com contains over 26,000 pictures taken during his travels around the globe.

Gary Whittenbaugh is an Iowa native well known in the Midwest for his many presentations on gardening subjects, particularly the use of conifers and companion plants in the garden. Gary has been gardening for over 40 years with emphasis on dwarf, slow growing and unusual conifers, plus trough and rock gardening. Gary served as president of the American Conifer Society Central Region 2001-2005, and, in 2005, he was the recipient of the prestigious Marvin and Emelie Snyder Merit Award for Support of the American Conifer Society.

Dave Pounds left his native Yorkshire, England, in 1970 to make his fortune in the New World (Canada). In 2017, in a cathartic moment, he discovered rock gardening and joined rock gardening societies. Unrelenting addiction set in, construction ensued (just call him Sisyphus), and his reading material now centers around Reginald Farrer. When not gardening, he enjoys traveling, singing and listening to Wagner.

Front cover: *Primula auriculata*. Todd Boland.

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EDITOR
Joseph Tychonievich
115 Nina Circle
Williamsburg, VA 23188
USA
<gsparrowgardens@gmail.com>

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spring 2020

From the Editor

SPRING HAS ARRIVED for me in Virginia after an almost surreally mild winter. I am happy to say that I overwintered several species of aloes in my Zone 7 garden, thanks in part to some old windowpanes I set up on cinder blocks to keep the rain off. That worked great until February when a windstorm blew them off and filled the garden with shattered glass.

After my shattered-glass incident, my first thought was to get clear plastic for next winter's rain cover. Then I read Betty Ann Addison's article on the greenhouse she built attached to her house. Maybe that is what I really need. It is inspiring to read how she built, manages, and uses the greenhouse. If you've been on the fence about a greenhouse, her article will surely win you over.

Dave Pounds, who is just a few years into his love of rock gardening, has written an article about his experiences creating his first rock gardens, which is full of great lessons for other new (and not so new) rock gardeners that he has learned by his own mistakes. I wish I'd learned from someone else's mistakes before I put unsecured sheets of glass in my garden.

Gary Whittenbaugh brings a different perspective to his article, bringing decades of experience to recommend the best woody plants for the rock garden, and reminding us that even a quite slow-growing tree or shrub can get too large for a small rock garden after 20 years in the ground.

Finally, we have three articles which allow us to do a little armchair traveling: Todd Boland takes us along on his travels through the Caucasus (his incredible photography of this trip is featured on the front and back covers), while Harry Jans takes us to the high mountains of Peru and Ecuador, and Kaj Andersen to Denmark where he shows us how they build the largest crevice garden in Europe.

Before I sign off, I want to let you know that I am working on preparing a special issue of the *Quarterly* for the fall focused on people gardening in troughs on apartment balconies, using borrowed spaces, or otherwise growing amazing plants without having a big yard with lots of space. The goal is to reach out to people who want to have a rock garden but think they don't have the right space. If you or someone you know has a great, creative small or non-traditional garden space, please send me an email (gsparrowgardens@gmail.com).

Happy spring!

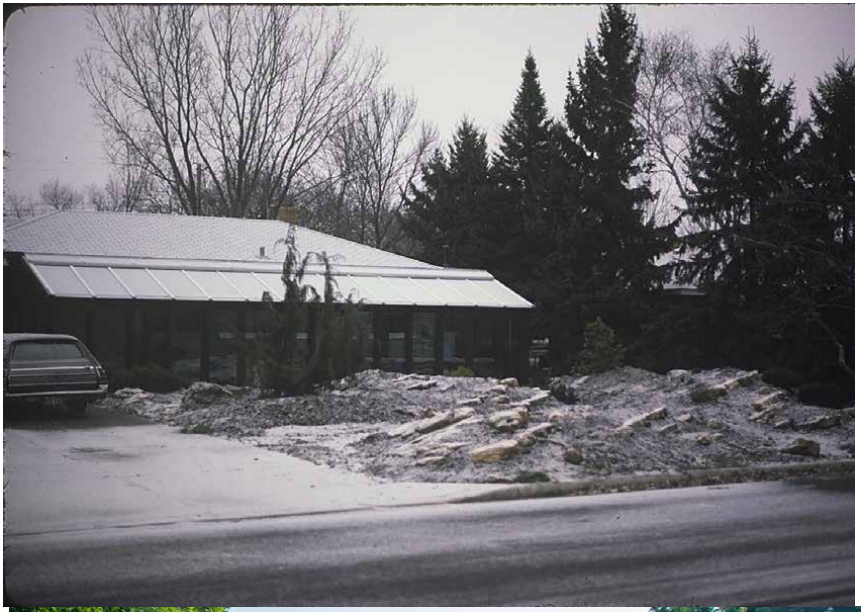
How a Dream Came True: The Story of My Greenhouse

Betty Ann Addison

FOR HALF OF my long lifetime, I have enjoyed the greenhouse attached to my home. Through long Minnesota winters it has kept me absorbed in encouraging new life, enjoying colorful flowers, and envisioning springs to come. As a child, I was enchanted by the magic of tropical wonders living year-round in the few greenhouses in our town on Long Island, New York. My mother's house plants on every window of the house seemed just the shadow of a paradise that you could walk into.

My first greenhouse in Minnesota was a commercial one, only ten feet by ten feet (3 m by 3 m), gifted to me by a couple who were building a larger one. That should have told me something! Stuck on the east end of the house, it was soon outgrown, but it had served its purpose of whetting my appetite. Later, a fortuitous visit to England showed me one could – indeed should – go whole-hog with one's dreams. My daughter and I stayed overnight with the owner of a small alpine nursery and his wife. They had a lean-to greenhouse attached to the south side of their home that extended all the way up to the roof of the second story. All that moonlit night I kept looking out at it and dreaming about reproducing it back home. After all, my home faced south also. They assured me it was nothing but good for them, and in their mild climate, did not need much in the way of extra heat.

Once home, another fortunate encounter alerted me to discontinued, triple-pane patio door glass. The insulating value of three layers of glass was immediately obvious. The man selling them had a barnful in several different sizes. In fact, he had built a greenhouse attached to his own home, so he could confidently recommend construction details. With much design help and cautionary tales from countless others, I was able to create a drawing of a "sun porch" to submit to the City. Because the south side of my house faces the street, in order to get a building permit, it had to present itself as an architectural feature of the house.



Top: The greenhouse and rock gardens as first built, 35 years ago.
Bottom: The greenhouse now, with fully developed rock gardens.

Moveable stairs cover a trapdoor to the well pit.

General Construction:

The main part of my house is 40 feet (12 m) long and is a classic one-story rambler. Because the distance from the ground to the roofline is only 12 feet (3.6 m) there was not enough room for a good pitch for rain and snow removal, unless the structure was unacceptably narrow. A solid six-foot (1.8 m) extension to the existing roof, slightly pitched and built to withstand a heavy snow load, solved that problem without cutting down significantly on available light. The finished size of the greenhouse is 12 feet by 40 feet (3.7 m by 12 m). The transparent part of the roof is now polycarbonate. It is very strong, never damaged by hail or snow load and is lighter than the glass panels that were first installed. The glass slid down after a few years, leaving a gap that leaked. The pitch is six inches per foot, so anything more than a few inches of snow has to be removed with a roof rake to let in light as well as cut down on weight. Light snow can be melted off by turning up the heat up to 70°F (21°C) for a few hours.

The panes of the patio door glass are approximately six feet tall by 30 inches wide (1.8 m by 76 cm). There are 14 of them. Uprights to support the glass are made of 4x6 treated timbers. They are rabbeted on each side on the inside of the structure. After the glass panels were set in place, they were secured with 2x4s screwed to the uprights. No glue was used, so in case of breakage the panels can be replaced easily. Silicone seals the bottom of the glass on the outside where it meets the wooden sill plate and keeps rainwater from entering between the layers and creating fogged glass.

The ends of the greenhouse hold six foot (1.8 m) wide sliding patio doors, with sliding screens as an option, to discourage stray birds, cats and butterflies from entering when the doors are open. The balance of the ends is wood construction.

Because it is a permanent addition to the house, the foundation had to be below frost line, which is four feet (1.2 m) deep in this climate. In for a penny, in for a pound. One end of the foundation was dug extra deep and a well pit housing an irrigation pump and tank was constructed, making them safe from freezing. To enter, there are slide-away stairs, a trap door and narrow steps to access this secret room, only entered twice a year to turn the irrigation on and off. People have accused me of hiding bodies there, but not true!

Heating:

The floor is hard quarry tile, laid on concrete over a two-inch-deep (5 cm) bed of gravel that holds solar heat. It is 10°F (-12°C) and sunny outdoors as I write, but the furnace has not gone on for most of the day. Even on cloudy days, the greenhouse collects some solar heat and with minimum gas heat, stays about 53°F (11.7°C). On sunny days, it even heats the house with solar-heated air circulating through the open door at one end and a bedroom window at the other. When the hanging gas furnace is not blowing warm air, a standing fan creates horizontal airflow that stimulates plant growth as well as aiding heat distribution.

The greenhouse in midwinter, with a fan to distribute heat and heavy drapes at the ends for added insulation.

But, on our cold nights (as low as -25°F/-32°C) and snowy days, heavy drapes at the ends of the structure are pulled, and the heater keeps the room in the 53 to 57°F (11.6 to 14°C) range. This is ideal for alpine cuttings, adequate for most tropicals, and even some orchids grow and flower at these temperatures.

Cooling:

Never let it be said that something good is completely without care! What works in winter has the opposite effect in summer. Cooling is as important as heating. We aim to start bringing mature plants out of the greenhouse to the nursery by late April and empty it entirely by June first. In summer, the sun in northern climes beats down directly overhead. As early as February and as late as November, doors must be cracked or fully open to keep the temperature below 80°F (26.7°C). Many times it will rise to 90°F (32°C) before I notice. A large exhaust fan at one end and a power vent at the other, though noisy, save the plants from cooking if I must be away. In a heat emergency, liberally spraying water from a hose over everything – floor, plants, tables, and walls – lowers the temperature, raises the humidity, and saves the plants.

Most of the time, opening the doors of the greenhouse and turning on the standing fan is enough for the comfort of people and the horticultural occupants. But in summer, even with the doors open, temperatures in excess of 100°F (37.8°C) are ordinary, so the structure is unused except in the evening or as a porch when it rains. The door and window to the house are kept tightly shut.

If you are considering a greenhouse of your own facing south, shade cloth commonly available in 50% shade can be suspended over the roof or laid directly on it, to reduce the sun's heat inside. Of course, greenhouses are built every day facing east, west and even north. The main advantage of a southern aspect is less cost for heating in winter. Other aspects need more heat in winter and even supplemental light but are less prone to overheating in summer.

Other Considerations:

Plants need abundant water. A watering can just doesn't supply enough. I found that a collapsible hose which extends the whole length of the greenhouse and shrivels up to basketball-size helps to avoid anyone tripping and falling. There already was a faucet on the wall of the existing house connected to the well, whereas the rest of the house is on city water. Plants do not thrive with water treated with chlorine and other chemicals, I have found. I improvised a sink with a plastic tub on a stool for soaking dry plants, washing containers and filling watering cans for fertilizing. Excess water is splashed on the bay tree or thrown outside when it is not too cold.

Plants get watered with a hose three times. The first watering soaks the top of the pot, the second the middle and the third time water

should run out the bottom to be thoroughly watered. If you are in doubt if the flat or pot is watered enough, lift it. It should be heavy. This technique uses lots of water to flush out salts, which land on the floor, eventually making a white deposit. The contractor wisely built a slight slope into the floor, guiding water to a slot in the foundation to a French drain (gravel-filled pit) just outside. Once all plants are out in early summer, the floor is acid washed and squeegeed out, rinsed and dried, all set for a garden party or the coming fall.

Electric lights are necessary for the navigation of humans, but not so much for plants, I have found. When I want to water some evening, transplant rooted cuttings, or find some esoteric tool, a flashlight just won't do. To get the most growth of seedlings, LED lights in the basement give the best results for the least amount of expenditure.

Tables rescued from a thrift store were my first plant benches, but I've found folding plastic tables to be easier to put up and take down as the need arises. I cover all of them with a double layer of heavy plastic to protect surfaces from oozing water that somehow always gets through a single layer, staining or warping the tables. Lately, we have set the flats on wooden 1x2 lumber for drainage. This gives much better growth than when the flats sat in direct contact with the tables.

Work area with bench, bins, soil cloth, and furnace.

Potting benches and supplies are out of sight, located behind a screen at the far (east end) of the greenhouse. Bins of various mediums and boxes of pots are under tables there. Soil mixing is done on a cloth on the potting table. The work area is adjacent to the back door that leads to the gardens and nursery.

The west end, right by the house's front door, harbors a bay laurel tree, pink camellia, coral azalea, orange fuchsia, and a huge rosemary bush. All winter these flowering plants look inviting. Early and mid-winter, while there is still room, my friends and I enjoy sitting in the greenhouse, enjoying a cup of tea and conversation with classical music on the radio.

Greenhouse full of newly struck cutting flats in fall.

Using the Greenhouse:

Winter propagation of alpines is the main activity in the greenhouse. We collect cuttings in the fall when many plants are having a celebratory flush of growth after the summer heat has receded. They are dunked in liquid hormone and planted in tight rows in a well-drained medium. Often, plants will have started to produce adventitious roots, making them divisions that don't need a hormone treatment, so are even easier to propagate. Many a special alpine has been saved and reproduced by wintering in the cool greenhouse.

Because of a large evergreen tree (*Chamaecyparis pisifera* 'Filifera Pendula') on the southwest side of the greenhouse, the west end is shady. All the freshly stuck cuttings start there and are misted at least once daily. Most alpine cuttings begin showing leaf growth after a couple of months, which indicates their roots are also starting to grow. When cuttings have some roots, they can obtain water on their own without daily misting to refresh their leaves. They are then moved to the sunnier, east end. Broadleaf evergreens need a longer time to produce roots, so they occupy the shady end most of the winter.

Divisions and cuttings begin to fill their original flats starting in January. Potting into 2.5-inch (6.35 cm) pots begins in February and continues through April. Everything is fertilized once a week and put in the sunniest spots available. Flats are squeezed on hanging shelves, more tables are set up and even the floor is utilized for low light plants, giving three layers of growing space. Plants eat light, so it is not so surprising that as the sun gets higher they double and triple their size seemingly overnight.

Conclusion:

Preserving and distributing rare and special alpines collected from long-gone sources and selected over 50 years in my nursery is my calling. I am grateful to have this opportunity to share, and the greenhouse keeps the flow of life going through the seasons and years.

In addition, all the joy this greenhouse has brought me and my friends is incalculable. It is the heart of my home and is an economical luxury. My heating bill is not much different than other homes this size. I feel it has been an investment in my health and well-being. Even though caring for it needs a certain amount of discipline, plants are my pets. Because it is attached to the house, not only is it heat efficient with only three walls, but there is an entrance from the house, so night and day I have easy access to soak up the sun or gaze at the moonlight on the snow. I am so grateful for the experiences it has given me and would encourage you to think about making your garden dream, whatever it is, come true. As my late husband Charles Addison would say, "That's a good idea; why don't you do it?"

Spring Alpines of the Georgian Caucasus Mountains

Todd Boland

AS AN AVID TRAVELER and lover of alpine flowers, there are many high-elevation places in the world on my bucket list. One mountain range I have encountered time and time again in botanical literature has been the Caucasus Mountains. Many common perennial border plants I grow in my own garden hail from these mountains; *Geranium psilostemon*, *Stachys grandiflora, Campanula latifolia*, and *Centaurea macrocephala* just to name a few. Some of my garden bulbs, such as *Puschkinia scilloides* and *Scilla siberica* and alpines such as *Gentiana cruciata* and *Sedum spurium*, also originate from this region. As a horticulturist and botanist, I am equally interested in both growing plants in the garden as well as observing them in the wild. With so many of my garden plants being native to the Caucasus, I decided it was a region that warranted a visit. The clincher was reading *The Caucasus and its Flowers* by Vojtěch Holubec and Pavel Křivka, names familiar to many members of NARGS. Having read the book front to back, and with all the wonderful photos, I knew I had to see the Caucasus for myself. This desire came to fruition in May 2019 when I signed up to participate in the Greentours trip to Georgia. The tour spent 12 days in Georgia, visiting both the Greater (4 days) and Lesser Caucasus (2 days) as well as lowlands between the two ranges.

Opposite: *Pulsatilla violacea* perched on the edge of a cliff near the village of Sioni in the Greater Caucasus.
Above: Tergi River in the Truso Gorge.

Viola sieheana

The Caucasus Mountains, considered the continental divide between Europe and Asia, are located between the Black and Caspian seas, running about 750 miles (1200 km) in a northwest to southeast direction. The Greater Caucasus separate northern Georgia and Azerbaijan from Russia. Several peaks exceed 16,400 feet (5000 m) with Mount Elbrus reaching 18,510 feet (5642 m). The mountains are quite jagged, with permanent snow and glaciers. The alpine zone is extensive and mostly meadow-like to stony. The mountains are regularly cut by wide river valleys. The rock type is sedimentary with limestone predominating.

The Lesser Caucasus, which are about 370 miles (600 km) long, run parallel to the Greater, about 60 miles (100 km) to the south. They essentially separate southern Georgia from northeast Turkey and northern Armenia. These mountains are more rounded with fewer peaks, the highest being just over 13,00 feet (4000 m). There are no glaciers and most snow melts by the end of summer. While there is an alpine zone, the vegetation is more steppe-like. The rock type is mostly volcanic.

Our first two days were mostly in the southern part of Georgia, bordering on Azerbaijan. Here the terrain was quite dry and the vegetation almost semi-desert. It reminded me of parts of Utah or southern Wyoming. The next five days would be spent mostly in the Greater Caucasus, in the region between Gudauri and Stepantsminda. Gudauri, a small mountain village, is the gateway to a ski resort region

where the hotels seem to outnumber residential homes. Located at 7200 feet (2200 m), by mid-May most of the nearby mountain snow was melted and the first leaves were emerging. Large drifts of Pontic azalea, *Rhododendron luteum*, still in tight bud, hinted at the brilliant display of yellow flowers that would blanket the mountainsides come June. Wandering about the village, we saw our first wildflowers, dandelions of all things! I guess they are ubiquitous in the Northern Hemisphere.

There were also other patches of yellow which turned out to be *Potentilla crantzii*, a species with a wide Holarctic distribution, including my own limestone barrens of northern Newfoundland. Among the first emerging green blades of the surrounding heavily sheep-grazed meadows were the small purple-mauve flowers of *Viola sieheana* and dark purple-blue blossoms of *Polygala alpicola*, the latter with intricately beautiful flowers typical of most polygala.

Polygala alpicola

Dactylorhiza sambucina ssp. flavescens (top left), *Ornithogalum schmalhausenii* (top right), and *Daphne glomerata* (bottom).

We also saw the first of many bulbous-tuberous species for the trip, *Ornithogalum schmalhausenii*, with nearly stemless white stars. Along the edges of the Pontic azalea beds grew the very choice and difficult to grow *Daphne glomerata*, a species with two-to-three-inch (5-8 cm) heads of fragrant white flowers. On a south-facing slope we were graced with many violet-red spikes of *Dactylorhiza sambucina* subsp. *flavescens*, one of the few alpine species of orchids we would encounter.

Our first major botanical stop in the Greater Caucasus was Jvari Pass (aka Cross Pass) at an elevation of 7860 feet (2396 m). Human passage through this mountain pass dates back to ancient times and is mentioned in the writings of Pliny the Elder. Construction of a modern road was started by the Russians in 1801 as this pass was to be very important for the moving of troops and goods. Today it is still a major transportation route for goods between Russia and Armenia. Due to the economic significance of the highway, it is kept open year-round despite being prone to avalanches, many of which were still evident in mid-May as six-to-ten-foot (2-3 m) high snow cuts along the roadside. In fact, in mid-May, the terrain here was still about fifty percent covered by snow beds. While it did not look too inviting from a distance, we were amazed at the diversity of beautiful alpines to be found along the edges of the melting snow.

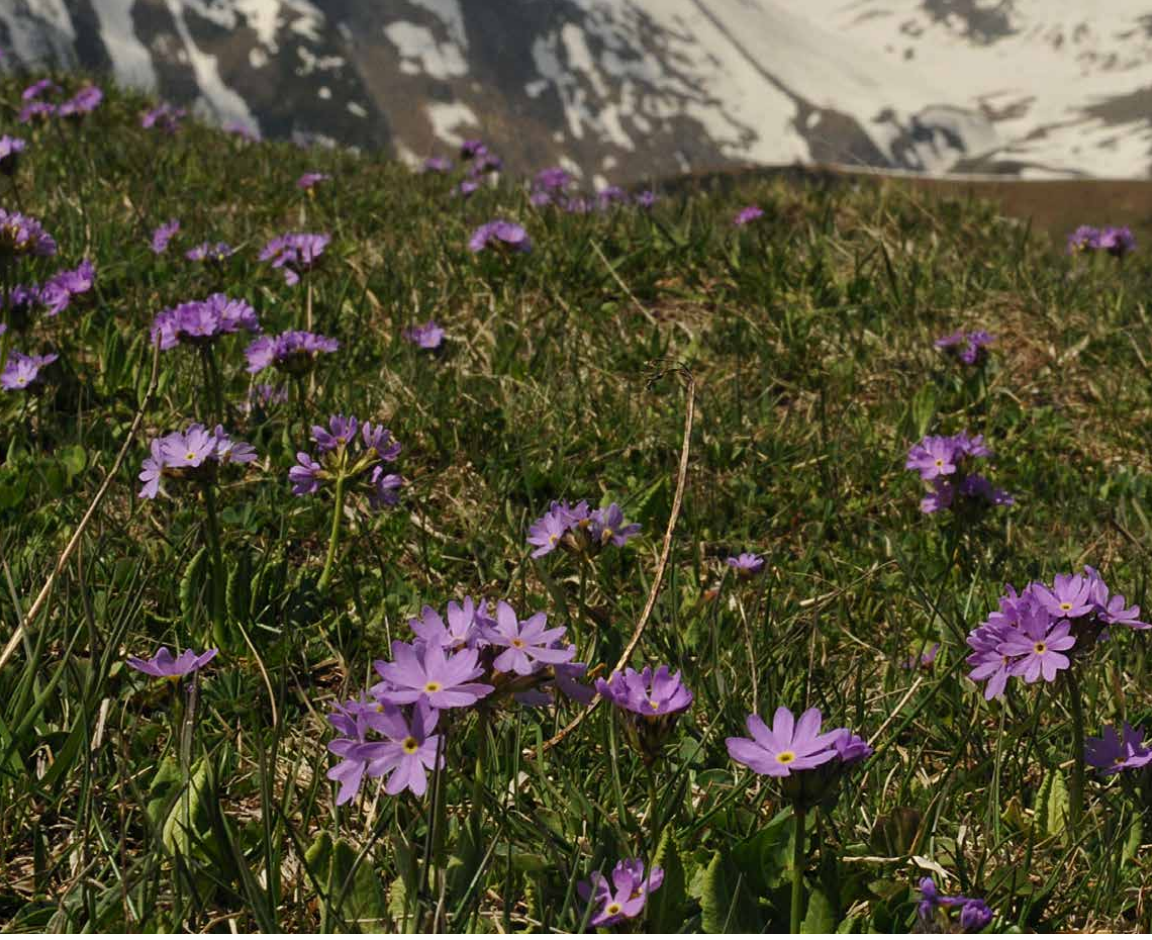
Galanthus platyphyllus blooming at the edge of a melting snowbed.

Ranunculus kochii (top) and *Gagea sulfurea* (bottom)

Our first roadside stop would turn out to be one of the most memorable parts of the trip. Along the edges of a melting snowbed we were greeted with tens of thousands of the snowdrop *Galanthus platyphyllus*. They formed a river along the edge of the snow, with blooms even extending through the melting snow. It was a breathtaking sight, not to be soon forgotten. Only six to ten feet (2-3 m) from the edge of the snowbeds, the snowdrops were already finished flowering but were being taken over by blooming *Anemone caucasica* and *Ranunculus kochii*, with blue and yellow flowers respectively.

On the other side of the highway, the snow was long melted and the grass bright green. Strangely there was no evidence of snowdrops ever growing here. However, there were plenty of bulbs in the alpine lawn including *Gagea sulfurea*, *Ornithogalum schmalhauesenii* and the tesselated green-brown bells of *Fritillaria latifolia*. Streams created by melting snow were lined with *Caltha palustris*, another plant with a Holarctic distribution.

Galanthus platyphyllus blooming at the edge of a melting snowbed.



This alpine meadow ended with a steep, rocky slope that fell over 1600 feet (500 m) into the valley below. The cliff edge was dotted with rounded, purple-pink heads from *Primula algida* and intense deep blue trumpets from *Gentiana verna* ssp. *angulosa*. While on my belly taking photos, I noticed the minute pale blue blossoms of *Gentiana aquatica*, surely among the smallest gentians in the world. A little further along the road, we stopped at a mineral spring. While we should have been admiring the wonderful geology, most of us were taken with a ribbon of *Primula auriculata*, which were growing in the middle of a mountain stream. Among the primrose were emerging leaves and flowers of *Petasites albus*.

That afternoon we traveled up the Tergi River Valley and Truso Gorge. This wide alpine river valley seemed to stretch to the horizon, ending at glacier-capped mountains. The view was quite breathtaking. We started along the river gravels then headed up into the surrounding stony hillsides. The river gravel beds were home to several species of yellow-flowered draba, the lovely prostrate *Veronica liwanensis* and two

Above: *Primula algida*. Oppposite: *Primula auriculata*

Saxifraga juniperifolia

species of viola – *V. reichenbachiana* with light violet-blue flowers and the very desirable *V. somchetica* with sumptuous pinkish-purple flowers with darker violet-red veins. As we ascended the surrounding hills, we encountered larger boulders whose cracks were home to one of the Kabschia saxifrages, *S. juniperifolia*, as well as the delicate alpine fern *Woodsia alpina*. Among the stony meadow were the super-woolly spikes of *Ajuga orientalis*, the lavender-pink heads of *Primula darialica* and clumps of *Daphne glomerata*. The numerous clumps of *Sedum spurium*, *Alchemilla caucasica, Gentiana cruciata, Dryas caucasica, Sibbaldia parviflora* and *Veratrum lobelianum* were evidence of the floral display that would continue later in the season. The day ended on another hillside near the village of Sioni where we marveled at a large clump of *Pulsatilla violacea* perched on the edge of a cliff.

The next morning we stopped along a roadside hillside near the town of Tsdo. Climbing several switchbacks, yet still just a gunshot from our vehicles, brought us to a steep grassy meadow which was dotted with yellow clumps of *Arnebia pulchra*. While a bit of a slog to reach them, it was well worth it as several of the clumps were quite large and at the peak of blooming perfection. Scattered *Muscari pallens*, with their ice-blue blossoms, were also admired. That afternoon was

Viola somchetica (top) and *Arnebia pulchra* (bottom).

spent at the Amali Valley, an alpine valley whose distant snow-capped mountains were situated in nearby Russia. Thankfully, the jeeps drove us near the head of the valley but several of us opted to walk back down the valley to the main highway. While this was a several kilometer hike, it was all downhill so actually quite enjoyable.

The valley floor was mostly sheep-grazed meadows punctuated by rocky outcrops, while the valley sides were clothed in stunted birch, beech, spruce, and fir. It was the rocky outcrops and forest edges, not amenable to sheep grazing, where the best flowers grew. The outcrops were home to lovely patches of *Androsace villosa, Minuartia imbricata,*

Androsace villosa (top), *Fritillaria collina* (bottom left), and *Primula amoena* (bottom right)

Chaukhi mountains

Pedicularis acmodonta, Polygala caucasica, Astragalus kazbeki and *Oxytropis dasypoda*. The forest edges had plenty of *Fritillaria latifolia* but they were joined by the exquisite yellow-tesselated blossoms of *F. collina*. Plenty of primroses grew here too, including *P. macrocalyx, P. auriculata, P. cordifolia* and the deep-purple *P. amoena*. We were even fortunate to find a white form of *P. amoena*. Scattered among the primroses was our second orchid for the trip, *Orchis mascula*, with spikes of reddish-violet flowers. On the way back to our hotel we spotted a large clump of violet flowers along the roadside. With the busy traffic on this main road, it was a challenge to stop, but we persevered and were rewarded with an impressive clump of blooming *Iris furcata*.

On day four we drove quite a distance along a gravel road which followed the Snostskali River up to the mountain village of Juta. Enroute we passed through the ancient village of Sno where the homes were built of local slabs of stone. It was like stepping back into medieval times. From Juta (7200 ft, 2200 m) we hiked up into an alpine meadow that ended in the very picturesque Chaukhi Mountains, often referred to as the Dolomites of Georgia.

We had several target plants here, the main one being the deep purple-blue blossoms of *Gentiana pyrenaica*. Other target plants that we successfully found in bloom were *Puschkinia scilloides, Merendera raddeana, Oxytropis fragrans* and *Trollius patulus*. In the afternoon, we wandered along the Kora River, a tributary of the Snostskali River. The valley walls were too steep to traverse here, but they ended in low cliffs along the river which were easily explored. On these vertical cliffs grew beautiful buns of *Draba rigida* var. *bryoides* in glorious bloom. Unfortunately we were a week or two too early to see the many *Saxifraga paniculata* subsp. *cartaliginea*, *Sempervivum caucasicum*, *S. transcaucasicum, Campanula saxifraga* and *Sobolewskia caucasica* which were in tight bud. The next day we headed back into lowland areas.

Several days later, we ascended into the Lesser Caucasus, between the areas of Bakuriani and Abastumani. Bakuriani was another ski town where the hotels outnumbered the regular houses. From here we climbed to the Tskhratskaro Pass at nearly 8,200 feet (2500m). The road was a little rough but no problem for our jeeps. The hillsides along the switchback road leading to the pass were covered in patches of *Rhododendron caucasicum*, which were still in tight bud. A roadside stop near the summit resulted in splendid clumps of *Anemone fasciculata* and *Arabis brachycarpa*. At the summit, a rocky outcrop was home to flowering *Coronilla parviflora, Pulsatilla georgica, Anthemis zyghia* and a yellow draba species. However, the main object of this alpine adventure was to witness millions of *Scilla rosenii* which formed blue waves across the alpine meadows. It was an absolutely fantastic and unforgettable sight. They grew as far as the eye could see. While most were mid-blue, with so many plants it was not surprising to see some variation from deep purple-blue to pale ice-blue and even a scattered pure white form. Contrasting with the scilla was an abundance of blooming *Primula ruprechtii*. This area must be equally impressive later in the season when the thousands of emerging *Eremurus spectabilis* would be in full bloom.

Our last day in the Lesser Caucasus was at the Zekari Pass at nearly 7200 feet (2200 m). This was a horrendous gravel, or more realistically mud, road. We were entangled in major road construction as the local government was widening the mountain road to allow for paving. We did not make it to the summit as the road was simply impassible. We drove as high as we could then hoofed it up the grassy mountainside to the summit. While a rigorous hike, it was worth it for the wonderful diversity of flowers. It seemed that nearly all the alpines we saw previously on the trip, grew here. Most impressive was the pink river of *Primula auriculata* growing along a mountain stream. Bulbous plants were especially abundant. *Anemone caucasica* (both blue and white forms), *Fritillaria latifolia, Ornithogalum schmalhausenii,* and *Gagea sulfurea* grew by the thousands. Adding to them were *Scilla siberica, Corydalis*

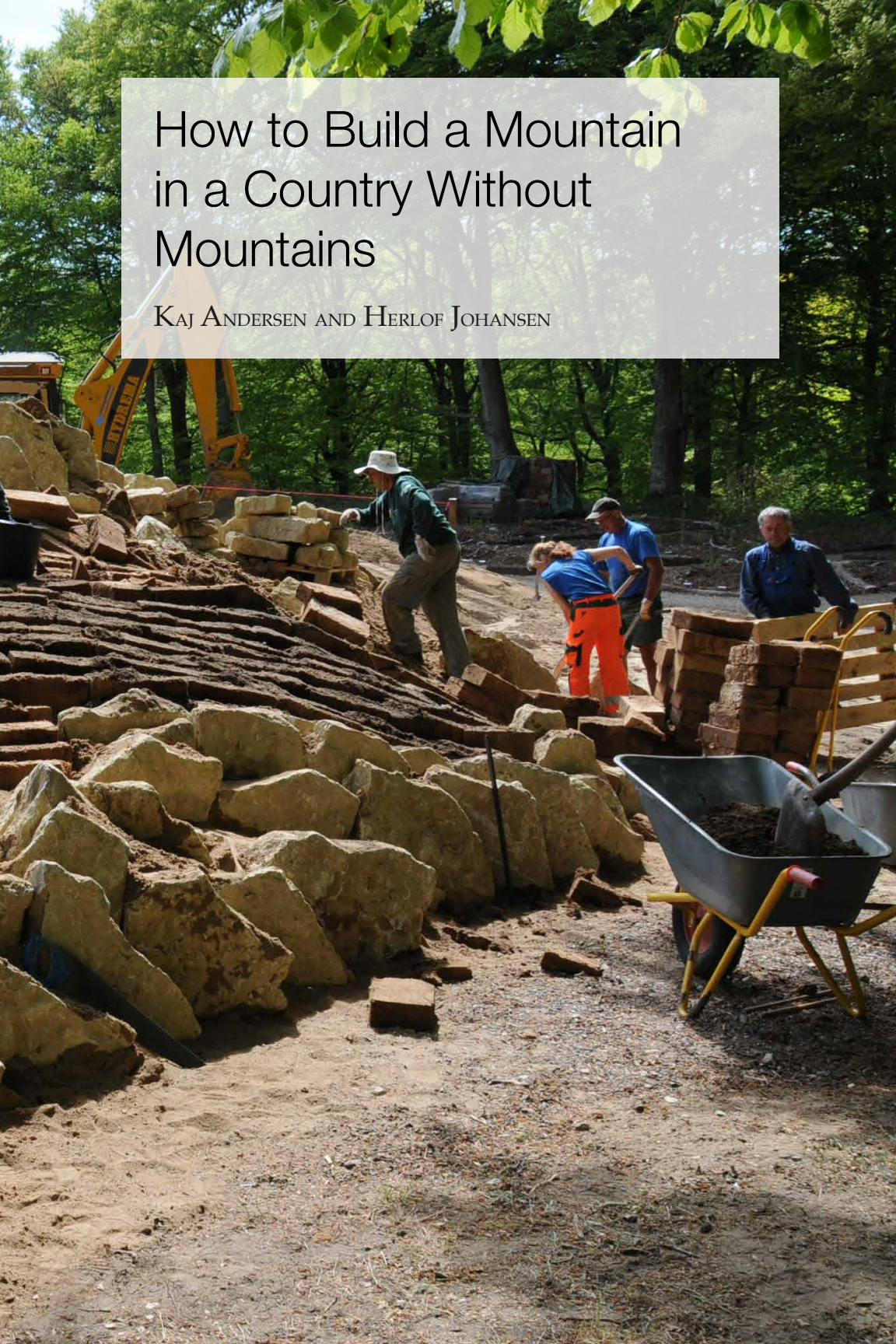
Tapestry of alpine flowers in bloom (top), *Anemone caucasica* (bottom left), and *Pedicularis wilhelmsiana* (bottom right).

angustifolia, and *Muscari sosnowskyi*. Other alpines in full glory were several draba species, *Veronica filiformis, Scrophularia chrysantha* and the bizarre flowers of *Pedicularis wilhelmsiana*. This lousewort has spikes of pale yellow flowers set among long white woolly hairs and elongated reddish bracts – truly bizarre and exotic! Being of lower elevation than the Tskhratskaro Pass, the first *Rhododendron caucasicum* were exposing their ivory trusses.

My trip to Georgia was memorable not just for the spectacular alpine wildflowers but for the overall floral abundance in mid-to-late May. We saw over 250 species of plants in bloom. However, we saw even more in bud, suggesting a trip in late June or early July would be just as, or perhaps even more, impressive. It seems another trip to the far east of Europe is warranted in the future!

How to Build a Mountain in a Country Without Mountains

Kaj Andersen and Herlof Johansen



ON NOVEMBER FIRST, 2008, Zděnek Zvolánek came from the Czech Republic to give a lecture to the Alpine Garden Society of Denmark on the pervasive phenomenon of the crevice garden. We arrived at the conference, the Gedved State Seminar, with a high degree of expectation, eager to learn more about this type of rock garden.

After Zděnek's immersive lecture, accompanied by very beautiful and descriptive photos, and after a very exciting day in Gedved ended, there was no doubt in our minds that we had to construct a crevice garden at the Bangsbo Botanical Garden, which is located in North Jutland, near the town of Frederikshavn. The area we imagined for it was already laid out as a rock garden, but the question had been in the air for a long time: how do we make it appear as natural as possible?

With Zděnek's book on crevice gardens in hand, we went home to Frederikshavn. A seed was definitely sown. No matter how inspiring and engaging the lecture had been, we needed to hear the expert's ideas for the design of such a garden, and we, therefore, decided to ask Zděnek to visit Frederikshavn to see the site and offer some good advice. A talk with the protagonist, however, did not give us hope that there was room in his calendar for such a visit. He is a very busy and sought-after man, and we expected him to be too busy for such a visit years into the future. Fortunately, the phone rang on Sunday, November

Rhododendron camtschaticum

second and Zděnek promised he would come to Bangsbo in May 2009, and build a "monument to the Old World." Rarely has a good vintage Amarone been opened so quickly by the chairman of Botanical Garden, Egon Svendsen. Obtaining this appointment was something of a coup.

Planning then started, and the essential challenge was to find the right stone. Correspondence with Zděnek led to a connection with the Botanical Garden in Hof, approximately 60 miles (100 km) from the Czech border. Some limestone from a local quarry was available and was highly recommended by Christoph Ruby, a botanist from Hof. We decided at the end of March 2009 to order 250 tons of flat stone from Marktrodach, near Hof, for delivery so the rock would be ready in Bangsbo when Zděnek and Joyce Carruthers arrived on May 11th. It proved not to be the easiest trade agreement we had ever negotiated. First, there was a problem getting the stones stacked on pallets and then the price went up. Second, there was a problem getting approval from the German authorities for the delivery and then the price went up again. Finally, they could only deliver 25 tons per week. There was some

Calceolaria uniflora var. *darwinii*.

The crevice garden begins to take shape.

nail-biting as the date of Zděnek`s arrival was quickly approaching, but, finally, the first stone delivery arrived the day Joyce and Zděnek arrived in Frederikshavn by train from the Czech Republic.

Then the work had to be done. All preparatory work had been previously described by Zděnek and completed prior to their arrival. An agreement had been made with the Bangsminde machine station in Frederikshavn to make a gardener and engineer available to work on the project for the two weeks Zděnek had set aside for his trip. This machine station has helped us several times on garden projects, entirely without payment. In addition to providing these competent workers, there were several volunteers to help, many of whom had taken time off from their work to participate in this epoch-making project. Twenty-five tons of stone sounds a lot, but under Zděnek`s knowledgeable leadership, the stone was put in place in only two days. It would be a week before the next stone delivery showed up, so we experimented with putting peat blocks between the stones. Normally the core of the crevices is fine gravel, but according to Zděnek, a core of peat blocks had not been tried before and sphagnum-filled crevice areas would allow us to grow more acid-loving plants.

Zděnek`s working methods puzzled us a little at first. We were inclined to start from one end and work our way methodically to the other end, but Zděnek selected stones and put them together in small

Plants going into the crevices.

islands here and there in groups of five to ten stones. It seemed a bit chaotic at first and it was difficult to maintain the correct east-west orientation of all the stones when it was not possible to look up over the mountain of sand which formed the core of the crevice garden, but Zděnek always managed to tie the islands together. Eventually, everything formed a unit, and it actually helped us in the end, for it gradually became clear to us that Zděnek could not stay and complete the work since the stone deliveries were so slow to arrive. He simply built the strategic points in the crevice garden, which was 164 feet (50 m) in length and 32 feet (10 m) wide, and it was up to us to complete the remainder of the work from those points.

Planting the crevice garden.

It also became clear that the bed should be divided into continents. We had already dedicated part of the bed to plants from the Himalayas, Alps, Japan, and the Caucasus, and the western part of the crevice was dedicated to North American plants. Small paths in the various beds were designated as borders between continents. As the stones were set in place, Joyce Carruthers jumped around in the beds, planting the little plants we had already acquired, and we have never seen anyone so careful with planting as Joyce. When we had run out of stones before the next shipment came in, Zděnek also went in and strategically planted in the correct places, but often, Joyce would come by the following day, dig up the plant, and replant it "properly."

Everything has an end, and we understood that Joyce and Zděnek's last day working in Bangsbo Botanical Garden would be May 26th. The Chairman of the Technical Committee in Frederikshavn, Jens Hedegaard Kristensen, then warmly thanked Joyce and Zděnek for their innovative work creating the crevice garden. Zděnek replied that it was an honor to be part of building the world's largest crevice garden in part of the Old World.

We put Joyce and Zděnek on the train to Prague the next morning and we all felt we had spent time with and benefited from working with these talented and committed people, who really know their stuff. With their help we knew we would create a wonderful feature for our part of Denmark.

It was now up to us to get the crevice garden done. We still had quite a few plants from New Zealand and had not yet appointed part of the crevice garden to New Zealand alpine flora. The solution was obvious. We simply had to build a new bed for them, next to the big bed, dedicated to New Zealand plants.

We were, and still are in contact with Zděnek by mail, and he approves further additions and alterations to the crevice garden, as well as giving us ideas about what plants he wants to see added and where they should be located in the stones. Since many of the plants we grow are from new collections and have not been available before, we experiment with plants to determine their hardiness and where they

Physoplexis comosa.

will thrive best in the crevices. We have created several places between the stones for some limestone scree areas and will see if the plants thrive in this environment.

We grow an estimated eight to ten thousand plants in our crevice and tufa beds, and we still have many yet to plant. Here in Denmark we get a lot of rain, almost no winter and rarely any snow cover these days, so many plants don't survive long, but then there is room for some new ones.

Zděnek's very last whim, before he left, was to propose to create a small tufa area next to the New Zealand section, when the major stone work was almost complete. These tufa stones are perfect for the many saxifrage species and varieties. To create a proper setting for

The late Joyce Carruthers

the collection, we had to find some tufa and luckily found a source in Germany near the Czech border. We ordered ten tons, which was delivered to Bangsbo Botanical Garden on August 4th. Then the challenge was to put it together so that it would all look like part of a natural mountain. It was not an easy task, but we thought the results were satisfactory. An order of many saxifrages was placed from various nurseries. When they arrived, they were planted into the tufa, so in March all the tufa stones are covered with saxifrage flowers. During this period, the crevice garden is filled with people admiring and taking photographs of the plants.

Immediately after Zděnek's and Joyce's visit, we received the sad news that Joyce had died in an automobile accident in Canada, a very sad message as Joyce was an amazingly happy and exciting person. Karel Lang, one of the most accomplished saxifrage breeders from the Czech Republic, named one of his saxifrages for Joyce and we planted this hybrid in our tufa bed. Every spring when it flowers, our thoughts go out to Joyce.

Saxifraga 'Joyce Carruthers'

Plant Hunting Around Volcanoes in Ecuador and the Cordillera Blanca in Peru

Harry Jans

ECUADOR AND PERU are not the first countries you think of to explore for high alpines, but both countries contain a wealth of plants to be seen at high altitudes, often adjacent to stunning historical sites.

Ecuador is one of the most botanically diverse areas of the world, with some 25,000 plant species, including those found in the tropical rain forest regions. Ecuador is situated in the western top corner of the South American continent and is named after the Equator, the imaginary line around the Earth. Quito, the capital city, is located at an altitude of 9350 feet (2,850 m) on a horizontal strip of land running north to south between beautiful volcanoes.

Páramos are characteristic highland moors in the northern Andes. These ecosystems have formed in highland plateaus and saddles between the mountains above the tree line, around 10,170 – 11,150 feet (3,100 – 3,400 m). The climate here is moist. Warm air blowing east from the Pacific cools here and the moisture precipitates on the mountains. For most of the year, these highland meadows are shrouded in fog. Most páramos are located in Colombia, but many are also found in Ecuador and Venezuela, as well as northern Peru, Panama, Costa Rica, and Guatemala. Living in the páramos is not easy. There are few nutrients in the soil, and the soil and air are cold. The moist climate saturates the soil like a soaked sponge.

Under these harsh conditions, a very special ecosystem has developed. Species diversity here is much higher than in the temperate moorlands of the world but much lower than in the nearby tropical rainforests. Some 1,500 species of plants grow in the páramos of Ecuador and approximately 60% of them are endemic.

Several high volcanoes flank Ecuador's central valley and the 18th-century German explorer Alexander von Humboldt gave the valley the name Avenue of the Volcanoes. The road between Quito and Riobamba runs along the valley, and offers wonderful views of the surrounding countryside and passes through many traditional towns worth visiting. One of these places you must visit is Otavalo, which is famous for its colorful market.

Opposite: Machu Picchu in Peru, with *Puya densiflora* in the foreground..

Cotopaxi volcano in Pichincha, Ecuador.

The impressive volcanoes passed along the route include Cotopaxi, a perfect snow-capped cone at 19,347 feet (5,897 m), and Chimborazo at 20,547 ft (6,263 m) Ecuador's highest mountain. Chimborazo is not the highest mountain by elevation above sea level, but its location along the equatorial bulge makes the summit the farthest point on the Earth's surface from the Earth's center.

Both volcanoes are rich in very special alpine plants and easily accessible by roads leading to high elevations. When I explored the slopes of Cotopaxi the weather changed rapidly from sun to hail storms and we didn't spend much time there. Some of the plants I did come across were tiny *Werneria pumila* with large yellow flowers, *Pentacalia chimborazensis, Hypochaeris sessiliflora* and *Azorella pulvinata*. I had more luck on Chimborazo. Not far from the road I found the very small rosettes of *Eudema nubigena*, compact cushions of *Baccharis caespitosa, Nototriche jamesonii* with blue flowers, *Valeriana aretioides*, the compact *Geranium ecuadoriense*, *Gentianella cerastioides* var. *chimborazensis* and the very small *Viola bangii*. The most special plant I found there was *Viola parvifolia*, one of the most northerly occurring rosulate violas.

Southwest of Quito is the Guagua Pichincha Volcano with an altitude of 15,662 feet (4,774 m). A road ascends to about 14,900 feet (4,550 m). Just before driving up the pass at 10,745 feet (3,275 m) was a shrub, up to 8 feet (2.5 m) tall with red-cream waxy flowers which keyed out to *Cavendishia bracteata*.

Top to bottom: *Werneria pumila, Viola parvifolia, Cavendishia bracteata*

At the end of the pass road around rocks and in scree conditions were wonderful spiny shrubs of *Chuquiraga jussieui* with orange flower heads. In the same area, we found *Huperzia crassa, Nototriche phyllanthos, Werneria pumila*, and *Baccharis caespitosa*. At lower elevations around 13,600 feet (4,150 m) were *Halenia weddelliana* from the gentian family and *Bomarea glaucescens*, a climber with very waxy, thick flowers. Just a bit lower down at 12,760 feet (3,890 m) was *Mutisia microcephala*, with striking orange-red flowers.

In northern Ecuador, very close to the Colombian border, is the little town of El Ángel, within the middle of the Parque Libertad with many wonderful and old topiary hedges. Not far from here is the El Ángel Ecological Reserve, a national park with peculiar frailejones forests (*Espeletia pycnophylla*). There are very large stands of *Espeletia pycnophylla* in the Reserve, which have developed specific methods to protect themselves from the frost. One method is growing in rosettes, so the wind cannot chill the center of the plant. Many plants have developed very soft fluffy leaves and flowers. The old leaves do not fall off so they protect the stems.

This region is mostly páramo and the temperature ranges between 54°F to 32°F (12°C to 0°C). Throughout the year in Páramo El Ángel the temperature falls below freezing at night, although it is only 50 miles (80 km) from the equator. In summer months (June – September) days can be warm, up to 64°F (18°C), but in the winter, even in the daytime, the temperature hovers around freezing. Strong, cold winds are very common. Other plants growing among the tall espletias are *Diplostephium ericoides*, the tiny *Pinguicula calyptrata*, *Disterigma empetrifolium*, and *Myosotis discolor*.

Above: *Espeletia pycnophylla*
Opposite: *Chuquiraga jussieui* (top), *Huperzia crassa* (bottom left), and *Bomarea glaucesecens* (bottom right).

Gentianella rapunculoides (top), *Gentianella foliosa* (bottom left), and *Gentianella corymbosa* (bottom right).

Another area I visited was the Cayambe Coca National Park, which is located in the provinces of Imbabura, Pichincha, Napo, and Sucumbios. The reserve contains important volcanoes like Cayambe, Saraurco, Puntas, and Reventador. The rivers in the region spring mainly from the glaciers of Cayambe, Antisana, and Sarahurco. There are approximately eighty small lakes in the zone and it is a good area to botanize. Altitudes range between 2,300 and 18,700 feet (700 – 5,700 m). The biodiversity in the area is among the highest in protected areas of Ecuador. At between 13,450 and 14,100 feet (4,100 – 4,300 m) in this location I found the third species of nototriche known to grow in Ecuador, *Nototriche ecuadoriensis*; again, blue. Other special plants here were five different Gentianaceae. *Gentianella corymbosa* (3 in/ 8 cm, white with blue stripes), *Gentianella foliosa* (8 in/20 cm, lavender) *Gentianella rapunculoides* (8 in/20 cm, multi-flowered), *Gentianella nummularifolia* (2.3 in/6 cm, blue) and the more well known *Gentiana sedifolia*.

Other plants in this area are the cushion forming *Azorella aretioides*, cushions of *Xenophyllum humile* with stemless white flowers, *Loricaria thuyoides* with its lovely scales, *Valeriana plantaginea, Hypochaeris sonchoides* and *Nertera granadensis* with it beautiful orange berries.

Moving on to Peru now, as many visitors choose the Andes Mountains in Peru as their first choice, and for good reason. Besides being stunningly beautiful, the Andes Mountains in Peru provide a myriad of attractions, from historical ruins to charming mountain towns

Xenophyllum humile (top), *Nertera granadensis* (bottom)

Sobralia virginalis

and, of course, their spectacular mountain flora. In the smaller villages the people still dress in traditional clothing and are among the most colorful people you will find anywhere in the world.

Cusco is a city with a rich history. It was the capital of the great Incan Empire for 200 years, but recent excavations indicate the city was inhabited as many as 3000 years ago. Cusco has many wonderful sites to visit and the ambiance of Cusco is charming and peaceful.

Machu Picchu is a world-famous 15th-century Inca site located 7,970 feet (2,430 m) above sea level located in Urubamba Province. It is situated on a mountain ridge above the Sacred Valley, 50 miles (80 km) northwest of Cusco, through which the Urubamba River flows. Most archaeologists believe that Machu Picchu was built as an estate for the Incan emperor Pachacuti (1438–1472). Often mistakenly referred to as the "Lost City of the Incas," it is perhaps the most familiar icon of Incan civilization.

The Incas built the estate around 1450 but abandoned it a century later at the time of the Spanish Conquest. Although known locally, it was unknown to the outside world before being brought to international attention in 1911 by the American historian Hiram Bingham. Since then, Machu Picchu has become an important tourist attraction and even here you can find some special plants like *Puya densiflora* and two orchids, *Sobralia virginalis*, a white tall orchid, and *Sobralia dichotoma*, red-pink, which can grow up to 6.5 feet (2 m).

Although I have explored several areas in Peru on four occasions, I will concentrate here on plants found at the Cordillera Blanca in


Sobralia dichotoma (left) and *Puya raimondii* (right).

the north of Peru. The range contains a tremendous concentration of 19,685 foot (6,000 m) peaks and a wealth of mountain flowers. One of the most special plants here is *Puya raimondii*, known as Queen of the Andes; it is ancient, very rare and the largest bromeliad in the world. In some preserved areas of Peru and Bolivia you can see its gigantic inflorescence reaching up to more than 33 feet (10 m) in height and 8 feet (2.5 m) in diameter. *Puya raimondii* has the largest inflorescence in the world with around ten thousand flowers and six million seeds on each plant.

To grow such a magnificent inflorescence it saves its strength all its life, which is quite long. On average, the puyas start blooming after 50 years. However, some species start blooming after 150 years. *Puya raimondii* are pollinated by bats and large insects. Plants are monocarpic and the parent plant dies after it flowers and fruits for the first time. This species is endangered in the wild with only a few small populations per square kilometer. Very nice populations are found on the road to Carretera Pastoruri, which you can read about at the end of this article.

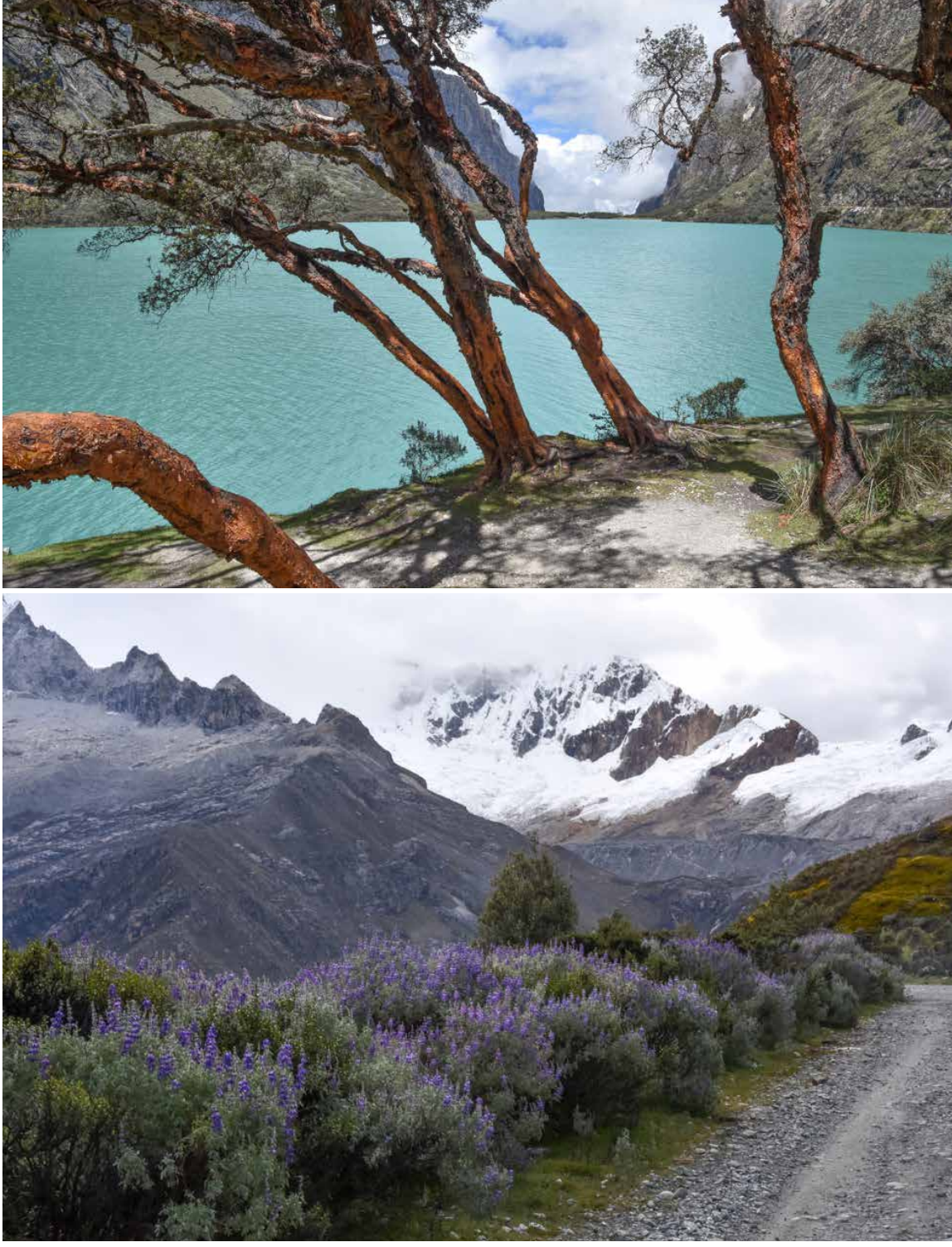
Masses of *Gentianella brunneotincta*.

If you want to explore the Cordillera Blanca the easy way, without doing several day treks, then you should base yourself in the cities of Caraz or Huaraz. From here you can drive up several passes by car and enjoy the wonders of the high Andean flora.

From Caraz I took the Chicarhuapunta pass to the west, which is actually in the Cordillera Negro and therefore much drier. On the top of the pass you will find, in addition to a few *Puya raimondii*, several cacti like *Austrocylindropuntia floccosa*, which can be more than 6.5 feet (2 m) across and *Oroya borchersii*, with very nice golden spines. Other plants in this area are *Olsynium junceum*, *Villadia reniformis*, tiny *Viola micranthella*, *Calceolaria scapiflora*, *Oxalis* cf. *pachyrrhiza*, with small yellow flowers, *Ageratina azangaroensis* and *Paranephelius uniflorus*, with large yellow dandelion-like flowers. But the stars in this location were the thousands of the deep yellow *Gentianella brunneotincta*.

In the opposite direction, to the east of Caraz, are the Llanganuco Lakes (12,000 ft, 3,660 m) and further up the most spectacular Abra Portachello (Abra means "pass"), which goes up to 15,750 feet (4,800 m). This whole area is in the Huascarán National Park, named after the highest mountain in Peru at 22,204 feet (6,768 m).

Just before the lakes on the roadside, we saw *Oreocallis grandiflora*, a genus in the Proteaceae. Near the lakes are old *Polylepis sericea* trees with very nice orange-colored bark. Climbing up toward the Abra Portachello I found *Werneria nubigena*, a very widespread plant in the Andes, large stands of the blue *Lupinus eriocladus*, *Pernettya prostrata*, with black berries, *Caiophora grandiflora*, with nasty stinging nettles, *Puya augusta*, *Calceolaria weberbaueriana* and *Calceolaria cajabambae*.



Polylepis sericea with orange-colored bark (top) and *Lupinus eriocladus* (bottom)

Begonia octopetala

In the same area at 12,890 feet (3,930 m) were two nice orchids, *Comphichis valida* with cream spikes and *Cyrtochilum aureum* with large pink-yellow flowers. At the top of the pass, I found wonderful large cushions of *Nototriche obtusa* and *Nototriche pinnata*. Other plants in the same area were *Hypochaeris meyeniana, Xenophyllum dactylophyllum* and very nice plants of *Lupinus weberbaueri*. This very distinctive lupin can grow up to 3.3 feet (1 m) tall and is only found above 14,435 feet (4,400 m).

Laguna Parón is another special place and the lake view with the snowcapped peaks looming behind is stunning. When driving up, there are several exciting plants, like white-flowered *Begonia octopetala* (at 11,615 feet, 3,540 m). Some 1,312 feet (400 m) higher there was a giant orchid, *Epidendrum megagastrium*. At the end of the road near the lake is a parking lot from which you can take several paths. Plants found in this area around the lake include dwarf *Gentianella cerrateae*, *Gaultheria brachybotrys*, the very tiny *Sisyrinchium* cf. *brevipes*, the orchid *Pterichis triloba*, pink *Castilleja fissifolia*. In wetter places, I spotted one of the most exciting finds, *Gentianella chamuchui*, with pink flowers.

We then traveled further south and the next passes were best explored when based in Huaraz city. Punta Olímpica was a good area for high alpines, but unfortunately it was very misty and rainy, so not much time was spent there. Near the top of the pass, which was all asphalt paved road, we found some new plants not seen before near a tunnel. There were two very different gentianellas. *Gentianella weberbaueri*, with red-pink flowers up to 12 inches (30 cm) on a nice rosette was the star plant; but *Gentianella* cf. *paludicola*, pale-pink with darker stripes, was also stunning. Other plants in the same area were *Perezia pinnatifida,* woolly cushions of *Cerastium soratense*, quite large-flowered *Senecio serratifolius* and the very dwarf *Werneria weberbaueriana*.

The last pass we visited was southeast of Huaraz and about an hour-and-a-half drive, all on good roads, at first asphalt-paved, then a good dirt track road heading toward the Pastoruri Glacier all the way

Lupinus weberbaueri (top left), *Castilleja fissifolia* (top right), and *Nototriche obtusa* (bottom)

Mniodes pulvinata

up to 15,912 feet (4,850 m). Just after entering the National Park, we came across one of the best sites visited, with many *Puya raimondii*. As mentioned before, this is an amazing plant and I felt very small in comparison, despite my height of almost six and a half feet (2 m). Below the *Puya raimondii* grew other plants like the yellow *Acaulimalva weberbaueri*, the pink *Gentianella uberula*, and the small yellow *Bartsia patens*.

Between 14,760 and 15,420 feet (4,500 – 4,700 m), we found a very large variety of plants growing in the turf or rock crevices, including the grey rosettes of *Paranephelius* cf. *wurdackii*, with large bright yellow stemless flowers, *Werneria pygmaea, Senecio expansus*, with grey leaves and small, yellow, stemless flowers, very attractive *Calceolaria scapiflora* and *Misbroukea strigosissima*. *Pycnophyllum molle* var. *huascaranum* was growing in rock crevices and made very large, tight cushions. *Plantago rigida* grew in moister places and made also very large cushions.

In New Zealand, one of the special plants is *Raoulia eximia*. In Peru, there is a plant called *Mniodes pulvinata* which looks very similar, with small very hairy rosettes and compact cushions. I cannot finish without mentioning three of the *Nototriche* we saw at the Pastoruri Pass. We saw many plants of *Nototriche obtusa*, some even growing in the middle of a large *Austrocylindropuntia floccosa*, as well as *Nototriche pinnata*, with very large flowers and the minute *Nototriche pusilla*.

When I first went to Ecuador and Peru I never expected to see so much variation in the high mountain flora. I hope to return in the near future to explore new areas and also hope this article will inspire more plant enthusiasts to travel to these two countries.

If you want to absorb more information about these two countries and see more images, Harry will give two lectures at the NARGS annual meeting in Ithaca, or visit his extensive website www.jansalpines.com

The author with *Puya raimondii*

Woody Plants for the Rock Garden

Gary Whittenbaugh

I ATTEND ROCK garden programs every chance I get, hoping they will say something about woody plants. If they do, it is usually just something on daphnes. Of course, they say a lot about the small perennials, and I guess there are a lot more of those than woody plants. So I decided that if I want to read about woody plants for the rock gardens, I have to write about it myself, even though I don't consider myself an expert. By the way, plants I discuss are growing in our garden in Iowa (Zone 4) and if you like, you can come see them, anytime. I will start with trees, then shrubs, and lastly, my favorite, conifers, which are small trees in the alpine landscape.

I grow my woody plants in a mixture of pea gravel, #2 chicken grit, sand, topsoil, and alfalfa meal. If the plant requires an acid soil, I use a mixture of granit pea gravel, peat moss, and compost.

Acer palmatum 'Sir Happy' is supposed to be the smallest *A. palmatum* out there. We shall see. We have to keep our *Acer palmatum* in a pot so that should help keep them small. We got most of our small maples from Randy Dykstra, a Fulton, Illinois, nurseryman. I think our *Acer platanoides* 'Pickens Strain' is the smallest one yet. We won't know for some time as we have had it just three years. We got most of our maples from Randy, but my brother Tom found one growing in our garden. We think it is about eight years old now, having moved it once. It is about six inches (15 cm) tall and it has red leaves on it in the spring, making it the most colorful one we have.

You will know why I love woody plants so much if you come to know *Salix* x *boydii*. Bill Boyd discovered this willow in Scotland in the 1870s. Only one plant was ever found so all plants now in cultivation are clones from this original discovery. The parents are thought to be *Salix lanata* (a compact bushy shrub to three feet (90 cm) tall) and *Salix reticulata* (a compact bushy shrub to five feet (1.5 m) tall).

A beautiful shrub, *Arcterica nana*, is extremely rare in commerce. I got mine from Bovees Nursery, but they have gone out of business. If you know of somewhere else I can get this plant, let me know. The flowers are white to pinkish and quite fragrant. It is an evergreen and the growth bronzy in winter. The shrub grows in Siberia and, unlike most rock garden plants, likes to be moderately moist.

Salix x boydii

Most heathers are, in my opinion, too big for the rock garden, but there are a few that fit right in. One of these is *Calluna vulgaris* 'Yellow Globe'. In the winter, you would wonder how it got the name 'Yellow Globe' as the foliage is a deep red. But in August, when it blooms, the foliage is a nice yellow. There are many heaths but only two I would recommend as far north as Oelwein, Iowa, where I live: *Erica carnea* and *Erica tetralix*. *Erica carnea* 'Pink Mist' flowers early and long from April till July. This cultivar withstood -29°F (-34°C), last winter; however, we did have a good snow cover.

Chamaedaphne calyculata is hardy from Zones 1 to 5. *C. calyculata* is prettiest where its stems grow thick and stout in colder climates, as it may become leggy in the southern portion of its range. It grows best with some summer shade under deciduous trees. The flowers are white with a touch of pink.

The woody plant you will most likely hear of if you go to a rock garden presentation is daphne. Except for a very few, in my opinion, most daphnes also get too big for the rock garden. *Daphne velenovskyi* 'Old Port' may be one of the exceptions. *D. velenovskyi* is small anyway, and 'Old Port' seems to be very small. Trying to move a *Daphne cneorum* 'Eximia' that got too big I learned that daphnes do not like to be moved. I killed the plant.

Gaylussacia brachycera in bloom (left) and during the winter (right)

Gaylussacia brachycera (Box Huckleberry) is a rare American plant, lost to American gardens for a time. It was reintroduced through the efforts of the Arnold Arboretum. Ours is about five years old and its evergreen leaves look red to me in the winter. Flowers are white or pinkish and it is an ericaceous plant requiring considerable cultural manipulation to be grown successfully. It is theorized that one colony in central Pennsylvania came from one plant and is over 1,000-years old.

Leiophyllum buxifolium (syn. *Kalmia buxifolia*) may be my favorite woody plant, but then I like all woody plants. It is evergreen, which I prefer. I love to be able to walk through the garden in the winter and see the foliage. The flowering is spectacular on the box sand myrtle with white flowers and pink buds that were almost red last spring in our garden. I have ours planted in very loose soil, you would almost say sand, and we have had it quite some time, about 15 years. It grows in the Appalachians, so it is a North American native plant.

The only downside to *Pieris floribunda* is you may have trouble finding the plant for sale. *Pieris floribunda* (mountain pieris), our own native plant, is not only hardier than *Pieris japonica*, it's showier, more restrained in habit, and nearly pest and disease-free. *Pieris japonica* is bothered by the lace-bug quite a bit. I like the plant in cold weather best. The flower buds are pinkish-red and exposed all winter, which is even better than the white flowers. Our plant has been in the rock garden for about five years and is still quite small so it may be the compact selection 'Millstream'.

Leiophyllum buxifolium (syn. *Kalmia buxifolia*) in flower (top left) and in bud (top right)
Vaccinium macrocarpon 'Hamilton' in flower (bottom left) and in winter (bottom right)

Vaccinium macrocarpon 'Hamilton' is a slow-growing, non-vining, compact form of American Cranberry. The flowers are pink, but the thing I like most is the foliage in the winter, which is almost black. *Vaccinium vitis-idaea* 'Minus' has the common name of mountain cranberry. It is hardier than *Vaccinium vitis-idaea* and I appreciate it for its refined habit, excellent evergreen foliage, and big berries. Both *Vaccinium macrocarpon* 'Hamilton' and *Vaccinium vitis-idaea* 'Minus' have evergreen foliage, which you know by now I love.

Abies lasiocarpa 'Duflon' (top) and *Larix kaempferi* 'Bambino' (bottom).

Now it's time for my favorite woody plants, conifers. Don't use many dwarf conifers in the rock garden unless you want to cut or move them a lot. Choose miniature varieties growing an inch (2.5 cm) or less per year. Even if you plant all miniature conifers, you will have to move or cut even some because one inch a year is quite a bit of growth when you look at 20 years. I think *Abies lasiocarpa* 'Duflon' is the best conifer for the rock garden. I have some that are 20 years old and they are still only about eight inches (20 cm) tall. I have no trouble growing this one. Remember conifers, even firs, like it on the dry side, so they work well in the rock garden. Our *Abies procera* 'Glauca Prostrata' and *Picea glauca* 'Goldilocks' will both have to be moved or cut down. They are slow-growing and we have had them for several years but they already need some pruning. *Abies procera* 'Glauca Prostrata' is very blue and *Picea glauca* 'Goldilocks' is a nice gold; a terrific combination when grown together.

Chamaecyparis obtusa 'Butter Ball' is one of best obtusas out there. We normally have trouble growing obtusas, especially the gold ones, due to lack of cold hardiness. Also, I had one not turn gold because it was in too much shade on the north side of my neighbor's house. I told my brother Tom I would move it to the south side of our house, but it probably would die. It didn't and is the best gold conifer we have in the rock garden. It will eventually have to be moved but not for a long time. Normally, the chamaecyparis we use is *C. pisifera* as it seems to be hardier in our climate. *Chamaecyparis pisifera* 'Dwarf Blue' is a nice plant that looks like it could be sheared and stay in the rock garden a long time.

Larix kaempferi 'Bambino' may be the smallest larch we have. We have it in the rock garden now and I think it can stay there for many years. The larch is one of the few conifers that loses its foliage in the winter, but it gets a nice gold color before it drops its needles. *Picea asperata* 'Mongolei' is a plant I got from Larry Stanley, a Boring, Oregon, nurseryman, for my birthday with prodding from my traveling companion, Pam Maurer. It is almost ten years old and still small, so I think it can stay in our rock garden for many years. *Picea glauca* 'Spring Surprise', a witches broom found on *Picea glauca* 'J.W. Daisy White', stays fairly small, but I think it will have to be cut or moved in several years. *Picea omorika* 'Froendenberg' has been in our rock garden for 15 years. Dennis Hermsen, a Farley, Iowa, nurseryman, thinks it will be good for at least ten more years and I agree. I didn't think there would ever be a *Pinus cembra* small enough for the rock garden, but *Pinus cembra* 'Bergkonigin' stays small enough for quite a few years. I've had one for almost ten years, but eventually, I think it will have to be moved.

A lot of people have trouble with *Pinus flexilis* but not us. I think it takes a dry place to grow it and we have a dry garden. We got *Pinus flexilis* 'Ginger Baby' from Randy and I think it will be in the rock garden a long, long time.

A Down-to-Earth Rock Garden from the Ground Up

Dave Pounds

IT SEEMS TO me that most of the people writing about alpine gardening either started their garden the day after Appomattox or are related to the American aristocracy; or they have been involved for years and years and were given their first plants from Singer, Charlesworth or the Fosters; or they got a backhoe for Christmas and didn't know what to do with it.

But there are ordinary guys who wake up one morning and say to themselves, "I think rock gardening is for me!" This is my ordinary guy story.

As a kid, I had helped my dad in the garden, mostly vegetables. I emigrated to Canada in 1970, married in 1972 and, after we bought our first house in Orangeville, Ontario, Canada in 1975, I finally had a garden of my own.

Like my dad, I started to grow vegetables. I grew everything: peanuts, pumpkins, corn, potatoes, tomatoes, melons, peas, broad beans, zucchini.

I joined the Orangeville Horticultural Society in 1976 and showed veggies at most shows. In 1982 I had a nine-foot-tall (2.75 m) sunflower; it was so tall the local paper came and took a photo for the front page with my son Chris up a ladder with "The Monster." I felt sure I was a shoo-in for the biggest sunflower head at the summer flower show, as it was 15 inches (38 cm) in diameter. Come the day, I was gently placing "The Monster" on the table when a little old lady staggered in with silver hair, a beatific smile and a huge, 23-inch (58cm) sunflower head with not a seed missing! Gladys Marr and I became firm friends and, until she passed away, I would always bow deferentially whenever we met around town, and she would laugh. Never underestimate little old ladies!

New Life, New Partner, New Home, New Horticultural Society

In 2012, Catherine, my new partner, and I moved into Kingfisher Mews, a 3.5 acre wooded property in the valley of a tributary of the Nottawasaga River near Alliston, Ontario. The previous owners had created a berm complete with a weir, damming the river, and forming a one-acre pond. A kingfisher overflies it most days, hence our choice of name.

Work on the garden which, for the most part, was nonexistent, began in earnest once we had finished completely rebuilding the house.

Gentiana verna 'Pyrenees' blooming in the author's garden.

We planted numerous vines and interesting trees on the property, and then dozens of hostas, peonies, perennials, and small shrubs were bought, donated, begged for from friends and sales.

In 2015, my youngest son Phillip married a Turkish girl in Cesme, Turkey. We stayed in Turkey for a week and then, with only a small backpack each, spent two weeks roaming around Bulgaria and Romania.

While hiking in the mountains, we came across a patch of *Gentiana verna* and other alpines. I didn't realize at the time, but I had just botanized! A seed was germinating, in my head.

Which brings us to 2017, the year I started construction of the rock garden. The first part of the year was taken up with cardiac rehab. Then in June we had a horrendous rainstorm, over six inches (15 cm) of rain fell on the night of the 22nd; it broke the dam of a pond further upstream, and a wall of water three feet (1 m) high thundered down our valley. It was higher than the bridge I had just constructed (which held) and almost took out the berm. Cath and I spent the next month placing two truckloads of limestone chunks, by hand, to reinforce the outlet of our berm. It is still holding.

I began the rock garden by cutting down a few cedars on an existing rise toward the back of the property. The soil here is extremely porous (water just disappears) and elevates to about six feet (1.8 m) at the back.

I started with an area about four feet by eight feet (1.2 m by 2.4 m) surrounding a couple of immovable stumps in the Fall of 2017. I trundled rocks from my neighbor's to my yard with the trusty wheelbarrow, making 11 trips.

When we were having the new septic installed the contractor backfilled with the wrong sand, the inspector made him replace it with the correct specification and we inherited a goodly pile of sharp builders sand. So, my soil mixture was two parts sharp sand, two parts compost, and a handful or two of peat. This was mixed in the wheelbarrow one load at a time and trundled over to the garden.

Because I am coming to alpines at a late stage in life, I have a tendency to accelerate the processes and plant as many different species as I can get my hands on with the assumption that I will rearrange the layout, with regard to size, location, growth pattern, or desirability at a later date. The key is to get them started now and find out. And disregard all my whining and bellyaching, I'm having a ball!

My diary for fall of 2017 shows I planted mainly bulbs: *Iris* 'Katherine Hodgkin', *Iris reticulata, Tulipa tarda, T. pulchella* 'Eastern Star', *Muscari*, *Crocus* 'Yellow Mammoth', *Galanthus elwessii*, *Eranthis cilicica, Ipheion* 'White Star', *Chionodoxa forbesii*, and *Narcissus* 'Minnow', as well as *Dianthus* and *Gentiana angustifolia*.

Phase two began in the spring of 2018. I built two new areas, both three feet by six feet (0.9 m by 1.8 m). I used rocks local farmers had pushed to the side of their fields after plowing and any that friends would donate.

In August 2017, I joined The Ontario Rock Garden and Hardy Plant Society, and I made my first order to Wrightman Alpines in New Brunswick, Canada. Again my diary for 2017 shows I purchased *Allium forrestii, Androsace villosa* var. *jacquemontii, Anthemis marschalliana, Campanula pulloides, Dianthus* 'Blue Hill', *Draba* aff. *bryoides* 'Crevice Pygmy', *Gentiana acaulis* ex 'Coelestina', *Gentiana verna* 'Pyrenees', *Juniperus communis* 'Compressa', *J. communis* 'Horizontalis', *Orostachys minuta, Primula* 'Wharfedale Bluebell' and rooted cuttings of three saxafrages.

So far I have lost the *Anthemis*, the *Campanula pulloides* and the *Juniperus communis* 'Compressa'.

Opposite: The rock garden has developed dramatically over just three years. The top photo shows it in October, 2017, the middle photo is roughly a year later, in August 2018, and the bottom photo shows it as it was in September, 2019.

A concrete urn used as a trough. The bottom photos show it sitting on its cedar plinth, and with its roof put in place during the winter.

I found a lovely two-foot-diameter (60 cm) concrete urn for ten dollars. This was to be my first trough. Having seen several troughs, I felt that it would be better if you didn't have to bend down to look closely, so it now sits on top of a cedar plinth at chest height. For 50 cents, I found a light fixture that I cobbled into a roof which is only in place during the winter. The trough is planted with *Draba* aff. *bryoides* 'Crevice Pygmy', *Orostachys minuta*, the saxifrage cuttings, plus other saxes, semps, *Androsace villosa* var. *jacquemontii* and *A. sarmentosa*. As I send this article off, the trough is doing splendidly: all the plants are forming lovely tiny buns.

The diary for 2018 shows I planted *Androsace* 'Chumbyi', *Arabis alpina* subsp. *caucasia* (from seed), *Androsace sarmentosa, Buxus* 'Kingsville Dwarf', *Campanula portenschlagiana, Callianthemum coriandrifolium, Dianthus myrtinervis* (from seed), *Draba cretica, Gentiana andrewsii*, *G. cruciata*, *G. gracilipes, G. clusii, Juniperus squamata* 'Blue Star', *Ramonda myconi, Sisyrinchium angustifolium* 'Lucerne', *Saxifraga urbium* 'Aureo Punctata', *S. arendsii* 'Touran Scarlet', *S. cotyledon, S. fortunei* 'Cheap Confection', *S. macnabiana*, *S.* 'Whitehill', *S.* 'Sieberi' and mystery seeds from a seed exchange which were thought to be *Veronica gentianoides* 'Barbara Sherwood' (the jury is still out).

In September 2018 I joined The North American Rock Garden Society.

Spring 2019 brought good and bad news. Two agapanthus (grown from seed) which I had nurtured through two winters unscathed. But a *Ramonda* met a lingering end and *Draba cretica* and *Allium forrestii* are missing in action. On a positive note, thanks to the NARGS Seedex, over the winter I started quite a few different varieties of seed.

Work on the west end of the rock garden continued apace and another 25 square feet (2.3 m^2) was added, which allowed me to plant a cornucopia of new goodies.

I have placed a label for each plant placed in the garden, mainly because my memory is not getting any better, and to allow other people to see what is where. I currently count 145 labels, some of which are doubles, so maybe 130 varieties in total.

Last week I dragged several huge flat rocks, about three feet by three feet by three inches (9 m by 9 m by 7.6 cm) for the last course before the top. They were buried in an old pond area on the property and had to be moved end-over-end up a steep hill and out to the garden.

If you are in the neighborhood please drop by, and please feel free to give me lots of advice. We always have a bottle or two of chilled wine ready for guests!

Gentiana cruciata

Dave Pound's Rules for beginning Rock Gardeners:

In hindsight, I probably should have selected a different location for the rock garden, but it is too late now! In the interest of you learning from my mistakes, here are my rules for starting a new rock garden for anyone else who is starting from scratch:

1. Unless it is untenable, select a location close to the house. As you get older it is amazing how many miles you walk to and from the hallowed spot because you forgot something.

2. Same for the water source. We have this humungous pond, but I'm somewhat suspicious of the water (I know, I know: I should get it checked) so I lug two watering cans from the rainwater tanks.

3. Try not to pick a spot under trees or you will be picking up leaves ad nauseam, a sure-fire cause of an aching back.

4. Spend a day checking the amount of sunlight that lands on the prospective garden. Some shade is manageable. As Farrer said, "A dank hollow is doom, a drip damnation." Remember, *Ramonda* and *Rhodohypoxis* can always be grown in the shade of an appropriate rock.

5. Remember you have to get the rock to the rock garden. You are going to lug tons of the stuff, so if the garden isn't close to the road, please ensure you have access by trailer. Failing that, it's the damned wheelbarrow. I spent three days last week rolling a huge rock 60 feet (18 m) per day all the way from in front of the house back to the new section of the rock garden. Some days I feel like Sisyphus!

6. If the soil is not what you want, you will have to haul amendments in. I have, so far, mixed by hand all the ingredients close to the house and then wheelbarrowed it in, sweating and straining. Rock gardening is certainly not for the elderly. Did I mention I had a triple bypass in 2016?

7. Purchase, borrow or steal these books: *Rock Gardening* by H. Lincoln Foster, *Rock Gardens* by Wilhelm Schacht, *Collectors' Alpines* by Royton E. Heath, *Rock Garden Plants* by Baldasarre Mineo, *The Manual of Alpine Plants* by Will Ingwersen, *Alpine Plants of North America* by Graham Nicholls, and, my newest addition, *Saxafrages* by Malcolm McGregor.

8. Read all the books mentioned above again and again. You could also try Reginald Farrer, a sometime Yorkshireman who was born in London and spent parts of his life at his family estate in Clapham. His language is incredibly flowery, but he definitely loved his alpines.

9. Decide which type of rock garden you want. Don't be influenced by anyone else as it is you who have to live with your decisions. Modern thought is leaning toward crevice-type beds which allow close contact between plant roots and the cool, moist rocks. This would be ideal if you were lucky enough to have access to a broken-up concrete barn floor, slate of a suitable thickness, or if you were sufficiently wealthy to buy said items.

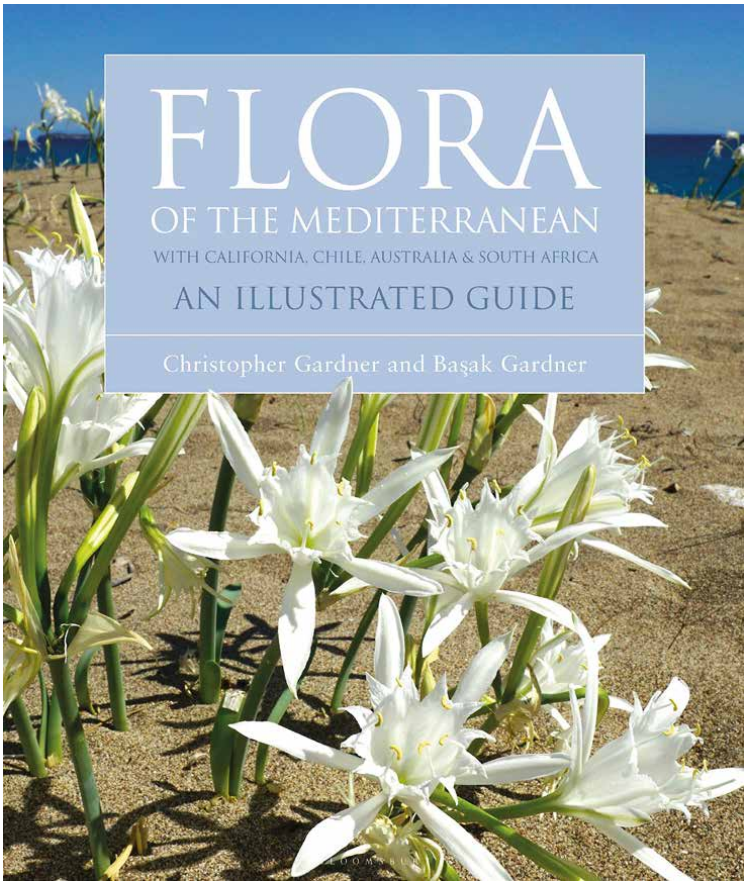
10. All requisites must meet a strict budget, in my case, nothing, or very close to it. I should have mentioned earlier that, as a retired gentleman, with very limited means, and originating in Yorkshire where, "if tha as no brass then tha must mek do" (translation: If you have insufficient means, then one must make the most of what one does have.)

11. Buy some good tools, especially a mattock (a gardener's adze); you'll wonder what you ever did without it.

Androsace 'Chumbyi'

Bookshelf

Flora of the Mediterranean



Christopher Gardner and Basak Gardner
2020, Bloomsbury Wildlife
ISBN: 978-1472970268
Hardcover, 432 pages

This richly photographed guide is enormous, weighing in at over 5 pounds (2.26 kg) and is an absolute pleasure to page through. Aside from a few introductory pages about the concept of the Mediterranean climate, and some pages introducing each region, the bulk of the book is page after page of jaw-droppingly beautiful images accompanied by extensive captions that describe the plants and often, usefully for gardeners, the habitat in which they grow.

Mediterranean climates are typified by cool rainy winters and hot, dry summers. This weather pattern is found around the Mediterranean, as well as California, Chile, southwest Australia, and South Africa. These regions have some of the greatest diversity of plant life in the world, and supply a disproportionately huge number of our favorite garden plants, many of them highly suitable for rock gardens.

This book is not a field guide, nor is it a technical flora designed for use by botanists. If you are looking for exhaustive lists of species and their native ranges, or a tool to use for identifying plants in the wild, this is not the book for you. However, if you want something beautiful and inspiring peruse, I can hardly recommend this book enough. This is a book for gardeners and plants lovers, not botanists.

If you are fortunate enough to garden in a Mediterranean climate, this book is clearly a must-have, supplying you with an enormous wish-list of plants that will likely thrive in your garden. And even if you garden somewhere with rainy summers, there is a lot of inspiration to be found. My garden in eastern Virginia, with rainy, humid summers, is decidedly not Mediterranean in nature, but I have found that a surprising number of plants from Mediterranean climates from around the world will grow happily though my fall, winter, and spring, provided I can give them some relief from the summer wet. Sometimes the sharp drainage of a rock garden is enough. Some bulbs and other geophytes can be dug for dry storage over the summer, and annuals I simply let complete their life-cycle once summer arrives. When I gardened in Michigan, I could make it work the other way around, letting my cool, northern summer stand in for a Mediterranean winter, and protecting plants through my cold winters.

I'm sure I will never attempt to grow a fraction of the plants in this book, but I have taken enormous pleasure looking through it and marveling at the incredible diversity of plant forms.

Joseph Tychonievich

NORTH AMERICAN ROCK GARDEN SOCIETY

Bulletin Board

spring
2020

volume 78 | 2

President's Message, Spring 2020

As I write this today in mid-February, the sun is shining with spring-like intensity. Hamamelis has started to emerge with little dots of orangey red. This timing is a first for my garden in the foothills of the Berkshires. Back when my kids were small, this was typically the week when the temperature never climbed above 0 F (-18 C). For a whole week! At the children's bus stop, even the kid who usually never wore socks (socks: how uncool!) wore them. Of course, he didn't change his shoes. So, he stood on the snow in his loafers, but with socks. Yes, we always had a few feet of snow that week, blanketing our gardens, providing cover and "poor man's fertilizer." The pipes in our garage always tended to freeze so I would take out a hairdryer and defrost. And it was time to get the last of the seeds outside. Just part of the winter routine. But no more.

This is the warmest winter I can remember since I lived in California decades ago. This winter has not gone below 0 F (-18 C) so far. In fact, I can only remember one single-digit morning. Oh, we have had pretty good snow cover here in Goshen, Connecticut, although trees were shorn by a couple of ice storms that swept through with hurricane winds. Branches needed a good day's cleanup all over the woods and the garden. This happens more and more frequently these days.

But okay, now we have moved from reliable zone 4/5 winter to zone 6/7. Imagine what must be happening in the alpine zones. In my friend's garden, deer who usually vigorously shear his prize-winning rhododendron collection, have not shown up so far, this year. Of course, he does not grow daphne like my other friend who has a whole herd of the antlered rats moored on her cliffs, munching away at all the most-choice ones. They do have a taste for the exotic. In my own garden, deer have not appeared this year.

Yes, the jet stream has changed. And indigenous alpine plants are disappearing from the wild. Question becomes then: how many of them do you grow in your garden? And not just high

alpines. NARGS sponsored two very significant seed collecting trips in 1994. How many of you ordered seed from the NARGS share from the Alpine Garden Society's '94 China Expedition? How about the seed shares from the Denver Botanic Gardens' '94 South African Expedition? Or more to the point, how many of you are growing plants from those collections now? For that matter, there were over 2,000 other wild collected seeds donated that year from western American draba, echinocereus and phlox to Swiss campanula, saxifraga, and soldanella. The donor list was well over 700. This society is about passionate people growing interesting and rare plants. The seed list was 7500 different listings. Wow! I remember near the end of the donation time, my hand stopped functioning as I tried to enter all the donation listings on the computer. Thank goodness for the strong support of the Berkshire and Connecticut chapters who helped me finish. As I now look at the list I wonder about our stewardship of those plants. We were so fortunate to grace our gardens with their beauty.

Currently, the wild is under assault not only by the weather, but by human operations from mining to farming and more. How might we protect such precious treasures? The answer seems obvious to me. Collect seeds from your gardens for the seed exchange. There is an incredible repository in your gardens. Consider how much pleasure your plants have given you. What better way to acknowledge than to share your wealth!

Does anyone still grow in the garden an old Seed Exchange listing *Aquilegia grahamii*? What an exquisite plant that is now "critically imperiled." Let's see how many of you will donate back to our Seed Exchange.

Let's make it a point of honor to donate seed this year. All it takes to add your name to the donor's list is five different species. Then look next winter at the honor roll of donors. Find your name, too. So, get out your seed envelopes. Or lacking them, use whatever you have on hand or might make. Get ready, get set, collect seeds!

Happy Spring Gardening!

Elisabeth Zander

Post-AGM Tour

Four Must-See Public Gardens

(aka Gardens of the Lower Hudson Valley)

June 21-23, 2020

A scene from Wave Hill

Be prepared to visit four world-class gardens while conveniently leaving all the planning (and driving) to NARGS. While you're already in Ithaca for the Annual Meeting, don't miss out on this once-in-a-lifetime experience to visit four public gardens…and one private garden.

Innisfree: "When people come visit New York, this is the garden I love to take them to," so states Martha Stewart. Greatly influenced by Chinese and Japanese garden design – largely naturalistic with inwardly focused vignettes. You will have to constantly remind yourself that this is a completely-built landscape as conceived by original owners Walter and Marion Burt Beck alongside landscape architect Lester Collins.

Anne Spiegel's Garden: This is a rare opportunity to visit her garden, awarded the Linc and Timmy Foster Millstream Award in 2011. She has wonderfully integrated natural cliffs, outcrops and ledges with built stone features, enhanced by choice and alpine plants, many of which she has grown from seed. As Lori Chips once wrote, it is a "gorgeous alpine tour de force….There are plenty of gardens we visit and forget. This is not one of those." (View the entire Chips article about the garden here: https://tinyurl.com/ucfkzwv)

Stonecrop: Originally the private resident of Frank and Anne Cabot, it has been a public garden since 1992. Beginning with its new visitor center you will have much to explore with (as their website states) its" encyclopedic collection" of plants. The Cabot's love affair with alpines is evident in the raised bed and cliff rock gardens, trough collection, and alpine houses but the woodland and English-style flower garden and the floating conservatory are also among the highlights.

Wave Hill: Owned today by the City of New York, many illustrious individuals once lived at this former estate, ideally located along the Palisades on the Hudson River. Ahh! The borrowed view! The gardens still seem to maintain a feeling of intimacy. Visit their alpine house and impressive trough display by strolling through the site of a former greenhouse, now the herb and dry gardens. The Rossbach Monocot Garden displays the decorative aspect of this important group of plants as it pays homage to their usefulness.

New York Botanical Gardens: Unlike the other gardens on the tour, NYBG was never a private estate but rather was gifted to NYC. Because its grounds are vast (and includes a 50-acre, old growth forest), the overview by tram can be very helpful. Besides the visits to such no-brainers as the 2.5 acre Rock Garden and the completely reconstructed Native Plant Garden adjacent to it (both near the main entrance), you may wish to visit the dwarf conifers, part of the Benenson Ornamental Conifer Collection, set amongst giant boulders.

Don't miss out on this fabulous tour! There is still space available so don't delay; sign-up now: https://tinyurl.com/vt28cby A well-kept secret, until now, is that Harry Jans plans to join this tour. This is quite an extra bonus!

Full itinerary and registration can be found here:
https://www.nargs.org/event/annual-meeting-and-tours-june-2020

New and Rejoining Members

Welcome to all those who joined or rejoined between November 1, 2019, and February 19, 2020.

Anonymous, California
Althouse, John, Concord, MA
Atkinson, Angela, Kallista, Vic., Australia
Ayer, Graham, Davidson, NC
Bame, Marvin, Portland, OR
Barker, Robert, Cary, NC
Barker, Stacie, Sudbury, MA
Blackmore, Nate, Santa Cruz, CA
Bordoni, Dianne, Fayetteville, NY
Brown, Kathy S., Colorado Springs, CO
Burch, Tim, Salem, NY
Burkholder, Jackson, Littleton, CO
Campbell, Craig, Santa Fe, NM
Cheney, Margaret, Ottawa, Ontario
Commons, Theodore, West Lebanon, IN
Curtis, Wendy, Aylesbury, Buck., UK
Dabrowski, Sandi, Knightdale, NC
Damman-Sharrow, Lisa, China Twsp, MI
Drake, Ryan, Des Moines, IA
Ellenberger, James & Sandra, Mercer, PA
Elmore, Millicent, Asheville, NC
Engle, Mary, Berkeley, CA
Ferret, Philippe, Bussy St-Martin, France
Gastil-Buhl, Gastil, Santa Barbara, CA
Girand, Jon, Arvada, CO
Glass, Joshua, Spokane, WA
Goss, Jim, Hoboken, NJ
Graboski, Michael S., Evergreen, CO
Gracik, Thomas, Fayetteville, PA
Gurney, Bryce, Seattle, WA
Hagan, Patti, Brooklyn, NY
Hahn, Kristian, Evanston, IL
Hall, John, Grand Junction, IL
Hansen, Bret, Vancouver, WA
Hanson, Tim, Chico, CA
Hembree, Will & Anna Wyngaarden, Coatesville, PA
Higginson, Neil, Rugby, Warks., UK
Hodgman, Chelsea, Saranac, MI

Holzwart, John, Sheboygan, WI
Hudak, Tom, Garner, NC
Hughes, Melody, Cary, NC
Illingworth, Sharon, Neebing, Ontario
Kaempfe, Sabine, Neu-Ulm, Germany
Katz, Mandy, Philadelphia, PA
Kessel, Candace, Washington, DC
Kleinberg, Deborah, Burtonsville, MD
Koschak, Brad, Spring Grove, IL
Kriege, Joanne, Verona, WI
Kuklis, Wanda, Powell Butte, OR
Larochelle, Majella, Gatineau, Quebec
Lawhorn, J. Mark, Union, KY
Mares, Jacob, Cheyenne, WY
Meyer, Mary, Brooklyn, NY
Miner, Linda, Franktown, CO
Moody, Deborah, Valley Mills, TX
Moss, Mary, Maryville, TN
Moulton, Pamela, New York, NY
Moylan, Jim, Auburn, CA
Olson, Deanne, Glen Ellyn, IL
Phelps-Munson, Marcus, Saint Paul, MN
Politika, Diana, Port Angeles, WA
Pulman, David, Chapel Hill, NC
Remphrey, Steven, Wilkes Barre, PA
Richardson, Mark, Boylston, MA
Rosenberg, Phyllis, Gladwyne PA
Russell, Carol Cox, Golden, CO
Schollmeyer, Jeanne, Seattle, WA
Stuart, Susan, Puyallup, WA
Tol, Dorothy, Nepean, Ontario
Tsutakawa, John, San Francisco, CA
Tucker, Donald, North Berwick, ME
Van Noort, Marco, Warmond, Netherlands
Waksmundzki, Raymond, West Orange, NJ
Washburn, Gale, Kenbridge, VA
Williams, Ann, Kanata, Ontario
Wisneski, Andrew, Clinton Twsp, MI
Wrench, Robert, Seattle, WA
Yadav, Vishal, Vashon, WA
Young, Michael, Washington, DC

Note: In the interest of privacy, we are no longer publishing the addresses of new members in the *Quarterly*. You can securely message fellow members on our website: nargs.org/member-lookup

NARGS Donations

Donations to NARGS between November 1, 2019, and January 31, 2020. To support Seed Exchange, *Rock Garden Quarterly*, the general fund, in memory of Rex Murfitt, and in honor of Pandora Wilson.

Watnong Chapter of NARGS (New Jersey)
Anaouil, Louise (Quebec)
Atkinson, Angela (Australia)
Barrett, Karen (Maryland)
Bell, Gary (Nebraska)
Bishop, Joy (United Kingdom)
Bolt, Joan F. (Michigan)
Bouffard, Vivien (Massachusetts)
Bowditch, Margaret (Pennsylvania)
Brazill, Linda (Wisconsin)
Breyfogle, Ross (Colorado)
Brink, John M. (Colorado)
Brown, Nona (Colorado)
Brunjes, Diane (Colorado)
Caroff, Julia (Michigan)
Carpenter, Meighan (North Carolina)
Castro, Elisabeth (Texas)
Cavallo, Ernest (New York)
Collins, Jane (Virginia)
Conway, Gregory (Quebec)
Cook, Scott (United Kingdom)
Cooper, Barbara (Ontario)
Cummings, Julia (Colorado)
Curtis, Lee (Colorado)
Dambrosi, Paul (New York)
Damman-Sharrow, Lisa (Michigan)
Darling, Eric (Massachusetts)
Dobak, Janet (Oregon)
Dumont, Judith (New York)
Dussler, Barbara (Germany)
Eichler, Carol (New York)
Elkins, Judith (Oregon)
Evanetz, Susanne (British Columbia)
Farrier, Maurice (North Carolina)
Ferree, Louisa (Massachusetts)
Franklin, Catherine W. (Alaska)
Gaffney, Kathleen (New York)
Gentling, Peter (North Carolina)
Giguere, Rene (Quebec)
Gillespie, Cameron (Virginia)
Gilrein, John (New York)
Glavich, Thomas (California)
Gomez, Annette (Wisconsin)
Green, Richard (United Kingdom)
Grushow, Jane (Pennsylvania)
Gryboski, Maryanne (Connecticut)
Haas, Joan T. (Pennsylvania)
Hall, Steve (Oregon)
Hamel, Anita (Maryland)
Hammond, Seyra (Connecticut)
Hampton, Sandra Kay (Illinois)
Hayes, Peter Paul (United Kingdom)
Held, Paul (Connecticutt)
Herold, Roy (Massachusetts)
Hewgley, Greg (Colorado)
Hewitt, Sigrid N. (Rhode Island)
Highberg, Patricia (Vermont)
Horwitz, Lola (New York)
Houdek, Robert (Ohio)
Hubbard, Neil (United Kingdom)
Huggler, Carol (Alberta)
Hultman-Hallberg, Annika (Sweden)
Humphries, Terry (New York)
Hunt, Jim (Arizona)
Illman, Richard (Australia)
Jahnke, Gloria (North Carolina)
Jakob, Maria-Louise (Germany)
Jarrell, David (Oregon)
Johannessen, Roar (Norway)
Johnson, Elin E. (Tennessee)
Kaempfe, Sabine (Germany)
Kalb, Jennifer (New York)
Keane, Gerry (Ireland)
Kelley, Sabra (North Carolina)
Kessel, Candace (District of Columbia)
Kidd, Cameron (British Columbia)
Knudsen, Iner (Ontario)
Koch, Helen (Maine)
Konen, Sally (Idaho)
Kramer, Hans (Netherlands)
Kuklis, Wanda (Oregon)
Kurio, Kathy (Alberta)
Lane, Richard (North Carolina)
Langer, Ingeborg (New Jersey)
LaPlante, Frederick (Washington)
Laughner, Linda (California)

Leece, Cathy (Minnesota)
Leggatt, Anna (Ontario)
Little, Ruth (North Carolina)
MacGregor, Elizabeth (United Kingdom)
Magowan, Robin (New Mexico)
Magyar, Sandra L. (Connecticut)
Mandeville, Sue (Oregon)
Lane, Amelia P. (North Carolina)
Markovitz, Kirk (Oregon)
Marsolo, David (Ohio)
Matsuzawa, Azusa (Japan)
Mattus, Matt (Massachusetts)
McDowell, Marta (New Jersey)
McInnes, Laurie (Australia)
McInnes, Laurie (Australia)
McIntosh, Kevin (Maryland)
McKenzie, Laurel (New Hampshire)
McKenzie, Laurel (New Hampshire)
Meszaros, Patricia (Saskatchewan)
Midgley, Michael (New Zealand)
Mikkelsen, James (Utah)
Milano, Phyllis (Connecticut)
Miwa, Satoshi (Japan)
Mizin, Michael (Pennsylvania)
Montague, Dan & Pat (Washington)
Moscetti, Paula (New Jersey)
Mulac, Kathleen (Ohio)
Mustin, Sarah (New Hampshire)
Myrick, Valerie K. (California)
Norris, Peter (Massachusetts)
Novak, Janet (Pennsylvania)
Olson, Deanne (Illinois)
Open, Kenneth (France)
Pacholko, Helen (Alberta)
Parrish, Michael (New York)
Peachey, Harold (Maine)
Pearson, Richard (North Carolina)
Plankeel, J. W. (Netherlands)
Pounds, Dave (Ontario)
Rafferty, Sean (British Columbia)
Reed, Ellen (New Mexico)
Rembetski, John (New Mexico)
Richardson, Kathleen (Washington)
Rieder, Corina (California)
Rifkin, Jerry (Pennsylvania)
Rifkin, Leslie (Pennsylvania)
Ripperda, Jerry (California)
Robertson, John (Illinois)
Rodich, Richard T. (Minnesota)
Rodriguez, Jaime (Alaska)
Rose, Barbara (Virginia)
Ruault, Bob (Alberta)
Salatino, Sarah (Vermont)
Sanderson, Amy (British Columbia)
Saucier, William J. (Wisconsin)
Schleifer, Liane Amy (Georgia)
Schneider, Paul H. (Tennessee)
Schramm, Nancy (California)
Scott, Caroline (Alberta)
Seth, Kenton (Colorado)
Sevastopulo, George (Ireland)
Shannon, Jerry (Minnesota)
Sharpe, Jim (Nova Scotia)
Sierra, Mary-Stuart (Maryland)
Skulason, Fridrik (Iceland)
Smith, Carole P. (Ohio)
Spiers, William (Michigan)
Springer Ogden, Lauren (Colorado)
Staniland, Rob (Alberta)
Stevens, Rose (Ohio)
Stone, Jonathan (Connecticutt)
Stuart, Rob (Ontario)
Swick, Kathleen (Alaska)
Thompson, Leah (Oregon)
Thompson, Leah (Oregon)
Tol, Dorothy (Ontario)
Totten, John M. (Pennsylvania)
Turner, Larry (Colorado)
Van den Wollenberg, Bert (Netherlands)
Vanspronsen, Arie (Ontario)
VanSteen, Ferdinand (California)
Vaxvick, Linda (Canada)
Vermeeren, Danny (Belgium)
Waldrep, Lynda (North Carolina)
Walker, Sally (Arizona)
Ward, Bobby (North Carolina)
Warner, Gary (New Jersey)
Wessells, Arcangelo (California)
Westergren, Kerstin S. (Norway)
Whitehead, Diane (British Columbia)
Whyman, Steven (North Carolina)
Williams, Linda (Oregon)
Willis, John (Maryland)
Wolfe, Pamela (New Mexico)
Wysocki, Raymond (New Jersey)
Zander, Elisabeth (Connecticut)
Zeeh, Reiner (Germany)

Upcoming NARGS Meetings

Ithaca, New York: Cornell University, June 18 – 20, 2020

Durango, Colorado: 2021

Location to be determined, 2022

Nova Scotia: 2023

Patrons

The following recently became NARGS Patrons:

Clayton, Hilary (New Jersey)
Ferree, Louisa (Massachusetts)
Lawrence, Starling R. (New York)
MacFarlane, Radford (Delaware)
Maran, Mary M. (Pennsylvania)
Mitchell, Bob & Colleen (Michigan)
Pulman, David (North Carolina)
Schmidt, Jeremy, & Meghan Fidler (North Carolina)
Tonnesen, Alex (Colorado)
Tsutakawa, John (California)
Willis, John (Maryland)

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

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.

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

Gert Böhme, Rabenau, Germany

Joseph Gerrath, Guelph, Ontario

Mary Kathlyn (M.K.) Ramm, Hillsborough, North Carolina

Iza Goroff, Whitewater, Wisconsin

NARGS Election

The online election for three members to the Board of Directors will be held from April 20 - May 3, 2020. The list of candidates and their qualifications were published in the winter issue of the *Quarterly*. On April 20, members will be emailed a call to vote that will include directions and a contact for any questions. Please make sure your email address is up to date in the NARGS membership files. If you do not have email, you may mail a request for a printed ballot to NARGS, POB 18604, Raleigh, NC 27619-8604. The NARGS board will ratify the voting and results will be posted online.

NARGS Traveling Speakers Program

The NARGS Traveling Speakers Program has been planned for 2020. NARGS greatly appreciates the funding provided by an anonymous donor to help make the program possible. See the complete list on the NARGS home page (www.nargs.org) and click on "Traveling Speakers Program" under latest news.

--Rosemary Monahan, chair

NARGS·TOURS AND ADVENTURES

The NARGS Tours & Adventures Committee has opened pre-registration for a botanizing tour of the Burren on Ireland's west coast. The tour date of May 4-7, 2021, is immediately prior to the Scottish Rock Garden Club's (SRGC) International Rock Garden Conference in Perth, Scotland. The tour itinerary and pre-registration information are posted on the NARGS website under "Latest News."

--David White, chair

Seed Exchange

In December, 2019, the European Commission enforced a new regulation that requires a phytosanitary certificate to accompany all seeds entering all countries of the European Union. Japan continues to require a phyto, adding another country to the list of necessary forms and inspections.

The preparations for writing those phytos required a great deal of extra work, a good bit of extra expense, and a steep learning curve throughout January and into February.

In order to better manage the costs for 80 seed orders – at $26 per phyto – we sought the help of our members in the EU countries and Japan to act as consignees, asking them to receive all the seed orders for their own country and then re-mail them to the other members in that country. We were fortunate that several willing and helpful members volunteered for this responsibility. Once the seeds were inspected, the shipments were sent, received, and dispersed. So this first year at an expanded scale was successful, thanks to the help of our international community.

We are truly grateful for the leadership and mindful work by the wonderful volunteers of the Watnong Chapter, led by Hilary Clayton with fine assistance by Pat Hilgendorf, Martha Podilchuk, and Don Grossman.

And, hoping he will read this, we all want to thank Mr. Steven Silberstein, the inspector from the New Jersey Department of Agriculture, for his accommodating help through the data entry, and his patient inspection of the thousands of packets of seed destined for our overseas members.

As this is being written, the remaining seeds are heading to the Wisconsin-Illinois Chapter, where the Surplus Round of orders will again be capably handled by their volunteers in March, headed by Ed Glover.

When their work has been completed and those orders have been fulfilled, the leftover seeds – which still include some of the best and rarest – will be divided and sent to the chapters that respond when I send a notice to all chapter Chairs in early March.

At that point, both the Watnong and Wisconsin-Illinois chapters will have completed their two-year terms of handling the Seedex distributions, and we will need two new chapters to step into those roles for 2021 and 2022. Fortunately, the steps of the phyto preparation have been worked through, so the Main Distribution will certainly be

less fraught in future years. For the most part, only the day of seed inspection will be added to that schedule. And, because we do not allow members in the EU or Japan to place orders in the Surplus Round, that job will remain the same as in past years.

We sincerely hope that chapters will seriously consider taking on the responsibilities for the distributions. The work is completed during a brief period of high activity: January to early February (Main), or March (Surplus). It is not difficult work, although it does require an attention to detail. And this activity brings chapter members together for camaraderie and a sense of accomplishment in a way that ordinary meetings do not.

The Seed Exchange would not be possible without the many generous donations of seed that arrive at Laura Serowicz's door in the fall. So, we hope that all of you will gather seeds this season, from your gardens or your trips afield. Remember to watch for seeds forming as the blooms (sadly) fade, and then collect them when they have ripened. Instructions and forms for donating seed will be in the summer issue of this Rock Garden Quarterly. Let's all help to keep the Seed Exchange viable and our gardens interesting and thriving!

Joyce Fingerut, Director
NARGS Seed Exchange
Email: alpinegarden@comcast.net

Breaking News:

There have been recent problems with imported seeds that were inspected at the Seattle Plant Inspection Station being confiscated by inspectors due to being "contaminated with fungus." The Plant Inspection Station Policy Director at APHIS has been notified and is working on resolving the problems. Until we are assured that the issue has been successfully addressed, it is recommended that US residents import their seeds from Canada and overseas through another station; it need not be the one closest to your home. NARGS has used the stations in Linden, NJ, and Atlanta, GA, for many years, and found their inspectors to be very helpful.

To change stations, apply to APHIS for new green&yellow mailing labels:

Greenandyellowplantslabelrequest@aphis.usda.gov

...or log into your ePermit account and click on My Shipments and Labels... then on Request. Choose the station, and number of labels you will need.

NARGS Service Awards

Betty Mackey (Delaware Valley Chapter)

Betty joined the Delaware Valley Chapter 25 years ago and has been a steady presence by filling many positions over the years, including program chair and chapter chair. In 2009, she initiated the Chapter Lifetime Service award to recognize chapter members with long commitments to the chapter. Always willing to help, she took over the organization of our plant sales from 2011 to 2016. In recent years, she has also been a regular worker and supporter of our Philadelphia Flower Show exhibit which helps attract members to the chapter. Also, Betty has offered many hands-on workshops and produced an instructional CD while popularizing "Paper Crete" troughs. One of her achievements was working with fellow rock gardeners Joyce Fingerut and Rex Murfitt. An independent publisher of gardening books for 34 years, B. B. Mackey Books published "Creating and Planting Garden Troughs" by Joyce Fingerut and Rex Murfitt. That was followed with "Creating and Planting Alpine Gardens" by Rex Murfitt in 2005. Her company has published many other books on specialized gardening topics. Check them out at Mackeybooks.com and Amazon. Betty received national recognition in 2018 when she was inducted as a Fellow into GardenComm (formerly Garden Writers of America) for her years of service and accomplishments.

Also, did you know that she has been a print-on-demand designer, publisher, and consultant? Her POD artwork can be found on Zazzle and Mackey Books (where her stores are ColorDiva and Beebalm), Society 6, and Red Bubble. We are fortunate to have Betty's enthusiasm and experience supporting our chapter's work. Cheers to the years ahead! (Recommended by Jan Slater and Sharee Solow)

Amelia and Richard Lane (Piedmont Chapter)

It is now my great honor and pleasure to present the North American Rock Garden Society Award for Service to Amelia and Richard Lane. Amelia is our immediate past chair, having served for three years. Richard served for four years at the national level as NARGS treasurer, steering our parent organization through a period of financial uncertainty and establishing us

on firmer footing. He recently agreed to come back on board due to the current treasurer's inability to finish his term. We are lucky to have Amelia and Richard as part of our chapter. They have seemingly boundless energy and enthusiasm. Richard is a jet-setting financial consultant, and Amelia has run her own business, Lasting Impressions, with partner Beth Jimenez for fourteen years. Fresh back from a trip to Ecuador and the Galapagos with the JC Raulston Arboretum, it is rare for these two to miss an opportunity for adventure. Richard and Amelia take an active role supporting the JC Raulston Arboretum, as well as our Piedmont Chapter and national NARGS. We are so grateful. I'm thrilled to present this Award for Service to Amelia and Richard Lane.

(Recommended by Cyndy Cromwell)

Maurice Farrier (Piedmont Chapter)

I'm delighted to present the NARGS Award for Service to Dr. Maurice Farrier. Maurice first joined NARGS in 1988 and the Piedmont Chapter in 1990, after retiring as a professor of entomology at North Carolina State University. He and his late wife, Gwen, began overseeing the refreshments soon after joining the chapter, and Maurice has continued this important job for the last thirty years. Gwen's professional background was in food service, and he has continued to follow her methods faithfully, resulting in a consistently attractive, functional setup for our refreshment table.

In addition, over the years, Dr. Farrier has written many interesting and useful articles for our newsletter, The Trillium, including a fascinating piece about making capillary-fed bottle pots for seed starting. Maurice, we are so grateful for your steadfast service, your wonderful contributions to The Trillium, and for thirty years of fantastic refreshments! (Recommended by Cyndy Cromwell)

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)	Pinky Fredricks <plfred100@gmail.com>
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)	Sandy Evertowski <evertowski@centurytel.net>
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)	Vivien Bouffard <vbouffard55@msn.com>
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)	Arie Vanspronsen <arie.v@sympatico.ca>
Ottawa Valley (Ottawa, ON)	Jeff Hurtig 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 127 North St., Goshen, CT 06756-1202
Vice President	Vice President: Panayoti Kelaidis telesonix@outlook.com 1244 S Quince St., Denver, CO 80231-2513
Recording Secretary	Joyce Hemingson <jhem1022@gmail.com> 44 Rock Hall Rd., Colebrook CT 06021-7072
Treasurer	Richard Lane <rhlane01@gmail.com 4904 Hermitage Dr., Raleigh, NC 27612-2762
Director-at-Large	Brendan Kenney, nycbeard@gmail.com 5 1/2 Jane St, Apt. 4R, New York, New York 10014-6017

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

Directors of the Board

2017–2020	Valerie Myrick, Sonora, CA Marianne Kuchel, Fairlee, VT Steve Whitesell, North Blenheim, NY
2018-2021	Mariel Tribby, Saint Louis, MO Michael Guidi, Denver, CO Judy Zatsick, Fairfax Station, VA
2019-2022	Cyndy Cromwell, Cary, NC Brendan Kenney, New York, NY Jerry Rifkin, Merion, PA

Managers

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

Back cover: *Scrophularia chrysantha*. Todd Boland.

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