Rock Garden Quarterly

Blue Ridge special issue

Winter 2012/2013

NARGS

TO ADVERTISE IN THE
QUARTERLY
CONTACT

NARGSads@shaw.ca

digital Quarterly

Donations

Your financial support for NARGS programs is important and appreciated. You can make a donation to NARGS and your donation can be to support a particular program such as the Norman Singer Endowment Fund, the Seed Exchange, the Rock Garden Quarterly, or it can be to the NARGS General Fund.
If you wish this can be in honor or memory of someone, such as a gardening friend.

You can make a donation with PayPal on the NARGS website **<www.nargs.org>** and choose DONATIONS
or

CLICK HERE

Alternatively you can donate by check, payable to NARGS, mailed to

NARGS, PO Box 18604, Raleigh, NC 27619, USA.

NARGS in the U.S. is a 501(c)(3) tax-exempt organization and your donation may be tax deductible to the extent permitted by law.

DON'T FORGET YOUR MEMBERSHIP NUMBER

YOU NEED IT FOR THE *QUARTERLY* ONLINE AT <WWW.NARGS.ORG>

AND FOR THE NARGS ELECTION

It's on the ADDRESS LABEL of the wrapper of this issue

COPY IT HERE NOW .....

The only other thing you need to do to access the *Quarterly* online is email **<nargs@nc.rr.com>** with your name so that we can add your email address to the list for access to the *Quarterly* and for the Seed Exchange.

CONTRIBUTORS

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

Donald Hyatt is a retired teacher who has been gardening at his family home in McLean, Virginia, since childhood. For nearly 20 years, he has focused much of his time documenting native azalea and rhododendron populations. Don received the Gold Medal from the American Rhododendron Society in 2012 for outstanding service to the Society and genus. He shares his enthusiasm for horticulture through journals, conference presentations, and his website <*www.donaldhyatt.com*>.

Elizabeth Pringle is an artist who lives in an early 19th century farmhouse in Chapel Hill, North Carolina, and gardens intensely on the surrounding half acre. Betsy also spends lots of time in the mountains hiking, exploring and discovering wild beauty. She gives talks and writes about her experiences with plants and gardening.

Bobby J. Ward is a retired environmental scientist who lives in Raleigh, North Carolina. He is a past president of NARGS, currently the Society's Executive Secretary, and a member of the Piedmont Chapter. His garden and horticultural writing includes *Horticulture*, *Carolina Gardener*, and the *Rock Garden Quarterly*. Bobby is the author of several books, his most recent being *Chlorophyll in His Veins: J. C. Raulston, Horticulture Ambassador*.

John Watson lives in Chile with his wife and working partner, **Anita Flores** (**Ana R. Flores** for formal publications). John has explored extensively for plants in Turkey and the southern Andes. He now devotes his time to advancing various aspects of the botany of his adopted region. Although their chief speciality is *Viola*, John and Anita also study *Tropaeolum* and *Alstroemeria* in depth.

John Weiser gardens in Reno, Nevada, and grows many of the dryland plants that can be found in the surrounding counties. He is one of the most prolific of contributors to the NARGS Forum and many of his pictures can be found there, as well as at <*www.flickr.com/photos/sierrarainshadow*>

Ev Whittemore - Eighty-one-year-old Ev Whittemore, who doesn't know enough to "call it quits," is on her third rock garden in western North Carolina, bound and determined to make all her plants live, grow and flower.

Front cover: *Rhododendron periclymenoides* – Donald W. Hyatt

Printed by Allen Press, 800 E. 10th St., Lawrence, Kansas 66044

digital Quarterly

DIGITAL EDITION OF THE *ROCK GARDEN QUARTERLY*
BULLETIN OF THE NORTH AMERICAN ROCK GARDEN SOCIETY

Volume 71 Number 1 Winter 2012/2013

Contents

From the Editor 3

BLUE RIDGE SPECIAL

Chasing the bloom in the Southern Appalachians, DONALD W. HYATT 4

Adventures among the Seeps and Runoffs of the Blue Ridge, ELIZABETH PRINGLE 18

Gardens of the Southern Appalachians 24

The Southern Highlands Reserve - Appalachian Spring on the Blue Ridge, BOBBY J. WARD 31

Fools Rush In, EV WHITTEMORE 35

2013 Annual Meeting, Asheville 39

Fire and Ice: Rosulate Viola Evolution – Part Two: The Drama Unfolds, JOHN & ANITA WATSON 43

A new species of Viola L. (Violaceae) from section Andinium W. Becker endemic to Argentinian Patagonia, JOHN M. WATSON & ANA R. FLORES 54

The Interface of High Desert & High Sierra - part 2 JOHN WEISER 68

Eleanor (Ellie) Spingarn 82

NARGS 2013 Election 83

Bulletin Board 86

ROCK GARDEN QUARTERLY

(ISSN 1081-0765; USPS no. 0072-960)

is published quarterly in January, April, July, and October by the
North American Rock Garden Society, c/o Bobby Ward, Exec. Sec.,
930 Wimbleton Dr., Raleigh, NC 27609-4356
a tax-exempt, non-profit organization incorporated
under the laws of the State of New Jersey.
Periodicals postage is paid in Raleigh, North Carolina, and additional offices.

POSTMASTER: Send address changes to
Rock Garden Quarterly, Executive Secretary NARGS, PO Box 18604,
Raleigh, NC 27619-8604

EDITOR
Malcolm McGregor,
16 Mill St., Hutton,
Driffield,
East Yorkshire YO25 9PU, U.K.
<mmcg@mmcg.karoo.co.uk>
0044 1377 270717

Advertising inquiries should be addressed to
Wendy Sellars, Advertising Manager,
PO Box 38082,
10-2448 160 Street, RPO Morgan Heights,
Surrey, BC V3S 6R3, Canada
<NARGSads@shaw.ca>

Submission deadlines are
February 1st for SPRING issue
May 1st for SUMMER issue
August 1st for FALL issue
November 1st for WINTER issue

Membership includes a subscription to *Rock Garden Quarterly* and
participation in the seed exchange, as well as other benefits.

Annual dues: US $30 for members in USA and Canada, US $35 for all other countries. Payment by check on a US bank, International Money Order in US funds, or credit card (Visa, Mastercard). Life membership: US $600, $540 for members over 60 years old.

Membership can also be paid online by PayPal at
<www.nargs.org>

Membership inquiries, dues,
and inquiries regarding missing or damaged issues should be sent to

Executive Secretary, NARGS,
PO Box 18604, Raleigh, NC 27619-8604.
<nargs@nc.rr.com>

From the Editor

ONCE UPON A time a rose, in Gertrude Stein's words, was a rose was a rose .... and so a movie was a movie was a movie.

Then came video, and then DVD, and the advent of the "director's cut:" a version of your favorite film, with scenes added, alternative versions edited in, maybe even the ending changed. So now it is almost impossible to decide which is the "proper version" of, for example, *Star Wars*, *Blade Runner*, or *Apocalypse Now*. For the younger among us, these exciting alternative versions reflect in their flickering uncertainties a new multimedia, multi-stranded digital future. For the older among us, of course, this is just another sign that the world is falling to pieces (rather than us). And now the *Quarterly* is going the same way with the digital edition complementing the traditional paper edition!

As members may have become aware, the *Quarterly* has at times been bulging at the seams while, at the same time, during a recent AdCom meeting, our Treasurer asked whether there was any way that money could be saved in producing the *Quarterly*. In a regular issue there are around 76 pages available for articles with the remaining 20 pages being absorbed by Bulletin Board items, election details, advertising, an editorial, and so on.

The digital, online version of the *Quarterly* is not free, it costs around an extra $700 per issue for it to be produced and hosted (the printed edition costs around $4 per head to print and distribute). Although, initially, we are only contracted for a one-year trial of this digital edition it has had a very positive response from those who have looked at it online. We now have three issues online (this is the fourth) and these have been visited by some 1100 people, with some 73,500 pages viewed, since we started some 6 months ago.

In articles submitted for the *Quarterly* there are often photographs and extra information that it would be good to publish. But space in the paper edition is finite so these extras have had to be sacrificed. The digital edition allows them new opportunity. While it's too expensive to keep adding extra pages to the printed edition, it doesn't cost nearly so much to have extra pages in the online edition.

From now, some of this material will be included in the *Digital Quarterly.* And so, in this issue, there are 36 more pages in the *Digital Quarterly* than in the printed edition. This is material – extra pictures, and extended text – that would otherwise be left on the cutting-room floor. Just as with movies, and the extended versions on offer on DVD, the *Digital Quarterly* is a director's cut:

1 ✱ extra photographs in Blue Ridge special articles by Elizabeth Pringle (4 extra pages), and Donald Wyatt (6 extra pages)

2 ✱ extended versions of articles by John & Anita Watson (6 extra pages), and John Weiser (12 extra pages)

3 ✱ expanded Bulletin Board Extra (8 extra pages)

You can find the *Digital Quarterly* online at ***<www.nargs.org>***
Give it a try! Your membership number is on the wrapper of this issue.

A view of the Southern Appalachians - Roan Highlands on the border between North Carolina and Tennessee.

Chasing the bloom in the Southern Appalachians

Donald W. Hyatt

I HAVE ALWAYS been enamored of the Southern Appalachians. These mountains were as high as the Rocky Mountains a mere 200 million years ago. Because this region avoided mass extinctions during the ice ages, it remains one of the most botanically rich areas in the northern hemisphere.

Although retired, I rarely spend much time in my own garden anymore. Instead, I have developed a sense of stewardship for a "greater garden," the Southern Appalachians. Even though most of the

locations I have studied and photographed for nearly two decades are well over 400 miles away (650 km), I have come to know sites and even individual plants as well as the landscape outside my front door.

This region is rock garden perfection, and on such a grand scale. There are rare wildflower colonies, magnificent stone outcroppings, and scenic mountain vistas. I am awed as much by its antiquity as I am by its incredible beauty and horticultural diversity. Geologists say that some of those rocks are from 500 million to over 1 billion years old!

Every spring becomes a series of pilgrimages for me, "chasing the bloom" of favorite native azalea, rhododendron, and wildflower populations as they come into flower in the wild. Of course, when peak season will occur is not easy to forecast. Mother Nature is rarely predictable… or cooperative. Spring can be early or late, and the bloom date for any species is controlled by many factors including latitude, weather conditions, elevation, and natural variation. However, if one is flexible and knows where to look, it is usually possible to find something in bloom, somewhere.

Rhododendron vaseyi at the Devil's Courthouse

The Blue Ridge Parkway in North Carolina

Started in 1935, the picturesque Blue Ridge Parkway provides easy access to a variety of habitats and rare plant populations as it traverses 469 miles (755 km) through some of the highest mountains in North Carolina and Virginia. In a normal year, early May is when spring arrives at the upper elevations in North Carolina, one of my favorite seasons.

The pinkshell azalea, *Rhododendron vaseyi*, is one of our most charming natives, usually blooming around the first to second week of May. The natural range for this species is very limited, though, since it only grows in a few mountainous regions of North Carolina at elevations from about 4000 to 6000 feet (1220 to 1830 m). Knowing where and when to look is helpful in order to catch this lovely azalea in flower. Even though the species is considered rather rare, it is abundant in its realm and puts on an impressive show. Some mountain ridges will even take on a pink haze when the azaleas are in bloom.

Rhododendron vaseyi

There are two primary centers for *Rhododendron vaseyi* in the wild. One area is north of Asheville near Grandfather Mountain, and the other is south near Mt. Pisgah. I prefer that southern population since *R. vaseyi* is abundant, easily accessible, and shows excellent diversity. Flower color varies from near white, through clear rose pink, to almost red.

In the Asheville area, the Parkway has several access points. One entry is at milepost 395, southeast of town at the intersection with Rt. 191 near I-26. Heading south on the Parkway, it quickly ascends from about 2000 feet (610 m) to heights above 5000 feet (1520 m) near the Pisgah Inn at milepost 408. In a little over 10 miles (16 km), it is amazing to watch the gradual change of the seasons. At the low elevations in early May, nature is in high gear and the trees are in full leaf. However, at the upper elevations it is very early spring and the leaves are just beginning to emerge.

Don't rush to the top, though, but take time to admire the wildflowers along the way. As the Parkway gains altitude, look into the deep

wooded hillsides on the right near milepost 406 for an impressive stand of the great white trillium, *Trillium grandiflorum*. There is a similar trillium population along the Parkway north of Asheville, too.

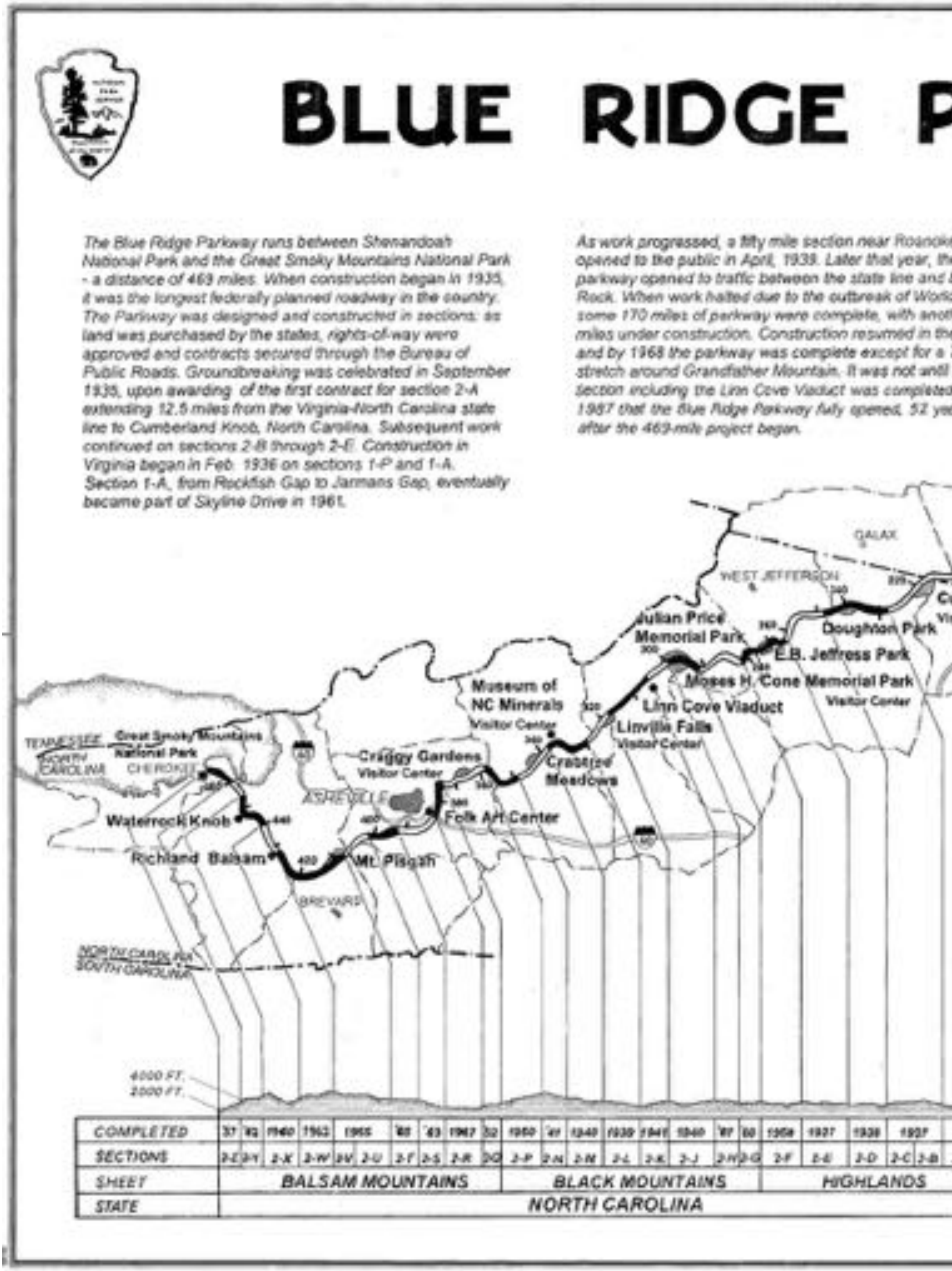
Trillium grandiflorum

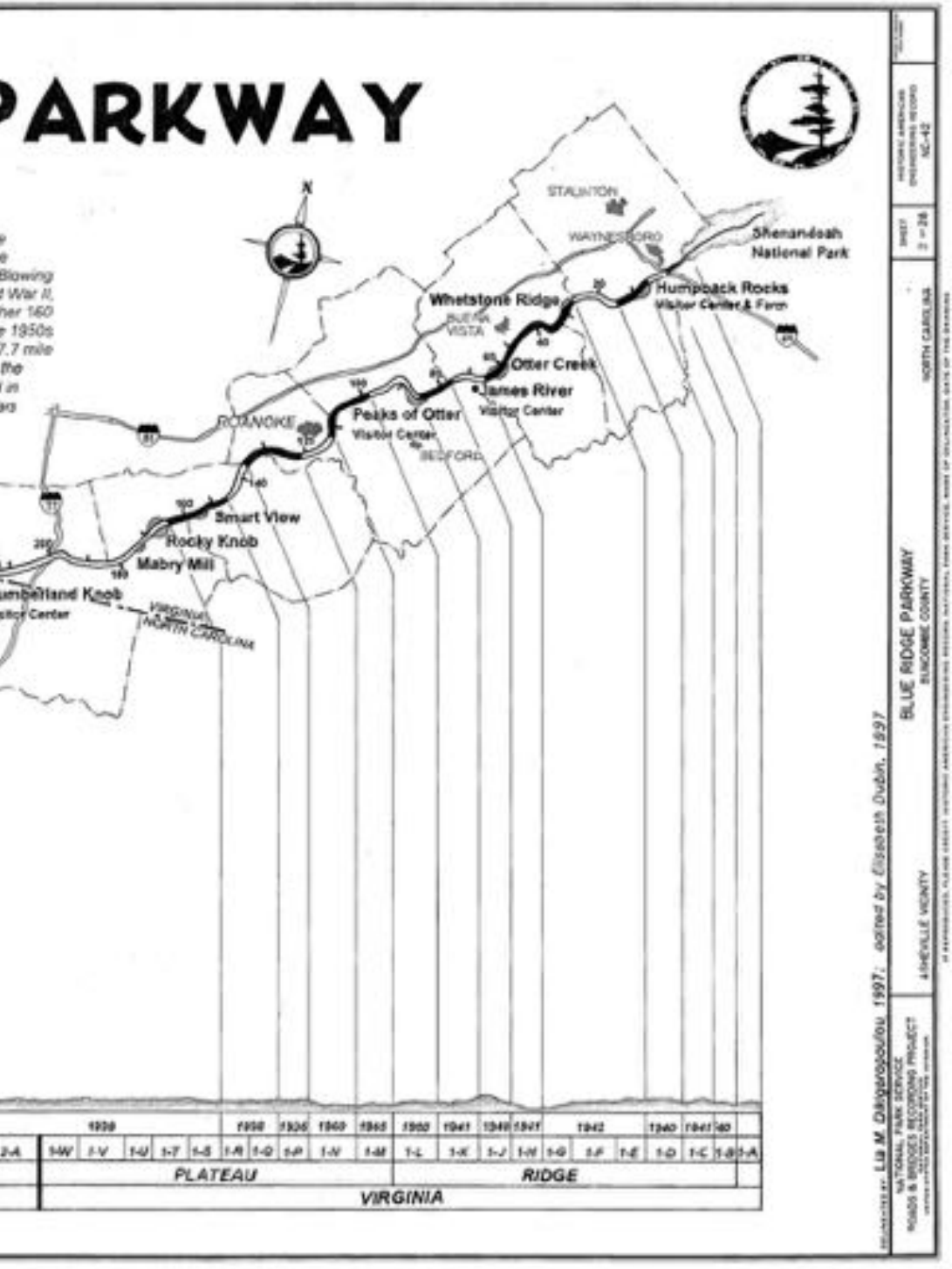
Around milepost 407, the small leaf Carolina rhododendron, *R. minus* var. *carolinianum*, starts colonizing many of the rocky cliffs. It has white to pale pink flowers and seems to find a foothold in places where few other woody plants could grow.

Rhododendron vaseyi begins to make its appearance after milepost 410 but continues for only 20 to 25 miles (32 to 40 km). The center of the population is between mileposts 418 and 425, but it is spectacular when in bloom. It disappears abruptly soon after milepost 425.

If spring is late and *R. vaseyi* has not opened along the Parkway, drive south on Rt. 215. At Beech Gap (mp 423) there are azaleas on both sides of that road for several miles until the elevation falls below 3000 feet (900 m). At the lower elevation, they usually flower a week or two earlier.

Rhododendron minus var. *carolinianum*


BLUE RIDGE P
The Blue Ridge Parkway runs between Shenandoah National Park and the Great Smoky Mountains National Park - a distance of 469 miles. When construction began in 1935, it was the longest federally planned roadway in the country. The Parkway was designed and constructed in sections: as land was purchased by the states, rights-of-way were approved and contracts secured through the Bureau of Public Roads. Groundbreaking was celebrated in September 1935, upon awarding of the first contract for section 2-A extending 12.5 miles from the Virginia-North Carolina state line to Cumberland Knob, North Carolina. Subsequent work continued on sections 2-B through 2-E. Construction in Virginia began in Feb. 1936 on sections 1-P and 1-A. Section 1-A, from Rockfish Gap to Jarmans Gap, eventually became part of Skyline Drive in 1961.
As work progressed, a fifty mile section near Roanok
opened to the public in April, 1939. Later that year, th
parkway opened to traffic between the state line and
Rock. When work halted due to the outbreak of Worl
some 170 miles of parkway were complete, with anot
miles under construction. Construction resumed in th
and by 1968 the parkway was complete except for a
stretch around Grandfather Mountain. It was not until
section including the Linn Cove Viaduct was complete
1987 that the Blue Ridge Parkway fully opened, 52 ye
after the 469-mile project began.
GALAX
WEST JEFFERSON
Julian Price Memorial Park
Doughton Park
E.B. Jeffress Park
Moses H. Cone Memorial Park
Visitor Center
Linn Cove Viaduct
Museum of NC Minerals Visitor Center
Linville Falls Visitor Center
TENNESSEE
NORTH CAROLINA
Great Smoky Mountains National Park
CHEROKEE
Craggy Gardens Visitor Center
Crabtree Meadows
ASHEVILLE
Waterrock Knob
Folk Art Center
Richland Balsam
Mt. Pisgah
BREVARD
NORTH CAROLINA
SOUTH CAROLINA
4000 FT.
2000 FT.
COMPLETED
SECTIONS
SHEET
BALSAM MOUNTAINS
BLACK MOUNTAINS
HIGHLANDS
STATE
NORTH CAROLINA


PARKWAY
STAUNTON
WAYNESBORO
Shenandoah National Park
Whetstone Ridge
BUENA VISTA
Humpback Rocks
Visitor Center & Farm
Otter Creek
James River
Visitor Center
ROANOKE
Peaks of Otter
Visitor Center
BEDFORD
Smart View
Rocky Knob
Mabry Mill
Visitor Center
VIRGINIA
NORTH CAROLINA
1939
1938
1936
1960
1965
1950
1941
1946
1941
1942
1940
1941
40
PLATEAU
RIDGE
VIRGINIA
BLUE RIDGE PARKWAY
BUNCOMBE COUNTY
ASHEVILLE VICINITY
NORTH CAROLINA
NATIONAL PARK SERVICE
ROADS & BRIDGES RECORDING PROJECT
HISTORIC AMERICAN ENGINEERING RECORD
NC-42

Amelanchier laevis

Blooming with *Rhododendron vaseyi* are the delicate serviceberry trees (*Amelanchier laevis*) with their bronzy-red new foliage and starry white flowers. In places, they seem to frost the mountainsides. Another striking companion is the mountain fetterbush, *Pieris floribunda*, with its upright white flower clusters that contrast so beautifully against the dark evergreen foliage.

Be sure to get out of the car occasionally to enjoy the beauty first hand. At the Graveyard Fields Overlook (mp 419), there are several hiking options, and I highly recommend the relatively short trail to the waterfalls. Descend the steps at the right of the parking lot to a paved trail leading to decking to reach the upper falls. After crossing the stream, follow the trail to the right descending more stairs for vistas of the lower falls. There are impressive specimens of the painted trillium, *Trillium undulatum*, all along the trail.

At the nearby John Rock Overlook, there is another short trail to the left into the woods that is nearly level and provides excellent views of Looking Glass Rock and John Rock. An added horticultural treat is a woodland area along the trail carpeted with yellow trout lilies, *Erythronium americanum*, and scattered painted trillium.

If there isn't a convenient overlook near an attraction, it is perfectly acceptable to pull off the Parkway where shoulders are wide and the car can get completely off the pavement as long as the region is not a designated watershed area. However, do be watchful for ditches and damp areas where the car might get stuck.

For able climbers, there is a longer hike on the Art Loeb Trail that goes over the top of Pilot Mountain, a 5000 feet (1524 m) peak south of

Graveyard Field Falls

Hypericum buckleyi

Iris verna

Graveyard Field Overlook

Trillium undulatum

Mt. Pisgah. It is surely one of nature's most exquisite natural gardens. That trail can be reached from various Forest Service roads, some providing closer access than others. The trail up Pilot is steep at first, passing a stand of umbrella leaf (*Diphylleia cymosa*). It then levels out, winding through dense masses of *Rhododendron vaseyi* with carpets of ferns and wildflowers underneath, including stately clumps of the red *Trillium erectum*, masses of *T. undulatum*, and delicate lavender-blue accents of *Iris verna*. The mountain vistas from the trail are breathtaking.

Trillium erectum

The road continues to gain altitude, eventually reaching 6047 feet (1843 m) at Richland Balsam (mp 431), the highest point on the entire Parkway. From there, the road descends to Balsam Gap (mp 443) and a fast route back to Asheville. The Parkway continues beyond to another high point at Waterrock Knob (mp 451) before descending to its terminus at milepost 469 in the Great Smoky Mountain National Park near Cherokee.

Come back in mid-June to drive this same southern stretch of the Parkway. It will be ablaze with yellow, orange, and red flame azaleas (*Rhododendron calendulaceum*), pink and white mountain laurel (*Kalmia latifolia*), fragrant white native azaleas (*R. arborescens*),

Phlox glaberrima among *Senecio* and *Penstemon*

purple rhododendrons (*R. catawbiense*), and a whole array of late spring and summer wildflowers. The roadside is filled with bloom including lavender penstemon species, brilliant red fire pinks (*Silene virginica*), yellow ragworts (*Senecio*), delicate white sprays of Bowman's root (*Gillenia trifoliata*), and clumps of lavender-pink phlox (*Phlox glaberrima*). A charming dwarf yellow groundcover, *Hypericum buckleyi*, forms a lovely carpet only a few inches high near many damp rock ledges. Occasional tall spires of the purple fringed orchid, *Platanthera grandiflora*, can be seen in moist ditches along the road.

In late September to early October, the fall foliage display is glorious, too, with brilliant red vaccinium, maples, and sourwood contrasting against the evergreens. By then, the fall wildflowers are glorious including various aster species, goldenrod (*Solidago*), deep blue bottled gentians (*Gentiana saponaria*), and fragrant ladies tresses (*Spiranthes*). Look for the rare Grass of Parnassus (*Parnassia asarifolia*) growing in rock crevices near many moist seeps to admire its intricately patterned white blossoms.

The speed limit along the Blue Ridge Parkway ranges from 35 to 45 mph (52 to 72 km/h) but don't expect to travel the 75 miles (120 km) from Asheville to Cherokee in just a few hours. I have taken 8 hours or more to drive that segment, stopping at almost every overlook and frequently pulling off to the side in total awe of the beauty before me.

The stretch of the Blue Ridge Parkway north of Asheville is equally charming. The northeast access point at Asheville enters the Parkway about milepost 382 at the intersection with Rt. 70 near I-40. It similarly begins a steep climb to an elevation of about 5000 feet (1520 m) at Craggy Gardens (mp 364). There is no *Rhododendron vaseyi* here but there is an impressive stand of purple *R. catawbiense*, the main attraction in mid-June.

The entrance to Mount Mitchell State Park is around milepost 355. At an elevation of 6684 feet (2037 m), Mount Mitchell is the highest point in the eastern United States, and the vistas in all directions from the recently rebuilt observation deck are amazing. At that elevation, early May can seem more like late winter but return in July when *Rhododendron maximum* with its white to pink blossoms and the orange Turks Cap lilies (*Lilium superbum*) are in bloom. There is a very rare, solitary plant of a red *R. maximum* in a remote spot near Mount Mitchell, too. The 'Red Max' was discovered in the 1930s when planners were first laying out the Parkway.

Gentiana saponaria and *Parnassia asarifolia*

Rhododendron catawbiense

Rhododendron maximum 'Red Max'

Crabtree Falls

There are several scenic waterfalls along this northern Parkway stretch including Crabtree Falls at milepost 340 and Linville Falls at milepost 316. Both will require a hike to see the falls but neither trail is very difficult.

Farther north at about milepost 305 is Grandfather Mountain. Be sure to note the engineering feat of the Linn Cove Viaduct in that region, an elevated portion of the Parkway constructed through particularly difficult terrain so as not to disturb some delicate habitats. This was the last 7 miles (11 km) of the Parkway to be completed, opening for the first time in 1983.

Gregory Bald with hybrid rhododendrons in flower

Western North Carolina and Eastern Tennessee

The Great Smoky Mountain National Park has many attractions. The one-way 10-mile loop through scenic Cade's Cove is a favorite drive for many. Of course, the big attraction for many horticulturists is one of nature's most spectacular natural floral displays, a multi-colored hybrid swarm of native azaleas on the top of Gregory Bald. They usually peak around the summer solstice in late June. The hike is rigorous, though, with a 3000 feet (900 m) elevation change that often takes 3 to 4 hours each way.

Another rarity in the Smokies is a dwarf purple form of *Rhododendron minus* that blooms in late June to early July along the Appalachian Trail from Newfound Gap to Mount LeConte.

About an hour west of the Parkway, along the border between North Carolina and Tennessee, is another treasure, the magnificent Roan Highlands. Roan Mountain, elevation 6285 feet (1916 m), includes a series of peaks and open balds and is crossed by one of the most scenic stretches of the Appalachian Trail. This area is spectacular at any season but in mid-to-late June its beauty is beyond description. At that time, thickets of *R. catawbiense* turn mountaintops to purple and miles of *R. calendulaceum* along the trail erupt in shades of orange and gold.

The grandeur of Roan can easily overshadow some of its charming details. Don't miss the delicate bluets (*Houstonia*) and saxifrages along

Roan Mountain

the trail, or the tiny evergreen leaves and white flowers of sand myrtle, *Leiophyllum buxifolium*, clinging to rock ledges at Grassy Ridge Point. Scattered blossoms of the rare Gray's lily, *Lilium grayi*, will adorn the meadows in late June and early July.

Lilium grayi

Rhododendron calendulaceum

Rhododendron periclymenoides

The 40-mile-long scenic Cherohala Skyway, dedicated in 1996, runs from Robbinsville, North Carolina, near Joyce Kilmer Memorial Park to TellicoPlains, Tennessee. It provides easy access to a population of exceptionally large-flowered flame azaleas on Hooper Bald that peak in mid-June. The fall foliage display and wildflowers are absolutely stunning there in early October.

The Virginia Parkway

The first and second week in May is also peak for the several native azalea species and wildflowers along the Blue Ridge Parkway in Virginia. The northern terminus for the Parkway is west of Charlottesville at the intersection with I-64.

The fragrant deep pink native azalea *Rhododendron prinophyllum* and pale pink *R. periclymenoides* are scattered all along the first 80 miles of the Virginia Parkway. I usually try to stop about milepost 4 where there are many lovely native azaleas framing vistas of the Shenandoah Valley. The native white dogwood trees (*Cornus florida*) and purple redbuds (*Cercis canadensis*) along the Virginia Parkway are beautiful at that time of year.

Trillium grandiflorum is plentiful here, too. The white form is more frequent in the north, especially between mileposts 10 to 13, but there is a large population of the pink *T. grandiflorum* forma *roseum* near Thunder Ridge around milepost 74.

The *Rhododendron catawbiense* at the upper elevations near the Peaks of Otter won't bloom until late May to early June. However, at lower elevations near Otter Creek, mileposts 56 to 61, the species typically flowers in mid-May. There is excellent color variation of this species in Virginia, including white, blush, lavender, pink, purple, and purplish-red shades.

There are scattered native orchid populations, including large flowered yellow lady's slippers (*Cypripedium pubescens*), south of the Peaks of Otter (mp 86). Pink lady's slippers (*Cypripedium acaule*) are more common in dry pine forests closer to Roanoke (mp 120).

The very scenic Mabry Mill at milepost 176 provides a wonderful photo opportunity. It is a fully operational gristmill offering insight into the lives of those early settlers.

Not on the Parkway, but to the west, near the North Carolina border, is Mount Rogers, the highest point in Virginia, elevation 5729 feet (1746 m). The Appalachian Trail passes through Rhododendron Gap where an impressive display of *R. catawbiense* peaks in mid-June. Look for a herd of wild horses that grazes in those high meadows.

Skyline Drive in the Shenandoah National Park of Virginia was started in 1931 and was completed in 1939. Adjoining the Blue Ridge Parkway, this road continues the scenic drive for another 105 miles.

The few suggestions offered here are but a few of my favorite spots in the Southern Appalachians. Take some extra time when you attend the NARGS convention in Asheville in May so you can chase the bloom in this spectacular natural garden. Perhaps you will make this magnificent treasure an extension of your realm, too.

Mabry Mill

Rhododendron prinophyllum

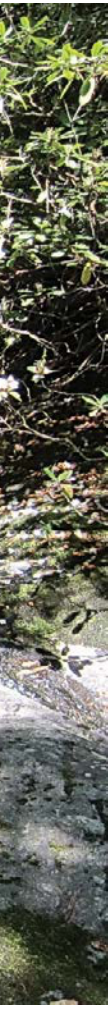

Toxaway River headwaters

Adventures among the seeps and bogs of the Blue Ridge

Elizabeth Pringle
Photographs by John Pringle

LAKE TOXAWAY IN the south-western corner of Transylvania County, North Carolina, about 50 miles south-west of Asheville, had been a mountain resort in the early 1900s but was largely abandoned after the dam broke in 1916. In 1965, soon after the lake was restored, John and I built our house there. We soon began our many years of exploring the trails, streams and mountains of the area.

Once as high as the Alps and eroded and reshaped many times, the Appalachians are ancient mountains, among the oldest on Earth. Our particular part has been called the Land of Waterfalls. It is also the land of seepage slopes. We are blessed with a yearly rainfall of up to about 90 inches (2280 mm), which is the highest of any area east of the far Northwest.That is close to being a rainforest. Every hike is an entry



into a very special plant world nurtured by its geological history and its climate. The plant diversity owes a lot to the last ice age. Although the glaciers never reached this far south many plants were pushed southward. As the ice receded, many of the newcomers remained in the coolness of the mountain heights and mingled with the existing plant population.

The richly forested slopes show their underpinnings in the rock outcroppings and the tumbling streams down and through the mountain coves. The whole area is rich in plant life but the seeps contain an incredible richness of plant varieties nestling in little moist crevices, and in broad swathes of moist soil, nourished by water seeping from the granite slopes beneath as it makes its way down the mountains. Whether one hikes deep into mountain coves or high on the mountainsides it is impossible not to be aware of the amazing amount of water flowing in various ways through the landscape.

Lake Toxaway and Panthertown Valley

The narrow trail that crisscrosses the headwaters of the Toxaway River begins in a forest with dense colonies of *Galax urceolata* mixed with *Medeola virginiana* (Indian Cucumber Root) and ferns. In a short time one is hemmed in on either side by the multiple layers of the rock faces, covered with plants and mosses soaking up the seeps from the rocks. Among the many plants you will find on these seepage slopes are *Houstonia serpyllifolia* (Appalachian bluet), *Thalictrum clavatum* (mountain meadowrue), *Heuchera parviflora* (little-flower, or cave, alumroot), and *Micranthes* (*Saxifraga*) *micranthidifolia* (lettuce saxifrage). *Chelone lyonii* (pink turtlehead), endemic to the mountains of North and South Carolina, and Tennessee, fills a streamside opening and also is growing in the seeps of the moss-covered rock-face beside it. It is quiet here except for the songs of the flowing water and the birds. Such are the joys of so many places in our mountains. And there are no two alike.

The ridge above the Toxaway River headwaters is on the Eastern Continental Divide; crossing the ridge, from an Atlantic system to a Mississippi one, brings you to Greenland Creek and Panthertown Valley. Greenland Creek has a series of waterfalls ending with beautiful Schoolhouse Falls; Panthertown is an amazing and unique place, which is protected by the Forest Service and has enough of interest to entrance both the casual hiker and the serious plant enthusiast. Our family has been hiking there since the Forest Service first took possession of it and before there were many trails and certainly no maps. We could hike all day and often not see another person although that is rarely true today.

As you approach the Schoolhouse Falls, there are lots of *Leucothoe fontanesiana* and *Trillium undulatum* (painted trillium), both of which

Leucothoe fontanesiana

love the cool woods and moisture of stream edges. You will hear the waterfall before you come upon it. It has a beautiful pool with rocks around that are good for picnicking. It is also a good pool for taking a summertime swim for those who like chilly water. Among the plants around the pool is the beautiful *Rhododendron arborescens*, if you should be here at the right time to see it in bloom. On a path behind the falls (usually, you would only get a little bit sprinkled,) you can see *Boykinia aconitifolia*, which is rare and is identified by the leaves and glandular hairs on its flower stems, and many mosses.

If you leave Panthertown Valley on Cold Mountain Road (back toward Lake Toxaway) there is a rock ledge extending out above with a small waterfall. This creates a spray cliff with lots of seepage on either side. All such sites have interesting communities of plants. Here, a large colony of *Heuchera parviflora* grows well back in a cave to one side. It is hard to see how it gets itself established or how it survives. There is also *Boykinia aconitifolia*, *Thalictrum clavatum*, and *Rhododendron catawbiense*.

Blue Ridge Parkway Wolf Mountain overlook

To see an abundant display of rock face seepages that are easily viewed, the Blue Ridge Parkway offers many interesting sites. Just south of milepost 424, the area of the Parkway near the Wolf Mountain

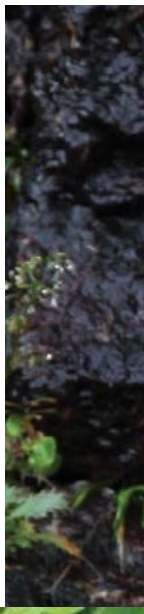
overlook is particularly rich. The elevation here is 5500 feet (1670 m). In early May you will see lots of the *Rhododendron vaseyi* in bloom above the rock faces that line the road as you drive along this section. The rock faces have many seepage areas filled with numerous plants that are in stiff competition for a share of the water. It is amazing how many plants can pack themselves into the same space.

Saxifraga michauxii, now renamed *Micranthes petiolaris*, and *Krigia montana* seem especially adept at finding an isolated toehold to cling to, and also compete successfully in large clumps of plants. *Parnassia asarifolia* (Grass of Parnassus) is abundant in the seeps of the rock faces and in the small bogs that essentially are part of the drainage system for the road. *Drosera rotundifolia* (roundleaf sundew), also, is both in

Rhododendron vaseyi

Houstonia serpyllifolia **(Appalachian Bluet)**
and *Micranthes petiolaris*

21A



Parnassia asarifolia (Grass of Parnassus)

Top left: *Diphylleia cymosa* (Umbrella Leaf)

Left: *Boykinia aconitifolia (Brookfoam), Rhododendron catawbiense,* and *Thalictrum clavatum (Mountain Meadowrue)*

Micranthes petiolaris (Saxifraga michauxii)

the bogs and in the seeps on the rockface. Included in this amazing mix is *Triantha* (*Tofieldia*) *glutinosa* (sticky tofieldia), *Gentiana saponaria* (soapwort gentian), *Chelone lyonii*, *Oxypolis rigidior* (stiff cowbane), *Diervilla sessilifolia* (southern bush honeysuckle) and *Heuchera villosa*.

Endemic to the Southern Appalachians and not very common, *Diphylleia cymosa* (umbrella leaf) is a wonderful sight in bloom and impressive in its fruiting stage with its blue berries on red stems.

Heuchera villosa, Krigia montana (mountain dwarf dandelion), and *Diervilla sessilifolia* (southern bush honeysuckle)

Its wide leaves are distinctive even when not in flower or fruit. The umbrella-leaf makes an indelible impression, as do many of the amazingly beautiful and diverse plants of seepage slopes and bogs.

It is easy to fall in love with these happy collections of flowers and mosses flourishing in the constant moisture as the water finds its way through the crevices of the underlying rocks.

ONE OF THE joys of every NARGS Annual Meeting is the opportunity to visit gardens in the area. Every region has distinctive styles and in and around Asheville there are some wonderful gardens that will be in great condition in spring when the Annual Meeting takes place in May 2013. Gardens in Appalachian woodland settings with sheltered sunlit glades, represent a sylvan heritage in North American gardening that visitors can only delight in.

The gardens featured here along with Ev Whittemore's latest garden, which Ev writes about on page 35, will all be open.

Beverly and Joe French's intriguing and exemplary 20-year-old garden in Flat Rock, North Carolina, is a delight. The house and garden sit on one acre in a quiet woodland neighborhood. Phlox, dianthus, weeping cherry, pink and white dogwood, iris, dwarf conifers, and azaleas are brought together in a design that shows great care and enthusiasm. The bridge, pond, rocks, house, and overall balance, add Japanese aesthetics to this contemporary American rock garden in the Southern Appalachians.

Gardens of the *Southern Appalachians*

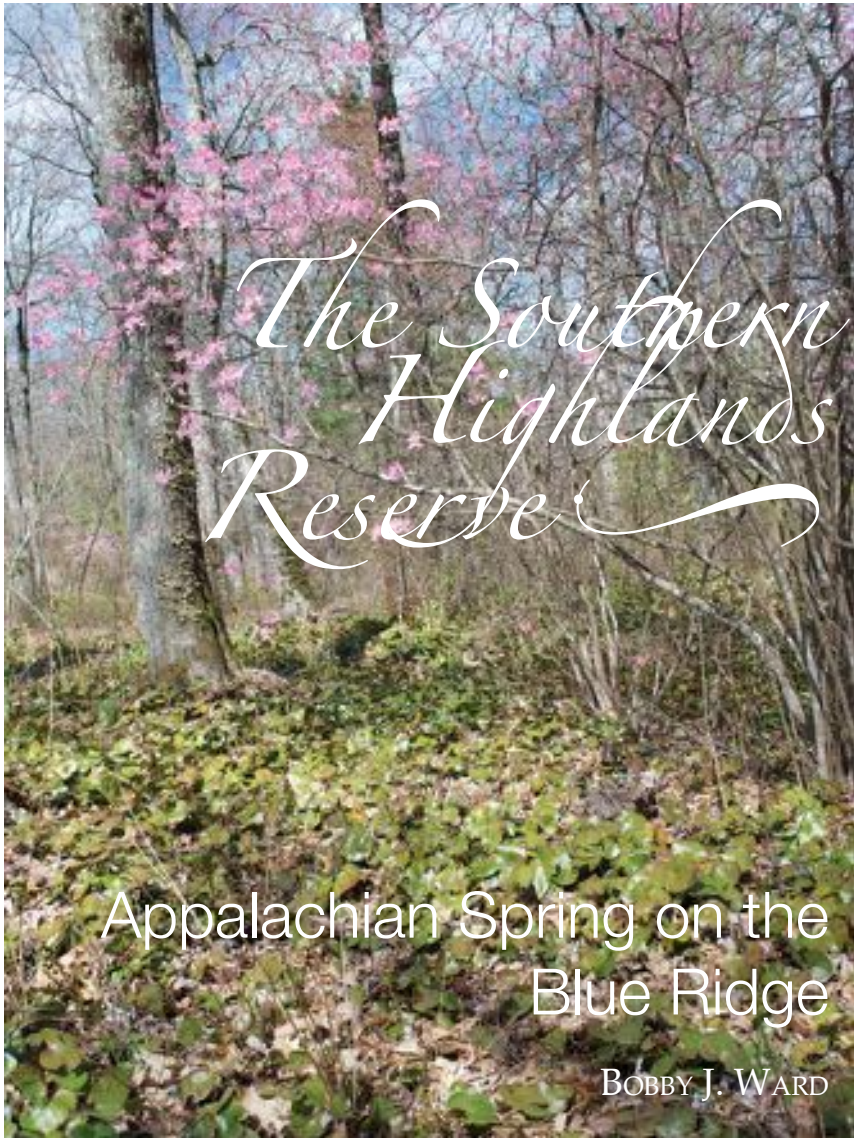
Peter Loewer, Maude Henne,
Bobby Ward & Joe French with text by Bobby J. Ward.

Peter Loewer's 21-year-old garden is located in the historic Kenilworth neighborhood of Asheville. Peter is the author of 30 gardening and natural history books and is a botanical illustrator and garden photographer. Known as "The Wild Gardener" to his friends, his passionate interest in plants is evident in his large collection of perennials, annuals, shrubs, trees, wildflowers, rock plants, bulbs, and tender tropicals. The garden overlooking Lake Kenilworth features natural trails with native plants, a formal perennial garden, and various rare and unusual plants, many seed grown.

Among the fine features in Peter and Jasmin Gentling's 15-acre hilltop garden in Asheville are two large dawn redwood trees, planted from seed in the late 1940s by the previous property owner. The historic property called Blue Briar Cottage was the home of William Jennings Bryan and the summer White House for Herbert Hoover. The terraced garden has winding pathways under high-canopy trees, a small pond, Japanese garden, herb garden, sun and shade perennials, shrubs, and handsome trees. Quiet benches among the variety of color and texture, walls, rocks, steps, and artwork provide quiet havens from which to contemplate this magnificent garden.

John Cram's garden is located in the Kenilworth area of Asheville, next door to Peter Loewer. John is the steward of the moss garden designed by landscape architect Doan Ogden in the 1950s and planted with native mosses gathered by Doan from the nearby woods. The pathway to the house and garden is along hedges of Carolina hemlock and variegated bamboo (*Sasa veitchii*).There are fine small theme gardens along paths that are complemented with rock and art objects, benches, and shade plantings.

Hazel and Byron Richards's three-acre garden in Hendersonville, North Carolina, is a conifer fanatic's delight, currently with over 200 plants. Their 30-year fascination with conifers resulted in membership and leadership in the American Conifer Society. The have complemented the conifers with native plantings of mountain laurel, azaleas, rhododendrons, and deciduous trees. There is also a 70 x 90 ft. koi pond.



Pinkshell *Rhododendron vaseyi* with a carpet of *Galax urceolata*

AMONG THE TOURS during the NARGS 2013 Annual Meeting in Asheville will be one to the Southern Highlands Reserve. This private reserve is tucked away near Lake Toxaway in western North Carolina. Encompassing about 120 acres (48 hectares), it is a combination native-plant arboretum and research center, partly set among natural woodlands with a park of planted species native to the highlands region of the Southern Appalachians.

At an elevation of 4,500 feet (1371 m), spring arrives here a bit later than at lower altitudes but one of the memorable sights that NARGS attendees will see in early May is the rare pinkshell azalea (*Rhododendron vaseyi*), the first azalea species to bloom along the trails at the reserve, its pink-to-white flowers appearing before new leaves emerge. The pinkshell, originally native to four counties in North Carolina, grows vigorously at this site to a height of about 12 feet (3.6 m). When I was there last spring, the woods seem to be full of its blossoms, which could be seen for some distance among the leafless understory.

Visitors to the reserve, which was founded in 2002, will readily understand its mission of advocating protection of the highland ecosystem through education, restoration, and research, not only for plants but for small animals as well. For example, the site is home to the endangered Carolina northern flying squirrel, which migrated south along the mountain ridges during the last ice age and has remained stranded at high elevations among red spruce and fir forests for the last 10,000 years. The Southern Highlands Reserve also contains a collection of the hybrid swarm of Gregory Bald azaleas (discussed and pictured on p.14) although these naturally occurring hybrid native azaleas composed from crosses of *Rhododendron arborescens*, *R. viscosum*, *R. cumberlandense*, and *R. calendulaceum* won't come into peak bloom with rainbow colors until late May and early June.

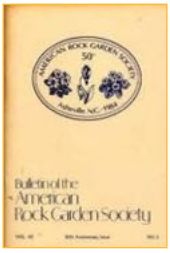
The reserve is divided into two parts: a natural woodlands with an elevation change of about 1,000 feet (300 m), and an easy walk through the central area called the Core Park. This includes an azalea walk, a seven-ring wildflower labyrinth, laurel woods trail, and Vaseyi (irrigation) pond. Spring-blooming shrubs on the site include blueberries, witchhazel,

deciduous hollies, *Kalmia*, *Clethra*, *Leiophyllum* (mountain or sand myrtle), and *Hydrangea*. There is also a grove of American yellowwood trees (*Cladrastis*) and scattered *Magnolia fraseri* and *M. acuminata*.

The reserve receives about 75 inches (1900 mm) of rainfall per year because the mountain range is in a vanguard position for regional summer storms and those from the Gulf of Mexico. Thus the vegetation here is lush and diverse. At this elevation, deciduous shrubs and trees will just begin to be producing new leaves during the NARGS tour. But spring woodland ephemerals will likely be at their peak in early May. These include various species (and a few cultivars) of *Claytonia*, *Clintonia*, *Uvularia*, *Iris*, *Thalictrum*, *Tiarell*a, *Phlox*, *Trillium*, *Viola*, *Cypripedium*, *Sanguinaria*, *Anemone*, and *Heuchera*. There are trails that lead over varied topography and forest types (hardwoods and conifers) with high canopies, along rustic bridges, and to overlooks toward distant vistas. At least three species of ferns will be producing new growth in early May: cinnamon, hay scented, and New York ferns. There are several picture-worthy areas with carpets of shiny leaves of *Galax* and a backdrop of pinkshell azalea. It's a great introduction to the Blue Ridge.

The 50th Anniversary of NARGS in 1984 was also celebrated in Asheville and the Bulletin celebrated in a Special 50th Anniversary Issue - Vol. 42 no.5 - with great articles by Laura Louise Foster, Judy Glattstein, and Nicholas Nickou on the conference and pre- and post-conference tours; and Frank Cabot on the Origins of Rock Gardening in North America.

This issue will be part of our online archive from early in 2013 at <www.nargs.org>. Check it out!



Fools Rush In....

Ev Whittemore

WE SOLD FORT Knox March 7, 2005 and closed on the 30th.

As soon as possible we searched for land, rejecting one with sand barrels at the bottom of a steep hill, and another at the bottom of a slope covered with dead wood and a house being built at the top. We chose the last lot we looked at, and ended with 1.09 acres on Red Bird Lane, Penrose, North Carolina, soon wondering if the sloping acreage was any better than those rejected.

One of the men working for the excavator said he had never seen land with so much "junk." Ample poison ivy, huge wild roses with vicious thorns, dead trees, shrubs and grasses, and an unidentified vine that strangled everything it could reach, and the usual red clay, was now ours. Among the plusses were over a dozen dogwoods, tall pines with a natural mulch, a martin house with the base sunk in concrete, and wonderful neighbors. This property was originally a part of a huge estate: "Old timers" still speak of a mountain lion roaring and terrifying their cattle.

When the land was cleared, and the modular installed, we applied ourselves to finishing the house interior, knowing once we started working outside all else would be ignored.

In spring of the next year Bruce's health started to seriously decline, with operations, hospital, and nursing home visits necessary. The sad realization was that our lifestyle was changing. There would be no rock garden with tons of rock from the Penrose Quarry. The substitution was to be homemade mini mountains of hypertufa, spray-painted to avoid a raw concrete look. This construction was my job.

Bruce worked when he could and accomplished a huge amount. The rest of the property was enclosed with chain-link fence. After watching a rabbit slip through the chain-links we added a section of deer netting, then chicken wire. A cold frame, a seed shed connecting the house and garage, gate at the end of the drive, garden benches, compost area made of leftover fencing, and a decorative fence was installed to enclose a patio. A winter project was a grow-light in the garage.

As a gardener I tackled jobs that didn't need the talents of carpentry, plumbing, electricity, or a man's strength. Garden areas were built up to override the red clay. An unbelievable number of truckloads of rock and double-ground hardwood-chip mulch also helped. I planted hundreds of plugs of *Buchloe dactyloides* 'Prestige' where green was need as a contrast. Buffalo grass was a good choice as it grows 4-6 inches a year and is

The back of the house looks out at this slope of phloxes.

mowed approximately five times a year. A huge amount of roots was removed from what was to be a south-slope vegetable garden.

I made bogs for my carnivorous plants. Winter work was done in the garage where large round troughs, small round troughs, square troughs, and rectangular ones of various sizes were constructed. Drains to control runoff were made of rip rap so they resembled rock streams. Being older and wiser we decided against pools and changed to half whisky barrels sunk in the ground for water lilies and lotus. All this came to an abrupt end when Bruce died in fall of 2007.

I couldn't imagine life without a garden and decided to stay at Tall Pines, finding ways to get the work done without help. There were basic jobs which had to be done yearly, like digging the vegetable garden each fall to remove current root growth.

Leaves are not wasted and this garden is covered with 5-6 inches to help improve the clay. This also controls weed growth since I don't intend to make a career of weeding. Woodchip mulch needs to be renewed but squirrels and skunks find it unpleasant to dig in rock-mulched areas and, therefore, some areas that would be more appropriate with a woodchip mulch, get a rock mulch.

Plants need splitting, and new ones, started from seeds, are added to the garden. I find a mason's trowel makes a good tool to firm soil near small seedlings while the tip can dislodge weeds. In early spring there is usually a supply of small plants started under lights in clear plastic containers saved from rotisserie chickens from grocery stores.

Winter is a good time for making troughs in the garage. When placing them in the garden, landscape cloth is put under each trough and also

Troughs are arranged in groups and planted with small conifers but these will be moved on when they get too large.

inside for a double barrier. When removed from their sand molds all bits of hypertufa left from the process are incorporated into soil mixes for saxifrages and other plants appreciating a bit of lime and extra drainage. Cactus are protected from excessive rains with a cover of greenhouse plastic laid over a semicircle of half-inch PVC piping above the trough. Secured at the bottom with clip clothespins, the coverings are easily popped on and off.

A group of large troughs looks better with a background. When conifers become too large to remain in troughs they are removed and used for this purpose. Small hollies and *Polystichum acrostichoides*, native to the property, and self-sown *Daphne* seedlings, are included. Moss gardens are becoming popular in this area and there is a small natural one here, with the the small fern, *Asplenium platyneuron*, as an addition. White and pink *Primula kisoana* spreads rapidly as does *Anemonella thalictroides*, an escape from nearby troughs. *Arisaema sikokianum*, started by casting seeds, was added for height. If the seed pods of the *Arisaema*

Ev's bog plantings of pitcher plants are a focus of attraction for nearly every visitor and David White from the Piedmont Chapter is no exception.

are left on the plant they become a January snack for bluebirds.

Sun or frost protection may be needed for plants. This is given by placing a section of 4-inch black plastic draining pipe covered at the top with Reemay. This is sturdy, quickly applied, and allows a plant to have air and be watered. A hole, burned into each bottom section of the protective tube allows it to be anchored to the ground with U-pins. Smaller sections of this pipe are used to protect tomato and pepper plants from cutworms and can be re-used for many years.

Dwarf red tulips are a favorite of mine and the squirrels. In desperation, the bulbs are planted over a piece of hardware cloth within a section of black drainage pipe and mulched with rock … a nuisance, but this gives 100% protection.

When you attend the NARGS Asheville meeting I hope you will include a stop at Tall Pines to see my western North Carolina rock garden, as well as visiting the other gardens that are open. This is a great place for rock gardening.

Photographs by Bobby J. Ward

Ev has written about her previous gardens, Fort Courage and Fort Knox, in the Quarterly, in vols. 49, 51, 52, 53, 60, 61 and 65.

The 2013 NARGS Annual Meeting will be held in Asheville, North Carolina, and will explore the flora of the Blue Ridge in the Southern Appalachians. The conference begins on Thursday, May 2, and concludes on Saturday evening, May 4. On May 3 and 4, field trips will take participants to view the flora of the region. A guide who is familiar with the area will lead each tour group, consisting generally of 11 to 14 people. Visits on your own to private gardens are scheduled for Sunday, May 5.

Additional activities include a guided tour of the gardens at the Biltmore Estate on the morning of May 2 and a two-day post-conference tour of the Blue Ridge north of Asheville on May 6-7. *These additional activities are not included in the registration for the meeting.* A complete description of all activities and an on-line registration form are available at www.nargs2013.org.

Field Trips

Field Trip 1: Southern Highlands Reserve and Coontree Trail
The Southern Highlands Reserve is a private garden and research center dedicated to the preservation, cultivation, and display of plants native to the Southern Appalachian Highlands. The Reserve replicates many of the plant communities typically found in the higher elevations. The tour also includes a visit to Coontree Trail that goes through rhododendron thickets, deciduous and evergreen woodlands, and along a stream. *Hike difficulty is moderate.*

Field Trip 2: Panthertown Valley, "Yosemite of the East"
Panthertown is known for its scenic beauty and biological diversity. The area includes granitic balds, blackwater tributaries, waterfalls, and alpine meadows in an array of habitats. *This is a strenuous trip due to uneven trails, steep terrain, and distance.*

Field Trip 3: Alpine Ericaceae
Set among balds and boreal forest surrounding the Graveyard Fields, this tour will observe five ericaceous genera rarely seen at elevations below 5,000 feet. The tour will also visit the "vertical bog" at Wolf Mountain Overlook. *This hike is rated as strenuous due to uneven trails, steep terrain, and distance.*

Field Trip 4: Graveyard Fields to Devil's Courthouse to Wolf Mt. Overlook
The trip includes a birch-sedge escarpment with giant ferns and drops through a beech gap into a "rhododendron hell" at Graveyard Fields and fire-maintained bogs. At Devil's Courthouse are alpine species that may be remnants from the last glacial period. The tour also visits the "vertical bog" at Wolf Mountain Overlook. *Hike difficulty is moderate*.

Field Trip 5: DuPont State Forest - Hooker Falls to High Falls
This tour visits DuPont State Forest to see rhododendrons, *Hexastylis contracta,* and numerous violas, as wells as Hooker Falls and Triple Falls on the Little River. *This hike is rated as moderate*.

Registration Form

The preferred method for registration is via the Registration form on the website (www.nargs2013.org). If you do not have computer access, fill out this form and mail it along with a check to the Conference Registrar: Bobby Wilder, 2317 Elmsford Way, Raleigh, NC 27608. Make check payable to "NARGS – Piedmont Chapter".

To register for the conference, you must be a member of NARGS national. If more than one person is registering for the conference from the same household, please complete a registration form for each member or guest (for dinners and evening programs).

Name of Member or Guest: _____

Street or Mailing Address: _____

City: _____ State/Province: _____ Postal Code_____

Country: _____ Phone: _____ E-mail: _____

Tour Choices: (enter top four choices for tours described on pp. 1 and 2):

1st Preference: _____

2nd Preference: _____

3rd Preference: _____

4th Preference:_____

Meal Choices (put an X in the box corresponding to your meal choice):

Friday Lunch: ☐ Beef ☐Turkey ☐ Vegetarian

Saturday Lunch: ☐ Beef ☐ Turkey ☐ Vegetarian

Friday Buffet: ☐ Roasted Chicken ☐ Pasta Primavera (Vegetarian)

Saturday Plated Dinner: ☐ Chicken Breast ☐ Beef ☐ Salmon ☐ Vegetable Napoleon

Registration Fees (enter amount in spaces to right side of item)

Registration (by March 2, 2013 - $300/person; after March 2 - $325/person) _____

1 year NARGS membership (if not already a member - $30/household) _____

Biltmore Estate Day Pass (can be used any day but Saturday - $49/person) _____

Biltmore Guided Garden Tour on May 2 ($20/person)* _____

Guest: Friday buffet and evening program ($35/person) _____

Guest: Saturday banquet and evening program ($40/person) _____

Post-Conference Trip on May 6-7 ($325/person double occupancy, $365/person single occupancy. Includes transportation, lodging in Banner Elk, lunch and refreshments.) _____

* Requires Day or Annual Pass to enter Biltmore Estate Total _____

Conference registration cancellations prior to March 2, 2013 will incur a $25 processing fee. There will be no refunds after that date.

Field Trip 6: DuPont State Forest - Cedar Rock Mountain & Hooker Falls
Also in DuPont State Forest, this tour goes to Cedar Rock Mountain, the largest outcrop of exposed granite in the region. Hundreds of acres alternate between bare rock, moss, and lichen-covered rock. *Hike difficulty is moderate*.

Field Trip 7: Fryingpan Mountain to N.C. Arboretum
This tour travels to Blue Ridge Parkway for a hike to an old fire tower on Fryingpan Mountain and to Big Bald, a great wildflower area. We will go to the Pisgah Inn for lunch and a panoramic view of the Blue Ridge. After lunch, the tour goes to the North Carolina Arboretum, where there is a fine collection of bonsai. *Hike difficulty is rated as easy*.

Other Activities

Speakers and Meals
Registration fee includes an evening reception and speaker on May 2, 3, and 4, plus lunch and dinner on May 3 and 4. The presentations each evening are:

Thursday, May 2 - *Geology of the Southern Appalachians*
James Reynolds III, Associate Professor of Geology at Brevard College

Friday, May 3 - *Wildflowers of the Blue Ridge*
Timothy Spira, Professor of Biological Sciences at Clemson University and author of "Wildflowers and Plant Communities of the Southern Appalachians and the Piedmont."

Saturday, May 4 - *The Southern Blue Ridge: Crucible of Life*
Patrick McMillan, Curator of the Campbell Museum of Natural History at Clemson University and Host of "Expeditions" TV show produced by South Carolina Public Television

Vendor Sales
The conference will also provide the opportunity to purchase plants, troughs, books, and garden art. See the website for details.

Post-Conference Tour
On May 6 and 7, Dr. Larry Mellichamp will lead an overnight trip to botanize along the Blue Ridge Parkway from Asheville to Banner Elk, NC. The tour is limited to 27 participants.

Meeting Location and Accommodations
The host hotel is the Doubletree Biltmore Inn. Rooms are available at special NARGS group rates of $120/night at the Doubletree (828-274-1800) and $85/night at the adjacent Sleep Inn (828 277-1800).

Registration

The Conference fee includes all programs, transportation and lunch on Friday and Saturday tours, reception hors d'oeuvres each evening, Friday evening buffet, and Saturday evening banquet. The Biltmore garden tour and post-conference trip to botanize along the Blue Ridge Parkway are additional.

Contact for further information:
David White, 919-306-1786, or email at administrator@nargs2013.org

Fire and ice. Cinder-field habitat of *Viola cotyledon*, overwintering under a protective blanket of snow, also a reservoir for its growing period. Volcán Lonquimay, Araucania Region, Chile. November 2009. (John Watson).

Fire and Ice: Rosulate Viola Evolution

Part Two – The Drama Unfolds

John & Anita Watson

THE FIRST PART of this account traced the hypothetical ancestral development of our rosulate violas. We followed both gradual and abrupt changes in what was eventually to become their environment, and recorded the emergence of the genus *Viola* itself at the end of the Eocene. We concluded with speculation as to how their evolution from early, lowland, woodland-based forms started to progress towards the specialised forbears of our present remarkable Andean alpine violets. We postulated a possible transformation to neat, tough, dwarf bushy mats, and from those to tufted herbs with cushions or clumps of narrow-leaved, starry, open sub- or pseudo-rosettes.

If dwarf ericoid violas of Araucania did in fact by degrees evolve into high Andean proto-rosulates, we are faced with a slight dilemma in our attempt to reconstruct the subsequent development (amplified in supplementary material in the online edition of this *Quarterly*). As will become clear below, the uncertainty in no way affects our overview of that next phase of adaptative radiation* by section *Andinium* however. Deductive intuition indicates that successful gene-driven transformations, the basis of the fundamental biological quest by these violets for *lebensraum*, culminated in a third great distribution wave. It became one of the section's two most far-reaching and important range extensions.

Having established a successful start by camping on budding volcanoes, our Andeans next upped the stakes and set themselves the task of continuing their breakthrough by making a bid for even higher and more risky occupation of those same fiery peaks. By now these had not only built up significantly, but were also effectively covered by seasonal snow over winter, and in some cases by permanent snow at their uppermost limits.

Most rosulate violas are pioneers by nature. Several are also confirmed loners, colonising extreme habitats in self-imposed isolation and seldom found mixed together with other high Andean flora. These unsociables probably require exclusive access to the distinctly limited ground nutrients available in their specific alpine habitats, not being adapted for the cut and thrust of ecological competition. The next phase of development gradually moved elements of this section towards the zenith of such lone pioneering. The challenges faced included extreme day and night temperatures; strong insolation and ultra-violet radiation; prolonged lying snow in winter; powerful hot and cold drying winds; fast-draining ash and pumice surfaces; no assured regular rainfall in spring and summer; and highly unstable geology,

* "Adaptive radiation is the term applied to the spread of species of common ancestry into different niches." Edward O. Wilson, 1992, *The Diversity of Life*.

above all, frequent catastrophic volcanic eruptions with lava flows, pyroclastic blow-outs and dense ashcloud fall-out plumes. The response was to tighten up and flatten their structure. The unified clumps, cushions or mats of more or less open, stemless little bunches of linear leaves, as still seen in *Viola pygmaea*, progressively evolved into classic evergreen, indvidual, symmetrical and well-defined rosettes with whorls of imbricated foliage.

Innumerable plants have irregular basal rosettes, of course, as typified by the ubiquitous garden lawn daisy. But that ultimate specialisation, the contracted, quite flat-topped shoot with a circular circumference and dense, overlapping leaves, at times disposed in a geometrically regular pattern, is infinitely less common. It is, however, particularly familiar to the alpine gardening fraternity – as sempervivums, lewisias, certain saxifrages, and the celebrated New Zealand penwiper plant, *Nothothlaspi rosulatum*, in addition to others mostly less well known. Leaves are broadened and toughened into thickish, leathery-succulent blades on long pseudopetioles. This provides greater resistance than ordinary tender herbaceous foliage against potential hostile environmental damage.

Alison Margaret Robertson Davies in her magnificently erudite yet accessible monograph of *Chaetanthera*, a quite different group of Andean plants, also celebrates the benefits of rosette growth form: "Strategies are evolved to tolerate or avoid stress and disturbance, whereby plant structures vary in such a way so as to confer functional advantages. … The rosette form is attributed with conferring diverse advantages such as protection of the apical meristems against subfreezing temperatures, optimization of light interception, and the harvesting of precipitation, in particular nebulous drizzle and fog. Succulence is an attribute usually associated with increasing aridity, being a form of water storage."

In these later-evolved, specialised, South American mountain violets, flowers are usually held protectively close against the outer circumference of the rosette, while seed capsules double up safely between the leaves to ripen. Furthermore, even if all aerial growth is destroyed, dormant buds at the neck (caudex) above the root can regenerate replacement rosette shoots. The root became thong-like, massive, often disproportionately so compared with the aerial growth. But it serves as anchor against unstable habitat movements, and delves down to even temperatures, subterranean nutrients and regular, omnipresent moisture.

Our basic hypothetical reconstruction of this key transition is that proto-rosulates either migrated back southwards to the southern volcano zone, or were there all along. This conclusion draws from the widespread presence to this day of what appears to us to be the most primitive of the existing "pure" rosulates, *Viola cotyledon**. As such, *V. cotyledon* looks to be the likely direct living descendant of the subsequent ancestral stage in the onward march of their evolution.

*Although it conforms fully to the above definition of a "pure" rosulate viola, *V. cotyledon* presents distinctly looser and less tightly organised rosettes than the rest of its close allies (with one very rare and almost identical exception, *V. aizoon)*.

Viola cotyledon.
Near Copahue, Neuquén
Province, Argentina.
January 13, 2012.
(Kees Jan van Zwienen.

Viola aizoon. Termas de Chillán, Biobío Region, Chile. January 2, 2003. (Anita Flores).

An intriguing recent chance discovery by ourselves hints at an alternative scenario. We were developing another project involving *Viola bangii* of the section, a not uncommon if sporadic native of Ecuador and Bolivia we have not seen ourselves. Examining internet photos of it, we were struck by the remarkably close similarity between its flowers and those of *V. pygmaea* which was illustrated and discussed in the first part of this account. In fact the main obvious difference between the two species is the linear, 'grassy' leaves of *V. pygmaea* compared with the far fewer, broader and spathulate blades of *V. bangii**. Although the rosettes of the latter are relatively loosely set and lack the ordered geometric precision of the more highly evolved species, they are distinct enough to present it as a very plausible intermediate link between what we take to be the earlier, base sect. *Andinium* ancestral types and the later classical rosulate diversification. In truth it could, in certain respects, be regarded as a more convincing candidate than *V. cotyledon*, not least since *V. pygmaea* and *V. bangii* also share a common distribution range.

Never mind in the present context exactly where in the Andes, or from which immediate lineage this progression arose. For the thrust of our narrative it scarcely matters. Whether resulting from one or other of our two 'family tree' proposals, or both as independent lines, or even a quite different 'branch', the end-product was the crucial first generation to bear pure rosettes.

ROSULATES RULE

The evolving Patagonian mountain landscape with its diverse ecological niches offered, and continues to offer, opportunities for subtle variations on the basic theme. *Viola petraea* with wider-leaved, more compressed rosettes, and "skyscraper" *V. columnaris* are just two examples among many. So too is gorgeous *V. coronifera* with its melting, deep orange-yellow flowers, arranged on the face of the rosette for all the world like a ring of gingerbread men holding hands. And further species are still coming to light, as our description of *V. rossowiana* in this issue, demonstrates. Other rosulates of the same kind are to be seen not only in Patagonia, but further north in the temperate Andes as well, and particularly also in distant Peru. But evolution is a restless mistress, though, who cannot stand still!

Viola auricolor. Parque Nacional Perito Moreno, Santa Cruz Province, Argentina. December 1999. (John Watson).

The success of these tough-rosetted violas is manifest in their occupation of both ends of the section's present north-south distribution of between 4500 and 5000 miles. Exotically showy, rich dark yellow to light orange, *Viola auricolor* is a surprising southernmost full stop for them in Santa Cruz Province, in Patagonia near the tip of the subcontinent. At the other extreme, curious wee *V. polycephala** can be seen on the ash flats below the Chimborazo volcano in Ecuador, just south of the equator. While the rosettes are unexceptional enough, its flowers display outlandishly coloured petals – the four upper darkest sepia tinged grey-greenish, and the lowermost a dramatically contrasting pale creamy yellow, darker in the throat. - a floral fashion style icon perhaps.

* Ned Lowry's photograph of *V. polycephala* (as "*Viola* species, from Ecuador") along with ones of *V. bangii* and *V. weibelii* were featured in the *Bulletin of the ARGS* (forerunner of the *Quarterly)* in the fall 1993 issue, vol. 51 no. 4 on pages 277 and 280 and it will be possible to view this online in our archive through the NARGS website in the near future.

*Viola petraea**. Cerro Catedral, Río Negro Province, Argentina. December 30, 2002. (Anita Flores).

*Note: In the previous issue of the *Quarterly* some observations followed our description of *V*. x *blaxlandiae*. We stated that among other differentiating characteristics of *V. petraea* the style crest is "…mainly or entirely concealed in the throat and additionally obscured by petal bearding." Our subsequent studies have shown this is not always so. Some individuals exhibit an exserted and plainly visible crest. In all other respects though these variants conform with the overall *V. petraea* definition.

The evolving Patagonian mountain landscape. Distant Volcán Tromén seen from Cerro Mayal with *Argylia bustillosii* in foreground. Neuquén Province, Argentina. January 14, 2008. (John Watson).

Viola atropurpurea (top) Modern Portillo, Aconcagua Province, Chile. 25 December 2010. (John Watson).

Viola atropurpurea, white form. Maipo valley, near Termas de Colina, Cordillera de Santiago, Chile. 10 December 2010. (John Watson).

Typical "sempervivoid" rosulate viola scree habitat. Lo Valdés, Maipo valley, Cordillera de Santiago, Chile. 10 December 2010. (Anita Flores).

SUMMA CUM LAUDE

With the development of a pure rosette form, *Viola* was on to a winner. "Once in a while … a lucky species hits upon a new biological trait that allows it to expand and radiate …" Ed Wilson again. In this instance a biological trait which also led to its species becoming known popularly as rosulate violas.

But any success may open further opportunities. Some will always take possibilities to the extreme. Not content with rosulate form alone, they developed the "sempervivoid" characters, and branched out into the variants so fascinating to so many of us. *Viola columnaris*, *V. coronifera* are but two examples of this marvellous developmental diversity; exquisite plants of ultimate desirability, yet almost impossible to grow.

The *non plus ultra* of this group was in all likelihood spawned on the towering, intimidating scree fans of the mighty central temperate Andes, a geology which so impressed Charles Darwin.

This is the amazing *Viola atropurpurea*, which can be seen in its standard metallic dark blue-black as well as its rare white form. Setting aside the ring of singularly small, neat flowers sunk into the rim of the columnar rosette, and their sugar-bearded side petals, it is the foliage itself which commands attention. The formally geometrical face pattern consists of contra-swirling clockwise and anti-clockwise spiralling lines of tile-like leaf blades lapped and laid tightly on top of one another with the precision of a clockmaker (or blind watchmaker, if you will).

THE RESTLESS GENE
- NOW YOU SEE THEM, NOW YOU DON'T

Let's return to the deep southern temperate Andes now and find out what happened there as the pure rosulates evolved towards their peak of diversity. One random mutation (product of genetic drift) appears to have been born on flats and slopes of fine, dark volcanic ash, where a living analogue may be seen: *Viola rosulata*, its eponymous specific epithet resonating with significance for us. This particular variant held immense potential for the future evolution of the section. Its four crucial physical developments were: a thinning of the leaf profile and consequent possibility for the rosette to flatten against the ground; raising of the network of veins above the surface of the leaf-blade face, resulting in fine texturing of the upper leaf surface; a fringe of tiny ciliate hairs at the leaf margin; and foliar pigmentation approximately equivalent to the terrain it grew on. It can be regarded as intermediate between the classical sempervivoid pure rosulates just discussed and the next major evolutionary advance, of which it was the ancestor. Without doubt complex interbreeding and crossing must have been involved in the developmental stages.

Meanwhile (opposite,) back on the Patagonian ash fields ... View across the Laguna de Las Lajas from the footslopes of Volcán Antuco, Biobío Region, Chile. January 24, 2008. (John Watson).

Viola rosulata. Shangri La, Nevados de Chillán, Biobío Region, Chile. January 2, 2003, (John Watson).

Viola rosulata. Shangri La, Nevados de Chillán, Biobío Region, Chile. January 2, 2003. (Anita Flores).

As human beings we share, and should understand, the common need of all animate organisms to eat to survive. Fortunately, as humans we no longer have to concern ourselves overly with its converse: the necessity of avoiding being eaten, also to survive. Plants, the very foundation of the food-chain, most decidedly must embrace that requirement.

We may suppose Andean violas experienced the reverse history to human beings. They were under least threat of ending in something's digestive system at the onset of their collective existence, and the threat grew steadily over time. That deduction is based on the assumption that vegetation would have been sparse, and animate existence too dangerous on the newly forming Andes. The surrounding "safe" and relatively luxuriant lowlands would surely have offered a much better bet for vegetarians.

But as the cordilleras grew and stabilised, with a greater variety, density, and richness of plant communities developing, including extensions of

grasses adapted to the rigours of upper mountain existence, herbivores large and small were undoubtedly drawn to the feast of assorted tasty greens. Rosulate violas would not have been spared. Stephen Pern and I (John) bore witness at first-hand in late 1987. It took a considerable search to find any plants of *Viola sacculus* worth photographing with flowers that weren't either eaten back to just above the throat, or severely damaged. The culprit was eventually observed in action; a huge, lumbering, evil-smelling, greedy, corpulent member of the stick insect tribe, *Agathemera crassa*. A male is illustrated; the female of the species is notably larger still and more voracious! That genus of gross, earthbound beasties is strictly confined to Andean heights. For sure it's no more than just one highly conspicuous element among the vast host of invertebrate chompers.

The "giant" stick insect relative, *Agathemera crassa*, of the southern Andes, a notable predator of rosulate violas. It produces a foul-smelling liquid in self-defence. January 13, 2010. (Kees Jan van Zwienen).

Rodents certainly feature strongly among the complementary mammalian vegetarians, but most evident of all in the Andes are the camelids, in particular that wild relative of the llama, the guanaco. Well it was, until Europeans began to unleash goats, sheep, cattle and horses onto the landscape about half a millennium ago.

We speculate that the *Viola rosulata* ancestral prototype served as the springboard for a defensive evolutionary response by rosulate violas in this 'arms race'. It offered the latent possibility of camouflage – as cryptic coloration and matching textures coupled with a posture either flush to the ground or mimicking a small pile of stones or dung. Details of soil and surface-rubble textures, as well as breaking up of the outline, are achieved by exaggerated development of that reticulated raised leaf vein pattern, enlargement of the marginal fringe of hair, and a general softening of the foliar texture. As for rosette coloration, the overall spectrum is remarkable, matching most soil and rock types of chosen viola habitats: browns, dull reds, light and dark ashy greys and a range of dingy greens. New features to augment this inconspicuousness included crenate and undulating leaf margins to break up outlines still further, general hairiness of foliage, and flowers sunk even deeper into the leaves. It seems feasible that this adaptation protects nectar "signals" to pollinators - the yellow throat blotch and guide veins - from the mandibles of petal-eating insects. We Watsons were once hapless witnesses to this, driven to near despair by the efficient depredations of the dreaded *Agathemera* as we looked almost in vain for undamaged specimens of our new species, *Viola rossowiana*, to press and photograph. The six-legged super-gourmet had savaged exposed petals of almost

Anita photographing cryptic *Viola montagnei* (circled) with friend looking on. Quebrada del Agua Negra, San Juan Province, Argentina. February 8, 2011. (John Watson).

Detail (circled) of typically cryptic plants of *Viola montagnei* Anita is photographing, including a curious fasciated form - or maybe a horse passed this way and left its visiting card!

Viola montagnei. Modern Portillo, Aconcagua Province, Chile. December 25, 2010. (John Watson).

The arrival of grassy and other vegetative cover drew in hungry animals and insects, which necessitated a camouflage strategy. Quebrada del Agua Negra, San Juan Province, Argentina. February 8, 2011. (John Watson).

The advent in the Andes of major grazing mammals, in particular camelids such as these guanacos, presented a particularly serious survival challenge to the flora. January 15, 2012. (Kees Jan van Zwienen).

Flowers of *Viola rossowiana* savaged by *Agathamera crassa*. Cajón Benitez, Departmento Minas, Neuquén Province, Argentina. December 8, 2003. (Anita Flores).

every flower in the extensive colony such that barely one or two plants had been overlooked and left intact during their locust-like orgy. Interestingly though, they were unable to destroy the bases of the corollas, tucked tightly between the rigid, unpalatable outer leaves.

Viola volcanica and *V. congesta*, as illustrating our tribute to Kim Blaxland in the *Quarterly* Vol. 70 #3 (pp. 236-237), are classic standards of this model, which we refer to as the fourth evolutionary phase. Another example of all its characteristics is illustrated by the images of *V. montagnei*. Find one, wander away a short distance, and you may never be able to relocate it.

Most cryptic species can at least be spotted much more readily when in relatively conspicuous flower, but *Viola montagnei* doesn't even offer that helping hand! *V. philippii* does, but its endearing baby-pink, baby-faced corollas are so tiny as to be hard to spot from any distance. When out of flower it blends to the ground so perfectly that it simply gets walked past or stepped on by all but the most observant, unless growing en masse. In that case, as one tour member drolly remarked, it appeared as though a herd of donkeys with digestive problems had passed (in both senses) that way! These are not only two of the most extreme and effective species, but their success is proclaimed (figuratively) by their commonness and ample distributions.

This new, later development consists of 50 living cryptic species. It is also the other major distribution wave, but has by no means totally displaced the classic rosulate line, which still amounts to over 25 species. Nor has it reached so far south or north. Its longitudinal range is more than 1000 miles less in extent. By contrast though, it displays far greater diversity, as well as being the source of several new lesser evolutionary threads. The ability to be overlooked by potential predators, and so be able to live alongside them, offered these violas the inestimable advantage of occupying lower elevations as part of small, mixed alpine communities.

In this second part we have discussed what we consider to be the two core groups, both of them perennial, and their species. Perennials constitute the overwhelming numerical majority of more than 70% of section Andinium*'s present species. However, the rise of the annuals to almost 30% of the section total is an interesting and important phenomenon reflecting the genetic flexibility of these violas in response to significant climate change, predominantly in Chile. And many are extremely pretty to boot. In the third and final part it will be these annual species on which we will be concentrating.*

Viola philippii. Lagunillas, Maipo valley, Cordillera de Santiago, Chile. December 10, 2010. (Anita Flores).

Viola rossowiana (fig.A), individual of type population, F&W 10705. Cajón de los Nevados, Departmento Minas, Neuquén Province, Argentina. February 8, 2003. (Anita Flores).

A new species of *Viola* L. (Violaceae) from section *Andinium* W. Becker endemic to Argentinian Patagonia.

John M. Watson & Ana R. Flores

Viola rossowiana, a long-spurred species of Andean rosulate viola (sect. *Andinium*) is presented. In 1988 this novelty was confused in the literature with a different, previously published species. We explain the reasons behind the misinterpretation and how they relate to the species being named here for our colleague, the late Ricardo Rossow. Markedly long spurs are an exceptionally rare and unusual feature for violas of the section. One published species, however, not only shares the character, but is only diagnosed apart from *V. rossowiana* by very minor if important physical features coupled with effective geographical disjunction. We compare and differentiate the two species carefully.

Keywords: allopatric, destroyed type specimen, erroneous identification, Flora Patagonica, narrow endemic, petal spur, unknown in wild, vulnerable.

INTRODUCTION

As the result of a short, serious illness, Argentinian botanist Ricardo Armando Rossow (1956-1995) died in Buenos Aires, his city of birth. At the time he was on the threshold of making *Viola* sect. *Andinium* the major focus of his studies. The present authors have taken up that mantle. Despite not even yet having quite reached his fortieth birthday, Rossow was already an

experienced and highly regarded taxonomist at both specialist and generalist levels, for whom a brilliant future in the discipline was forecast. His precocity defines him as a "whizz kid" perhaps "the" whizz kid of Argentinian botany at the time. Among a legacy of many recorded achievements, his doctoral thesis (Rossow 1993) consisted of a dissertation on the South American members of the genus *Ourisia*. This stood as the most authoritative investigation until the comprehensive monograph of the genus as a whole by Meudt (2006). He also has the distinction of describing *Viola roigii* (Rossow 1993), only the second new species of sect. *Andinium* to be published to that date since the death in 1928 of the major historical contributor to the section, Wilhelm Becker.

Rossow's interest in Andean violas had been instigated by an urgent request in 1987 from his close senior colleague, Dr M. Noemi Correa, to contribute *Viola* to Volume 5 of *Flora Patagonica* (Rossow 1988), which was under her editorship. Of 19 species he entered, 11 belong to sect. *Andinium*. His preparatory research rapidly led him to the realization that this substantial element of the genus *Viola* had never been studied thoroughly in its entirety, or revised to any degree since Becker's final years. It was therefore a subject ripe for a major specialisation. A further incentive resulted from growing appreciation that his coverage of the section in *Flora Patagonica* urgently required a major amending overhaul (R.A. Rossow pers. comm.). Added to that, Dr Roberto Kiesling, editor of the *Flora de San Juan* project, commissioned him to author *Viola* in the second volume. Unfortunately he did not live to finish this unpaid labour of love, but left behind his extensive preliminary notes, which were used by the present authors as the basis for completing the entry (Rossow et al. 2003). A search for the several extremely elusive Andean violas of northwest Argentina formed the objective of one of his final field trips. Unsurprisingly, given our own subsequent explorations in the region and reports of others, to his chagrin he failed to encounter any (R.A.Rossow pers. comm.).

Ricardo Rossow age 29 (center, with tie), with Ana (Anita) Flores in row behind (top RH corner), Botanical conference, Salta, Argentina, 1985.

Opera buff and gourmet Ricardo Rossow was a long-standing colleague and friend of one of us (A.R.F.) following an introduction by mutual acquaintances at a regional botanical congress in 1982. As a result J.M.W. also got to know him personally a decade later. Shortly afterwards Rossow and we Watsons discovered our independent mutual intentions to adopt sect. *Andinium*. Up to the time of his illness we had even got as far as a tentative agreement in principle to join forces. As well as for *Flora de San Juan*, he had by then already undertaken formally to write up *Viola* for the ongoing *Flora de Chile*. We inherited both of these projects from him.

By the time we discussed Rossow's *Viola* entry in *Flora Patagonica* with him, and pointed out such shortcomings as were then apparent to us, he had

Viola coronifera, west of Primeros Pinos, Neuquén Province, Argentina. November 22, 2009. (Anita Flores). It is surprising that this has been confused already become aware of a number. We learned both from himself and Noemi Correa (pers. comms) that he had been commissioned in desperation at the last minute. The relevant Patagonian sect. *Andinium* species were then in a very muddled and ill-understood state overall. (As some still remain to a lesser degree.) Added to his existing obligations, this had left him hopelessly short of the time needed to conduct and conclude an effective investigation. It was also impossible for several vital type specimens from overseas to reach him before the deadline. As a result he had been obliged to make a number of hasty off-the-cuff, last-minute judgements which in several cases turned out to be seriously erroneous.

Arguably the most glaring of these was misidentification of the material Rossow entered as yellow-flowered, long-spurred *Viola coronifera* (W. Becker 1928). Rossow's "wrong" plant in fact proved to be an unknown, equally long-spurred, but white-flowered species – as published here. A further crucial difference between the two is the presence of clavate hairs at the base of the lateral petals of "true" *V. coronifera* as opposed to the totally glabrous equivalents of the Rossow entry. He in fact noted this anomaly, indicating that his overriding judgement was based on there being only one long-spurred Patagonian *Viola* of the group (Rossow 1988). When he explored Cerro Colohuincul, the type site, looking for actual *V. coronifera*, he did not manage to reach a sufficiently high enough point on the mountain to encounter it (Rossow pers. comm.). He had no reference specimen for *V. coronifera* either, and the misidentified species appeared to agree with its description in almost all respects, except most notably for its flower colour. Rossow therefore came to the conclusion that the original discoverer of *V. coronifera*, Harold Comber, had accidentally stated the wrong colour in his field notes. Rossow (1988) observed likewise for *Viola comberi* W. Becker, another yellow-flowered Comber novelty from Colohuincul. In fact Comber (1928) was a meticulous herbarium collector and recorder of field data, a fact not only long known to ourselves, but expressed in admiration to us

by Noemi Correa (pers. comm.). A more convincing explanation for the supposed colour difference was actually available to Rossow. Patagonian *Viola sacculus* Skottsberg had been recorded over half a century before – under its synonyms of *Viola patagonica* (Becker 1925) and *V. squamulosa* (Becker 1928) – as occurring in both bright yellow and white forms.

One of us (J.M.W.) had in fact been perfectly aware of the true nature (including consistent colour) of *V. coronifera* since 1965, first from illustrated literature (Clay 1937), and three years later by studying the holotype specimen at Kew. We made an early abortive attempt to discover whether the living plant existed on the Chilean exposures nearest to Cerro Colohuincul (Watson 1974). This was followed by a second unsuccessful essay within Argentina on that mountain itself in 1987. In 1988 though it was finally encountered again there (D. Wraight pers. comm.). From the early 1990s onwards it has been a regular objective of ecotours and been published and illustrated in colour on various occasions (e.g. Watson 1994a, 1994b, Erskine 1994, Watson & Flores 2007, 2010, van den Beuken & van Zwienen 2011). The first Argentinian record of true *V. coronifera* appears to be Ferreyra et al. (2006).

This confusion was therefore immediately apparent to ourselves on first studying *Viola* in *Flora Patagonica*. The white-flowered plant from Neuquén Province, Argentina, clearly looked to be an undescribed species. As early as 1995, shortly after learning of Rossow's untimely death, we were sounding out possibilities for publishing it in his memory.

With increasing knowledge of the section we became aware that it is not only closely allied to *Viola santiagonensis* (Becker 1925), but almost identical. The latter rare, single-site species from the Andes above Santiago, Chile, is presently unknown in the wild. Its only reference specimen, which had been deposited at the Berlin-Dahlem herbarium, was destroyed during an Allied bombing raid in 1943 (Hagemann & Zepernick 1993). As an addition to Becker's protologue, critical features of the type specimen were fortunately figured earlier by Skottsberg (1916) (as *Viola sempervivum* Gay). This was noted by Becker (1925), who also drew attention to the fact that Skottsberg had failed to portray the long spur, presumably either through working in haste or misinterpreting a rough sketch.

After two unsuccessful attempts to find "our" unnamed Neuquén species in its remote location, we eventually succeeded in 2003. By careful study we have also meanwhile accumulated sufficient evidence to establish it confidently as distinct from *V. santigonensis*, as will be described.

It must be added that for all its inaccuracies and omissions, and the fact that it is now significantly out-of-date, Rossow's treatment for *Flora Patagonica* is a pioneering base work of inestimable taxonomic and biogeographical reference value. The majority of his entries leave little or nothing to be desired.

Recent highly informed estimates give between 580 and 620 as the approximate number of known *Viola* species (Marcussen pers. comm.). The large rosulate group, sect. *Andinium*, to which the viola presented here belongs, amounts to 93 published species as accepted by ourselves (94 including *V. rossowiana*), with further novelties awaiting publication (Watson & Flores et al *ined.*) but already incorporated into the total number of species given for the genus above.

Above: Habitat and type locality of *Viola rossowiana*. Anita and overnight host at right. Looking SW from the mouth of Cajón de los Nevados, Neuquén Province, Argentina. February 8, 2003. (John Watson).

Right (fig.B): *Viola rossowiana* individual of type population, F&W 10705. Cajón de los Nevados, Neuquén Province, Argentina. February 8, 2003. (Anita Flores).

Left: Type population of *Viola rossowiana* F&W 10705, in habitat. Mouth of Cajón de los Nevados, Neuquén Province, Argentina. February 8, 2003. (John Watson).

TYPE PUBLICATION AND RELATED REMARKS

Viola rossowiana J.M. Watson & A.R. Flores, sp. nov. (Figs A–H, J, pp. 54, 58, 61, 62, 65)

Synonym: *Viola coronifera* sensu Rossow, Fl. Patagonica 5: 176–177, fig. 133. 1988, non W. Becker, Kew Bull. 1928: 137.

Type: Argentina, Neuquén Province, Minas Department: head of Cajón de los Nevados, 36º20´S 70º30´W, 2600–2800 m; from a fairly substantial and widespread but diffuse population growing on gentle slopes in sheltered, light positions among lower outcrops at the foot of valleyside, or on exposed local upper-level flats with sections of rock pavement: accompanying dwarf, high Andean steppe flora sparse to almost absent, leg. J.M. Watson & A.R. Flores, 7 II 2003, F. & W. 10705 (holotype BAB; isotypes CONC, SGO, SI, herb. Flores & Watson.)

The new sect. Andinium *species is initially delimited by its exceptionally long lowermost petal spur. Of other closely allied species with a similar characteristic,* V. rossowiana *differs, inter alia, by its white corollas from yellow-flowered* V. coronifera *and* V. sempervivum*, and from pale or white-flowered* V. santiagonensis *(based on protologue) by its stouter, shorter spur, double row of pollen-trap hairs at the mouth of the spur, horizontal style crest, and their 400 km allopatric transandean distribution.*

Description: Perennial, glabrous, evergreen, rosulate hemicryptophyte. Axial rootstock long, stoutly flagelliform, to ca 1.2 cm max. dia. above, to ca 15 cm long. Caudex simple or branched, at times giving rise to a low mound of several rosettes with aerial dimensions of 2–4.5(–6) × 2–3(–5) cm (specimens growing up between crevices may appear taller). Foliage present throughout shoot, spirally arranged, imbricate, tightly adpressed on rosette face; stipules absent; pseudopetioles to ca 10 mm long, rarely longer; leaf blades ovate, broadly ovate, to suborbicular, 4–6 × 4–6 mm, leathery-succulent, pale bronzy brown where exposed, shading to dull bronzy green, base quite abruptly cuneate, apex of developed blades obtuse to subobtuse, apiculate; margin pale opalescent-cartilaginous. Flowers solitary from leaf axils, forming outward- and slightly upward-facing more or less irregular ring at circumference of rosette face. Peduncles somewhat shorter than foliage, with 2 linear, acute, hyaline basal bracteoles 3–4 mm long. Calyx 3.5–4.5 mm long; sepals unequal, narrowly triangular to lanceolate, acute. Corollas white or slightly tinged pale violet overall, faintly to intensely lined with broken violet veining over entire faces of all petals, rarely not reaching apex, reverse stained and lined more heavily; throat of lowermost petal with longitudinal central yellow band. Superior and lateral petals glabrous, obovate, apex rounded to blunt, upper petals narrower and at times somewhat ligulate, upper pair 3.5–5.5(–7) × 1.5–2.5(–3) mm; lateral pair 4.5–6.5(–8.5) × 2–3.5(–4.2) mm; lowermost petal subretuse-triangular to subcordate, with small point in apical sinus, (5–)6–8.5 × (3.3–)4–6 mm, two parallel longitudinal lines of short, dense indumentum at mouth of spur; spur stout, cylindrical to subconical, somewhat downcurved, connivent with peduncle, 6–7.5 mm long, apex frequently emarginate. Anthers and stamens

minutely dentate-ciliate. Anthers ca 1 mm long, lowest pair with filiform nectaries of 3–4 mm. Connectives of equal length to anthers. Style geniculate, clavate above; crest, two lateral, broad, vertically flattened triangular, acute lobes, patent or recurved. Fruit unseen.

Other material examined: Argentina: Neuquén, Minas Department, Sierra de Cochicó, cajón de la Botica, 2500–2700 m, O. Boelke et al. 14100* (BAB). Neuquén, Minas Department, extreme N of the Varvarco Campos lake, Cajón Benítez, po. Puerta Vieja, 2600–2750 m, O. Boelke et al. 14287 (BAB). Neuquén, Minas Department, Cerillos Detachment, Cerro Morado, ca 1600 m, R.A. Rossow & R. Gómez Cadret 2667 (BAB).

*The botanical drawing of this gathering, fig. 133 in *Flora Patagonica* 5, serves as a technical illustration of *V. rossowiana*.

Several solid reasons contributed to the commemoration of Rossow in the novelty's epithet: his advancement of the study of the section, and his unfulfilled ambition to make it his principal interest; our professional and social relationship with him; and above all his direct involvement with this particular species.

Apart from their significant, extended geographical separation, the following suite of features differentiates *V. rossowiana* from *V. santiagonensis* as described:

V. rossowiana – The lowermost petal has two lines of dense, short indumentum at the mouth of the spur, which is stout, and does not exceed 7.5 mm. The two lobes of the style crest are held horizontally.

V. santiagonensis – The lowermost petal is glabrous with a slender spur 8–9 mm long. The style crest lobes are strongly pendulous at the tip, as is clearly apparent in Skottsberg's drawing (1916) (fig I). This inconspicuous little organ is of primary importance in delimiting species of the section.

A third species in the alliance, which is sited geographically between the two considered here, has been recently discovered and will shortly be described and published (Watson & Flores *ined*.). In that paper we propose to draw up a key to differentiate all three.

The type population of *V. rossowiana* was diffuse but common locally here and there, particularly on the exposed uppermost rock pavement plateau. Like most sect. *Andinium* species of the sempervivoid life form, its individual plants were noted as almost invariably growing in complete isolation, shunning any significant competition from the thin, patchy cover of other dwarf Andean alpines, or at least with no more than the occasional very dwarf tufted plant for company. They inhabited soil of a high volcanic sand and fine pumice grain content mixed with rock fragments on bare, open exposures, or in small stony pockets among outcrops, and occasionally in crevices between low rocks. The species has been recorded at elevations from 1600m to 2800m. A few further details of its ecology are given below.

When prompted by the sad news of Kim Blaxland's passing to name a new *Viola* taxon for her (Watson & Flores 2012), it occurred to us we should also memorialise in the same way others who have made their mark on sect. *Andinium*. We decided to complement Kim's viola with a popular account of our concept of the possible evolution of the section, which is endemic to South America. It soon became evident that this would have to run to three

Viola rossowiana F&W 10705, Cajón de los Nevados, Departmento Minas, Neuquén Province, Argentina. 8 February 2003.

Right (fig. C). Individual of type population showing clump formation

Below (fig D). A type specimen showing aerial growth and rootstock (Anita Flores).

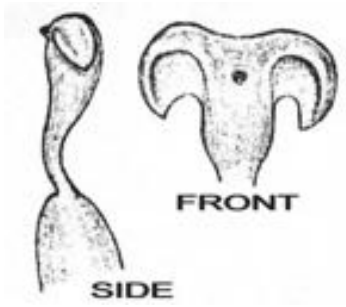
Below (fig E). Cross section of a type specimen revealing long petal spur (Anita Flores).

parts. The obvious opportunity was to accompany each part with another commemorative viola: *V. rossowiana* is the present outcome. The third and last new species of the series will commemorate Wilhelm Becker, the greatest historical name associated with *Viola* in general, and sect. *Andinium* in particular.

FURTHER OBSERVATIONS

To date *V. rossowiana* has been collected just four times from three distinct populations disposed in an acute triangle, with its tip to the south and the two longest arms some 30 km each. The general habitat is of rugged, remote, mountainous terrain in the north of Neuquén Province around the Varvarco Campos lake adjacent to the Chilean border, just south of the Maule alpine

F&W 10705 *Viola rossowiana* showing long petal spur on cross section of a type specimen (top - fig F) and peduncle and flower showing long, connivent petal spur (above - fig.G). Flower of a type specimen F&W 10705 (below - fig H) showing style crest with horizontal lobes. Cajón de los Nevados, Departmento Minas, Neuquén Province, Argentina. 8 February 2003. (Anita Flores).



Drawing of *Viola santiagonensis* style crest by Skottsberg, indicating strongly pendulous tips of lateral lobes. 1916.

Viola coronifera flower. Cerro Colohuincul, Neuquén Province, Argentina. 29 December 2002, (Anita Flores).

lake. Its vegetation classifies as upper Andean type. Higher elevations, including the few available maintained tracks, are snowed under or inundated for large parts of the year, limiting access to late spring and summer, even for all-terrain vehicles. Equine trekking is consequently the only practical option for assured coverage of ground over a full flowering season. There have been no more than four serious botanical pioneering incursions into this immediate sector, beginning from the middle of the last century. The flora has accordingly tended to be sampled rather than investigated thoroughly.

We are only in a position to describe the well-established *V. rossowiana* population we ourselves have observed and registered. It consisted of at least several hundred plants concentrated here and there into colonies over a fairly extensive area of one or two kilometres. Long familiarity with sect. *Andinium* as a whole in the wild indicates this as above average-sized, suggesting the other two locations could well be much less populous. The new species therefore clearly qualifies as a rare, very narrow, endemic. Unfortunately its range falls outside any designated nature park area, whether national or provincial, the nearest being the Domuyo Provincial Park shortly to the south. Seasonal goat-herding is a permanent human intervention throughout the region, and can be catastrophic for natural ecosystems with high concentrations of rare local endemics. In 2003 we observed moderate local foraging that did not appear to pose any immediate serious threat to the *Viola*. However, the activity is essentially uncontrolled, and we were informed that when demand for goat-meat slackens temporarily, animals that would have been culled are bred and stock increased without limit in the hope of maximising economic gain in future. For conservation purposes, *V. rossowiana* and other local endemics of equal rarity should therefore be regarded as extremely vulnerable, always at risk of falling into the endangered category, and in urgent need of local and national protective action.

The existence of three closely related, remarkably similar, long-spurred, white-flowered rosulate violas, all very rare endemics, but separated by long stretches of intractable Andean chain, raises intriguing questions. Are they relict remnants of a once-continuous distribution occupying hundreds of kilometres? Or were their seeds vectored over long distances, presumably by animate organisms such as birds? This is an interesting challenge but too complex to consider in detail here. We have reached a provisional speculative conclusion based on firm evidence which we hope to discuss when the third species in the alliance is published.

ACKNOWLEDGEMENTS

Particular thanks are due to Ing. Agr. Renée Fortunato of the Instituto Nacional de Tecnología Agropecuaria, Buenos Aires (BAB) for her kindness in loaning specimens of other collections of this novelty, which we studied at the Natural History Museum, Santiago.

Yet again we cannot allow the keen-eyed appraisal of our manuscripts by top *Viola* specialist and friend, Thomas Marcussen, to pass without gratitude. His prompt responses at short notice and while under pressure of work himself, as well as his kind and encouraging remarks about our overall presentation, greatly exceeded any standard "call of duty".

For the second time too we wish to express our appreciation to the NARGS executive and membership for unqualified acceptance and tolerance of this rather formal scientific text, and above all for kindly publishing a full house of images which undoubtedly greatly help to illuminate written details and make it of greater interest to non-specialists. It seems only appropriate that the flora of South America should find such a welcoming home in this journal of its northern continental neighbor.

REFERENCES

Becker, W. (1925) *Viola* Sect. *Andinium*. In: Beiträge zur Kenntnis der südamerikanischen *Violae. Repert. Spec. Nov. Regni Veg.* 21: 351–360.

Becker, W. (1928) On some violets from the Andes. *Kew Bull.* 1928: 133–140.

Comber, H.F. (1928) *Andes expeditions 1925–6 and 1926–7. Field notes of plants collected by H.F. Comber*. Constable, Edinburgh. 82 pp.

Erskine, P.J. (1994) With the AGS in the Andes. South American alpines. *Bull. Alp. Gard. Soc*. 62(3): 291–292.

Ferreyra, M, C. Ezcurra & S. Clayton (2006) *Viola coronifera*. In *Flores de alta montaña de los Andes patagónicos. High mountain flowers of the Patagonian Andes:* 181. Editorial LOLA, Buenos Aires.

Hagemann, I & B. Zepernick (eds) (1993) On the history of the Berlin Botanic Garden. In *The Berlin-Dahlem Botanic Garden*. The Berlin Botanic Garden Fordererkreiss der naturwissenschaftlischen Berlins e.V. 112 pp.

Meudt, H.M. (2006) *Monograph of Ourisia (*Plantaginaceae*)*. Systematic Botany Monographs 77: 1–188.

Rossow, R.A. (1988) *Viola*. In: Correa, N.M. (ed.) *Flora Patagonica* 5: 171–189. Instituto Nacional de Tecnología Agropecuaria (INTA), Buenos Aires.

Rossow, R.A. (1993) Estudio anatómico, palinológico y sistemático de las especies del género *Ourisia* (Scrophulariaceae, Rhinanthoideae, Ourisieae) de América del sur. Unpublished Ph.D. thesis, Facultad de Farmacía y Bioquímica, Universidad de Buenos Aires.

Rossow, R.A. (1993) *Viola roigii* (Violaceae) especie nueva de San Juan (Argentina). Hickenia 2(21): 95–98.

Rossow, R.A., J.M. Watson & A.R. Flores (2003) 46. Violaceae. In: Kiesling, R. (ed.), *Flora de San Juan, República Argentina*: 139–147. Estudio Sigma, Buenos Aires.

Skottsberg, C. (1916) Die Vegetationsverhältnisse längs der Cordilleren de los Andes s. von 41°s". *Br. Kungl. Vetenskapsakademiens Handlingar* 56(5): 261, plate 22, fig. 32 a–e.

Van den Beuken, G. & K. J. van Zwienen (2011) Northern Patagonia: a land of Rosulate Violas. *Rock Garden Quarterly* 69(1): 34–53.

Watson, J.M. (1974) Andes, 1971 and 1972. *Bull. Alp. Gard. Soc*. 42(2): 134.

Watson, J.M. (1994a) South American alpines. *Bull. Alp. Gard. Soc*. 62(3): 329–330.

Watson, J.M. (1994b) *Viola coronifera*. In: Beckett, K.A. & C. Grey-Wilson (eds), *Alpine Garden Society Encyclopaedia of Alpines 2:* 1379–1380, plate 529. AGS Publications Ltd, Pershore, U.K.

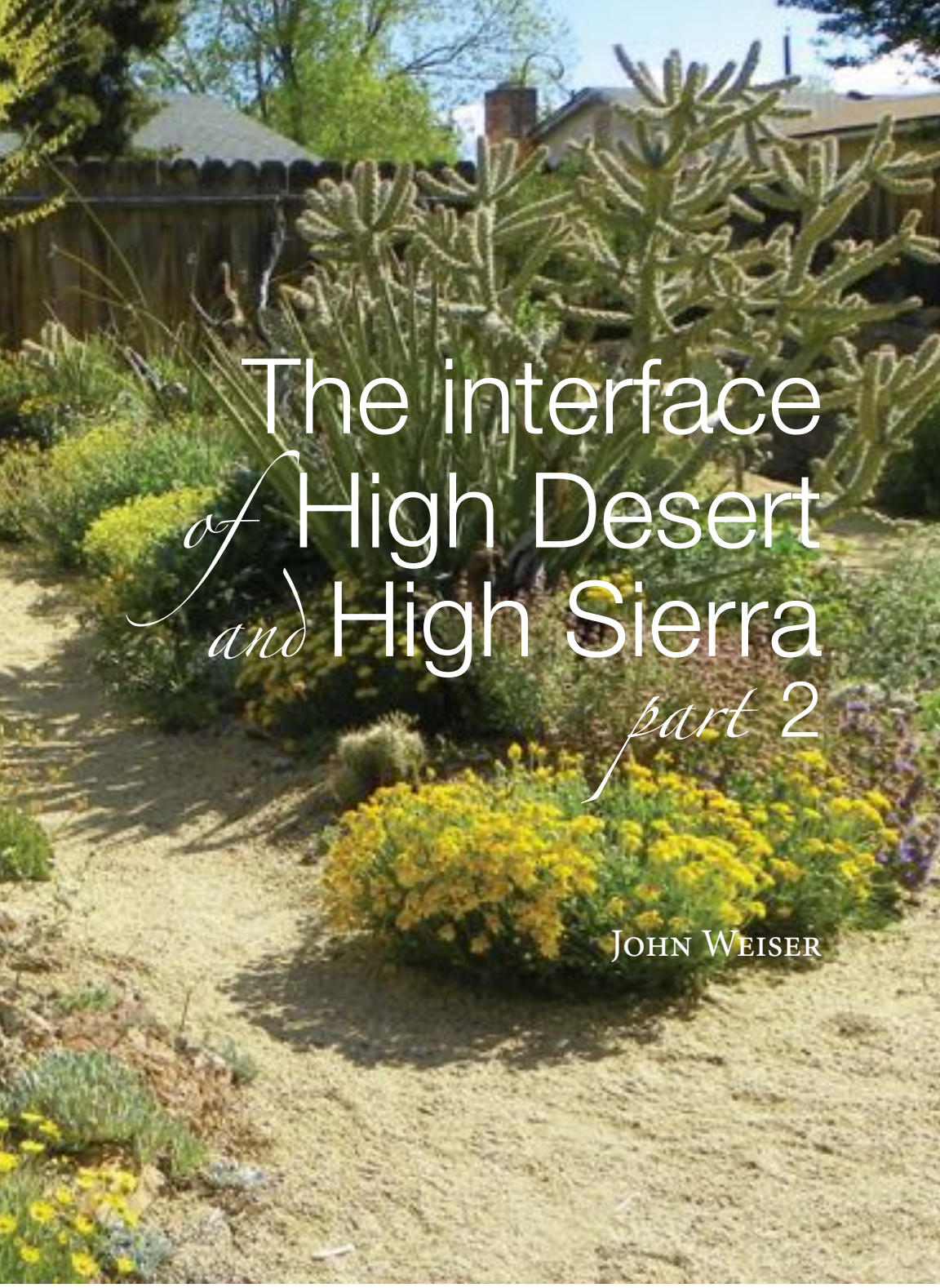
Watson, J.M. & A.R. Flores (2007). Violas rosuladas en la flora de Chile. *Chagual* 5: 33-47.

Watson, J.M. & A.R. Flores (2011) Study and rehabilitation of some endemic Argentinian taxa in the genus *Viola* L. (Violaceae), and lectotypification of a Peruvian species. *Gayana Bot*. 68(2): 297–308.

Watson, J.M. & A.R. Flores (2012) A new nothospecies in section *Andinium* W. Becker of *Viola* L. (Violaceae) endemic to southern Argentina. *Rock Garden Quarterly* 70(4): 367–377.

Top: *Viola coronifera*, west of Primeros Pinos, Neuquén Province, Argentina. November 20, 2009. (Anita Flores).

Below (fig. J): Individuals of *Viola rossowiana* type population, F&W 10705. Cajón de los Nevados, Neuquén Province, Argentina. February 8, 2003.(Anita Flores).



The interface of High Desert and High Sierra part 2

John Weiser

THE FIRST PART of this article highlighted the flora of an alluvial fan in Washoe County in far western Nevada, and discussed the geology and conditions those plants have to deal with. In this second part some more of the plants will be shown along with some views of the dryland garden I've built in our yard in Reno.

As everywhere, climate in Reno is a key for both the wild flora of the surrounding area, and in the garden. Average night-time temperatures will be below freezing November through March. Throughout the year day-time temperatures average around 30 degrees above night temperatures and will average around 90F throughout July and August. Rainfall figures are in inverse proportion to temperature. From November through March rainfall is at its highest, from 0.8 inches in November rising to just over an inch in January and February. Rainfall then falls progressively through to July and August which each have around 0.25 inches. In total, Reno gets 7 to 8 inches of rain annually. For the dryland rock gardener this climatic pattern means that, just as in the hills around, there is an intense and spectacular early-season flowering.

Phlox stansburyi — Cold desert phlox is a stoloniferous species whose flowers might remind you of the colorful pinwheels you played with as a child; they are about 1 inch across in shades of blushing white to pale pink. The narrow petals have a slight spoon shape and with a very shallow notch at the tip. The stems can grow to about 1 foot long, sprouting from underground stolons to form loose gray-green carpets across the dreary slopes and benches of the high desert. Dryland phloxes are some of the most attractive plants. Easy from either seed or cuttings, *Phlox stansburyi* should be grown on a site with very sharp drainage.

This phlox ranges across the Great Basin and Desert Southwest where it occurs in desert and plateau scrub and woodland habitat. Found at elevations of 4,500–9,800 feet.

This picture in the garden in Reno shows *Phlox stansburyi* in company with *Lewisia rediviva*, *Erigeron*, and *Opuntia*.

Eriophyllum lanatum var. *integrifolium*) — Oregon Sunshine is a showy species with many forms and varieties across the western states. The local variety *integrifolium* is shorter (5–10 inches) than the common variety *lanatum* and is a choice miniature if grown in a dry location. Given extra moisture expect this species to respond by doubling its size. The leaves are silvery tomentose, entire or tri-lobed at the tips. Multitudes of golden yellow daisies are held just above the foliage forming a glowing mound. This variety is found east of the Cascade and Sierra crests through the Great Basin and Intermountain West on dry rocky slopes from 4,500–11,500 feet.

Stenotus acaulis (syn. *Haplopappus acaulis*) — Stemless Goldenweed is a dwarf mat-forming desert and alpine daisy. The yellow spring flowers are held 1–4 inches above condensed 2-inch-tall mats of vertical lance-shaped leaves. As it approaches summer dormancy the stiff pointed leaves begin to dry becoming very prickly to the touch. It is not uncommon to see wild mats with portions dead and the remainder flourishing. As the mats expand, their new rosettes send down their own sets of wiry tap roots. This makes it fairly easy to separate new cuttings in early spring.

Its range starts in the Eastern Sierra Nevada Range extending eastward across the Great Basin, Wasatch and Uinta ranges, crossing the Middle Rockies and ending in the Wyoming Basin. Across its vast range regional forms have at one time or another been given varietal standing; however, where these forms overlap integrated forms are common. Found at elevations 3,500–10,500 feet.

Eriophyllum lanatum with multitudes of golden yellow daisies held just above the foliage forming a glowing mound in a dramatic contrast to the *Penstemon speciosus*.

Composites are an integral part of the flora in many places and certainly in western Nevada and on the alluvial fan in Washoe County. Along with *Eriophyllum lanatum* var. *integrifolium* are found *Stenotus acaulis*, *Crepis acuminata*, *Erigeron bloomeri* var. *bloomeri*, *Antennaria dimorpha*, and *Balsamorhiza hookeri*. The Asteraceae are often undervalued by gardeners but in a dryland garden they can sit alongside eriogonums and penstemons as a key element.

Balsamorhiza hookeri — Hooker's Balsamroot is a bright sunflower relative is frequently found on the lithosol habitats of the Intermountain West. This refined low plant forms a gray-green rosette of finely pinnate elongated basal leaves. The multiple leafless stems rise from the center to 18 inches, each displaying a single attractive three-inch sunflower. The long woody tap root delves deep in search of moisture allowing it to maintain its top growth throughout the summer. Found at elevations of 2,500–6,500 feet.

Crepis acuminata — Tapertip Hawksbeard is a native perennial forb producing clusters of multiple small yellow flowers on long stalks. Basal rosettes are formed of deeply toothed and lance-shaped 8-inch leaves. The gray-green leaves are covered in soft matted hairs. Often associated with dry sites in sagebrush and open forest across the western states you will usually come across this species when you're in sagebrush. Tap-rooted and long-lived in a dry site, this dandelion relative is well-behaved and seeds around modestly. Found from 2,600–10,500 feet.

Antennaria dimorpha — Low Pussytoes, the most xeric of the pussytoes, does not spread by stolons, as in other members of the genus, but rather sends down taproots from the individual rosettes, as they expand outward from the center. The tight mats of tiny gray-tomentose, linear leaves are the best attribute of this miniature matted cushion. Commonly found growing on well-drained, lean soils, from desert benches to alpine ridges across western North America. It makes a wonderful gray ground cover for troughs since it spreads with restraint. Summer dormancy is expressed by the desiccation of the mature outer leaves and a contraction to tighter closely packed rosette of buds. Found at elevations of 5,000–10,000 feet.

Erigeron bloomeri var. *bloomeri* — Scabland Daisy is a cute little rayless erigeron found in dry sites throughout the Great and Columbia Basins. This little bun is quite common on rocky slopes that receive spring runoff.

The 3-inch tufts of linear leaves with dozens of miniature yellow buttons floating above are eye-catching, inviting the observer to get down and take a closer look. The wiry fibrous roots spread widely holding the fine soils around the plant in place. It is not uncommon to see the little plants perched atop little pedestals on rocky slopes. Found at elevations of 2,500–7,500 feet.

Four views of the dryland garden with evergreens such as yuccas, cacti, and sempervivums, giving year-round structure for the range of forbs and bulbs.

The luxurious texture of *Calochortus bruneaunis* is dramatized by a background of *Opuntia* and filamentously edged *Yucca* leaves. In the wild *Calochortus* will often be found in the shelter of spiny plants obviously helping protect them from browsing animals.

Calochortus bruneaunis — Pinyon mariposa lily with its striking white chalices is a standout in the dry high desert environments it favors. The flowers are 2–3 inches across, the interiors are white with a maroon/purple blotch and yellow gland at the base of each of the three petals. The exteriors display a vertical green midrib strip and fine green veining. These are held erect at 12–18 inches normally with 1–2 flowers per stem, on occasion up to 4. The stems often pup a bulblet near the base making it easy to move into the garden. *Calochortus* vary a lot in their requirements in cultivation – this bulb requires a very dry planting medium during its summer dormancy. Native to the eastern flank of the Sierra Nevada Range and the Great Basin at elevations of 4,500–9,800 feet.

Ranunculus andersonii — Anderson's Buttercup is a plant that few might recognize as a buttercup at first glance. This little beauty with its frilly glaucous basal rosette and pink blushed white flowers sporting their golden boss of stamens is one of the first wildflowers to bloom across the High Desert. It appears that populations from Utah, Idaho, and eastern Nevada produce lovely soft pink flowers, an unexpected color for a *Ranunculus*. Blooming commences in March through early April just as the last of the snow recedes from the foothills. Around Reno we find these growing on the leeward sides of rock outcroppings and slopes that do not support heavy shrub cover. Snow tends to accumulate in these protected micro climates and with the lower competition for resources moisture lasts a little longer in the spring. Eventually available moisture is depleted and summer dormancy is initiated. Its range is restricted to the Great Basin at elevations of 2,900–7,500 feet.

Delphinium andersonii — Anderson's Larkspur.
This common dryland larkspur starts to produce its green crown of deeply lobed basal leaves in late March followed in May by brilliant blue/purple flowers highlighted by white central bees. Found on sandy slopes in mixed desert shrub communities. The erect flower scapes stand 12–24 inches tall and are firmly attached to stout fibrous rhizomes. In late June dormancy is triggered by warming temperatures and loss of soil moisture. This showy desert perennial can handle a moderate amount of moisture when dormant. Easy from seed or as transplants, it adds color and height to the spring garden, then slips quietly to sleep for the rest of the year. Endemic to the whole of the Great Basin with scattered populations in south western Montana. Found at elevations of 4,500–7,500 feet.

Ranunculus glaberrimus var. *glaberrimus*--Sagebrush Buttercup is another little treasure and one of our earliest spring wildflowers. The glossy yellow five-petaled flowers are dazzlingly cheerful and hard to miss. If you are lucky you may even find a plant with double the number of petals. This little clumping perennial forb grows from 2–6 inches tall with smooth green rounded leaves that have three blunt lobes along the edge.

Another summer-dormant species, sagebrush buttercup is fairly widespread throughout its range. It occurs in a number of plant communities from sagebrush-grassland to higher elevation mountains on vernally moist sites. The typical variety of *Ranunculus glaberrimus* (var. *glaberrimus*) grows on drier sites and at lower elevations than does variety *elliptica*. It ranges from British Columbia, Saskatchewan south to northern Arizona and New Mexico, then from the Sierras eastward to western Montana, Colorado, Wyoming, Nebraska and the Dakotas. Elevations for variety *glaberrimus are* 3,200–6,800 feet, for variety *elliptica* 5,000–11,000 feet.

Castilleja chromosa--Desert Paintbrush is a stunning sight when found blooming in a range of vivid colors from fiery reds through to bright lemon yellows. It is not uncommon to see multi-hued populations lighting up the landscape with flashes of brilliance. The size can be variable depending upon elevation and exposure to high winds. At lower elevations they reach heights of 10–12 inches, whereas on high elevation ridges they are more in the 46 inches range. Desert paintbrush is often found on sagebrush steppe and juniper woodlands throughout the dry basins, plateaus and ranges of the Intermountain West. Found growing at elevations of 3,300–10,000 feet.

Castilleja chromosa and *Penstemon grandiflorus* in the garden.

An expanded version of this article will be found in the online digital edition of the Quarterly at ***<www.nargs.org>***

More of John's photographs of Nevada's spectacular wildflowers and landscapes, and his garden, are at ***<www.flickr.com/photos/sierrarainshadow>***

Eleanor (Ellie) Spingarn
January 6, 1928 - June 25, 2012

Barbara van Achterberg

ELLIE BRINKERHOFF SPINGARN was a gifted rock gardener who could make difficult plants look easy; with an artist's eye she created an exceptional garden in Georgetown, Connecticut. She was generous with friends and visitors. She was also a builder of amazing stone walls and troughs. Since Ellie was a slender woman 5 feet 3 inches tall, her beautifully laid walls, some 6 feet high, are a testimony to her determination and strength.

Ellie Brinkerhoff was a member of ARGS (later NARGS) for many years, and was a member of the North Atlantic Region. In 1968 she wrote a letter to members from Connecticut that the "time has come to form a local unit of the American Rock Garden Society in the State of Connecticut." Sixty people attended a meeting a meeting on April 6; Lincoln Foster was the speaker. With the help of Linc and Timmy Foster and Lee Raden, she organized the first Winter Study Weekend in January, 1969 and successive winter study weekends in Connecticut.

She was Regional Vice President of ARGS from 1976-1978, received an Award of Merit in 1973, a Connecticut Chapter Service Award in 1986 and the Marvin E. Black Award "for a member who has helped other people to reach their potential in the plant world" in 1994.

Ellie Brinkerhoff was hired by John Oliver to create an alpine garden at his nursery in Fairfield. Many people first met Ellie there where they were introduced to both rock gardening and the Rock Garden Society by her.

It was the talk of ARGS when Ellie and Joel Spingarn, a noted grower of dwarf conifers, became engaged. They married in 1980. We all wondered whether they would set up gardening in Long Island or Connecticut. But there was never really any question. After a year or so, Joel moved his more portable dwarf conifers to Ellie's place, where he established a conifer bank that enhanced the landscape, especially in the winter.

A friendly but quiet hard-working gardener, Ellie commented that she had to work 3 hours a day to keep her large garden in shape. If she took a day off she worked 6 hours the next day. Her efforts showed. Even today, when Joel and Ellie have not been able to garden for 10 years, the beautiful bones of their garden remain.

She was one of the women gardeners profiled in Starr Ockenga's "Earth on Her Hands: the American Woman in Her Garden" (1998). She is photographed sitting on an old International Harvester tractor in the

chapter titled "The Lure of Stone." Ellie is quoted as saying, "Any rock garden needs mulch, and stone is ideal. It has been my mulch of choice for many years."

That Ellie inspired so much affection in so many is evidenced by the plants named for her. Among others are *Phlox* 'Ellie B. Pink', *Forsythia* 'Ellie Rock', *Saxifraga* x *hornibrookii* 'Ellie B.', a beautiful hybrid of *S. stribrnyi* with *S. lilacina* raised by Lincoln Foster, and of course *Chamaecyparis obtusa* 'Ellie B.' a seedling raised by her husband Joel who survives her.

NARGS 2013 ELECTION & VOTING PROCEDURE

On pages 82 & 83 you will find pictures and biographies of all of those who have been nominated as Officers and Board members for the 2013 election. The election will take place February 1–15, 2013 and all members may vote by following the procedure described below:

>Log on to **<www.associationvoting.com/nargs>** or use the link provided under "2013 election" on the NARGS website **<www.nargs.org>**

>On the "Online Voting Page" you will be required to login by entering your last name and your NARGS membership number after which you will select "Login" to proceed to the welcome page.

>On the welcome page, select "Proceed to Ballot"

>The ballot will then appear with instructions for voting. Next to each candidate will be a link to a photo and biography. After voting, at the end of the ballot, select "Preview Ballot Selection" to review your selections. You may return to the ballot by selecting "Change My Ballot" if you have made a mistake or want to change your mind. When you are ready to cast your ballot, select "Confirm My Ballot." You will then again be asked to confirm your final vote by selecting "OK." You have the option of receiving an on-line receipt.

If you do not have access to a computer, contact Bobby Ward at

PO Box 18604, Raleigh, NC 27619-8604, USA.

and a mail-in ballot will be sent to you.

If you do not know your membership number you should also contact Bobby Ward at the above address or at <nargs@nc.rr.com>
It is also printed on the mailing label of the *Quarterly* above your address.

The votes will be tallied by <www.associationvoting.com> and the preliminary results will be announced on the NARGS web site in February, and published in the Spring 2013 Quarterly, and certified at the Annual Meeting on May 2, 2013.

2013 nominations for NARGS Board of Directors and the Administrative Committee (AdCom)

For NARGS President: Peter George

Peter George writes, "During my term as president I've tried to guide the organization toward more democratic elections, more Internet presence, and a more vibrant and relevant Rock Garden Quarterly. The changes we've implemented haven't been without some opposition, but generally the changes have been well received, and I'm fully committed to continuing my efforts to make NARGS the most progressive, interesting and inclusive organization of its kind in the world."

For NARGS Vice President: Harvey Wrightman

Harvey Wrightman writes, "I have been a member of NARGS since 1985 and with my wife Irene, operate Wrightman Alpines, a nursery specializing in rock garden plants, also since 1985. I find alpine gardening is one of those pursuits to offer different levels of experience. In the construction workshops we have run, it often is a surprise what people can create - like watching a primary child in a sandbox with a trowel and water. I believe it has to be fun."

For NARGS Recording Secretary: Ben Burr

Ben Burr writes, "I am a retired plant geneticist. My wife Frances Burr (retired botanist) and I have always maintained an avocational interest in horticultural plants. As our plant collecting expanded to the spatial limits of our garden we turned to alpines and quickly became addicts. I first became interested in alpine plants in California's High Sierra where I was fortunate enough to have summer employment through my college years and packed a copy of Jepson's Manual with me to key out plants on my lunch breaks. I am a member of the Manhattan Chapter and maintain the Chapter's website at <www.mcnargs.org>"

For NARGS Treasurer: Bill Adams

Bill Adams is a native Coloradan and, after earning a degree in Biology, worked in the banking industry for over 20 years. In 1995, he retired from banking and expanded his rock gardening hobby into Sunscapes Rare Plant Nursery, a small wholesale and mail order nursery specializing in rare and unusual plants for rock gardens and dryland gardens. He has been a member of the Rocky Mountain Chapter of NARGS since the early 80s and has served as the Chapter Treasurer since 2007. He is currently finishing his first term as the Treasurer of NARGS.

2013 nominations for NARGS Board of Directors and the Administrative Committee (AdCom)

For 3 Positions on the NARGS Board of Directors (2013-2016):

Gordon MacKay

Gordon followed in his father's footsteps and attended Threave School of Gardening in Scotland (two years). Whilst there he was inspired by Head Gardener Magnus Ramsay to further pursue a career in hardy ornamental nursery stock and this led to studies at Pershore College of Horticulture for three more years. In 1994 Gordon emigrated to Vancouver Island. Along with being an instructor for a local college horticulture program, he owns and operates Alba Plants where he and his wife propagate, trial and grow dwarf conifers, alpines, dwarf shrubs and choice woodlanders.

Don LaFond

Don LaFond writes, "I'm a stay-at-home dad and in my free time I love gardening. What got me interested in rock gardening is I found out that an English/cottage style garden wouldn't grow in a gravel pit so I started rock gardening instead. I was introduced to and joined NARGS sometime in 1990. I've enjoyed being president and vice president of the Great Lakes Chapter of NARGS in the past. I like to collect Daphnes and dwarf conifers. My garden also consists of rhododendrons, trees, shrubs and other perennials. My favorite way of gardening is creating troughs."

James Locklear

Jim Locklear is Director of Conservation at Lauritzen Gardens in Omaha, Nebraska, where he is responsible for efforts to conserve the endangered plants of the Great Plains. He has worked in the field of public horticulture for 25 years, previously at the Dyck Arboretum of the Plains in Kansas, the Nebraska Statewide Arboretum, and the Morton Arboretum in Illinois. He is the author of the book, *Phlox: A Natural History and Gardener's Guide*, published by Timber Press in 2011. In 2012, Jim received the Edgar T. Wherry Award from the North American Rock Garden Society for "outstanding contribution in the dissemination of botanical and horticultural information about native North American plants." Jim and his wife Lynn live in Lincoln.

Details of the voting procedures can be found on page 81

Bulletin Board

items marked digital Quarterly are extended online

Letter from the NARGS President

Here in the northeastern United States, we've experienced a violent and challenging October. Superstorm Sandy left large swaths of New York City, New Jersey and Connecticut, as well as coastal Rhode Island and Massachusetts, without power, water and municipal services. The property damage is vast and, in many places, devastating. An event like this certainly would seem to put gardening in a very distant back seat. And yet, virtually every person I've spoken with during this past week has commented about their garden. So even under the darkest cloud, we show our love for gardening and for our plants, a trait we may think a bit odd, but one we gladly accept.

The entire year has been a strange one for New England gardeners. The winter was dry, warm, and more like an extended fall than the typical season of snow and ice. My garden did quite well until March, when the temperature dropped to single digits for a week; even now some of my daphnes and shrubby Penstemons show the results of the snowless winter, with diminished growth and leaf loss that are still obvious. At my age I'm no longer a lover of cold and snow; but I'm hoping, almost praying, for a "normal" winter with a reliable snow cover this year. That, plus no January thaw and temperatures in the 20s and 30s would certainly make for an ideal winter season.

November is the time for seeds to begin playing a huge role in our lives. The catalogues are coming out, and we're starting to pot up those seeds that need the cold/warm cycle to break down the germination inhibitors and produce the seedlings we will cherish sometime in April and May. The NARGS seed exchange continues to improve, and again this year we've purchased a lot of wild collected seed for our members. We spent a lot of time and money creating an online ordering process for the SeedEx, so let's take advantage of it!

The project of completely redoing our website continues, and we believe that when it's completed, NARGS members will have another world class resource to go along with this wonderful Journal. Together with many new features, the website features that you've become comfortable with over the past few years will continue in a much more logical and intuitive way. Check in periodically to see how we're doing!

We're also conducting a complete review of the financial commitments NARGS makes every year, working on the assumption that nothing is so well run that improvements are impossible. In particular, we're going to focus on the Speaker's Tour, which has been by managed exceptionally well by Barbara Wetzel for several years. We're interested finding out if there are ways to improve the program, to possibly reduce its cost, and to create a more rational way of allocating our speakers to Chapters that are committed to NARGS. Simultaneously, we're taking a fresh look at the whole subject of Chapters;

in particular, we're trying to determine why many of our Chapters seemingly no longer value NARGS affiliation. There are almost 40 Chapters with a total of about 5000 members, and it simply makes no sense that fewer than half of that number are members of NARGS. Or at least, it makes no sense to me.

Finally, we're revisiting the issue of NARGS sponsored meetings. How many should we sponsor each year? Where should they be held? Can we expect Chapters to continue to bear the burden of organizing and running them? Our next Annual General Meeting will be the first weekend in May in Asheville, North Carolina, and I'm hoping for a huge turnout. It's a magnificent time of year to visit the Blue Ridge Mountains, and the event planners are carrying out their task with a high level of professionalism and excellence. I look forward to seeing many of you there. Enjoy the rest of the fall season – and get your seed orders in!

Peter George, NARGS President

NARGS 2013 Awards

Call for Nominations still open until February 5, 2013

There is still time to submit nominations for the following awards. Full details of these were listed in the last edition of the Quarterly.

Award of Merit

Marcel Le Piniec Award

Edgar T. Wherry Award

Carleton R. Worth Award

Marvin E. Black Award

Linc & Timmy Foster Millstream Garden Award

A listing of previous recipients of the awards are on the NARGS web-site. Any additional questions or concerns, *please contact me directly:*

Betty Spar, NARGS Awards Committee Chair
<bettyannespar@gmail.com>
206 Wolfe Street, Alexandria VA 22314

The Norman Singer Endowment Fund

Proposals for funding in 2013 must be submitted by **March 1, 2013**, by email to **<jgrushow@comcast.net>**, or by mail to

Jane Grushow, 1707 Marietta Ave, Apt 3P,
Lancaster PA 17603-2478

Award recipients will be announced at the Annual General Meeting in Asheville in May 2013.

Both individuals and institutions may apply. Endowment fund guidelines, application form, a list of previously funded projects, and photos of public rock garden projects can be found on the NARGS web site home page at **<www.nargs.org>** under **"Norman Singer Endowment Fund."**

NARGS Donations Appeal

Donations between July 27 and October 28, 2012 - $465

GENERAL FUND OR UNDESIGNATED

Amy Fluet (Wyoming)
Jackie McBrearty (Pennsylvania)
Paul Dambrosi (New York)
Lynn Fulton (Colorado)
Tammy Harkness (Pennsylvania)
Donald Henley (New York)
George Valchar (Connecticut)

WELCOME TO NEW MEMBERS

who joined between JULY 27 and OCTOBER 28, 2012

Bogaert, Barbara, 20883 Sky Meadow Lane, Golden, CO 80401
DeLong, Jodi, 4775 Hwy. 358, RR 3, Canning, NS, B0P 1H0 Canada
DeRouin, Cecile, POB 779, Sanibel, FL 33957
Dillon, Daniel & Esther Wrightman, 1516 Napperton Dr., Kerwood, ON, N0M 2B0 Canada
Fieldseth, Henry, 1365 Englewood Ave., Saint Paul, MN 55104
Fish, Shiralee, 96 John R. Hudson Dr., Yackandandah, Victoria 3749, Australia
Frost, Sean, 576 Wild Meadows Rd., Grafton, NH 03240
Gunther, Betty Ann, 2160 Loma Linda Dr., Los Alamos, NM 87544
Harstad, Gyrd, Olasvevegen 73, Lillehammer 2618 Norway
Hawkins, Laurence F., Jr., 5976 Billings Rd., Parkdale, OR 97041
Hixson, Laurie, 307 Potrillo Dr., Los Alamos, NM 87544
Jonckheere, Nancy J., 350 Turner Rd., Williamston, MI 48845
Leonardi, Mary, 6803 Compton Rd., Cedar Grove, NC 27231
McCollough, Nila, 202 Magnolia Trail, Brandon, MS 39047
Monroe, Cheryl, 225 General Hobbs Rd., Jefferson, MA 01522
Noctor, Donna, 5596 Furnace Hill Rd., Zionsville, PA 18092
Radler, William J., 10020 West Meadow Dr., Greenfield, WI 53228
Smith, Diana, 2926 Oxford St., Halifax, NS, B3L 2W1 Canada
Steenhoudt, Karen, 509 County Line Rd., Radnor, PA 19087
Vale, Anne L., 2 Hunter Dr., Braintree, Essex CM7 3XS United Kingdom
Warsh, Sophia, 4110 Cleveland Ave., Saint Louis, MO 63110
Wing Haven Gardens Fdn., 248 Ridgewood Ave., Charlotte, NC 28209
Wyse, Christopher, 19 Crane Hill Rd., Suffield, CT 06078

A full NARGS membership list is available as an electronic PDF file.
For a copy email <nargs@nc.rr.com> with "Membership List" as the subject.

PATRONS

The following recently became a two-year NARGS Patron
Alice Lauber (Washington)

We have learned of the death of the following NARGS members

Maurice Church, East Harwick, West Yorkshire, UK
Wilbert Danner, Vancouver, BC, Canada

Chapter Service Awards

These awards celebrate contributions to chapters by members who render great service, and those who are awarded them are rightly honored and here congratulated:

Elisabeth Zander
Donna Noctor
Hedwig "Hedi" Eulau
Hilary Clayton and Albert Martin
Don Ohl
Carol Earle
Mary Jenson

Detailed citations are given in the online version of the Quarterly.

Development of the new NARGS Website

Full details of this vital topic in the online Quarterly

Ben Burr <bnfburr@verizon.net>

NARGS Speakers Tour Program 2013-2014

JAMES LOCKLEAR, author of the beautiful new book, *Phlox, A Natural History and Gardener's Guide* will visit NARGS chapters in the West and a few in the East during spring 2013.

IAN YOUNG, noted author, lecturer, and artist from Scotland, will visit primarily eastern chapters in fall 2013. Planning for this tour is beginning now.

Further ahead, **Martin Walsh** from Ireland will speak to primarily western chapters in March 2014, and **Mike Kintgen** from Denver Botanic Garden will tour eastern chapters in October 2014.

Barbara Wetzel <aparkplace@aol.com>. More detail in online Quarterly.

Digitization of the Bulletin and Quarterly

This project is now nearing completion and it is hoped that a complete digital archive will be available on the website early in 2013. Thanks go to Joel Spingarn and his late wife Ellie for the bulk of this collection. Other issues came from Larry Thomas, Michael Riley, Tom Stuart, Jacques Mommens, and the Mertz Library of the New York Botanical Garden. Thanks are also due to those NARGS members who provided generous donations towards the expenses of digitizing our archive. Further information in the online Quarterly.

NARGS Seed Exchange

Many thanks to all those who sent donations for the 2012-2013 Seed Exchange. Your seeds are, of course, the most essential part of one of NARGS's most popular member benefits. The Seedex is now in full swing, and your seed orders are welcome until February 10th.

Ordering online will place your order soonest - giving you the best chance to receive your first choices. It's a quick and easy process:

First, be sure that our Executive Secretary, Bobby Ward, has your most current email address. If you haven't sent it to him before, or have changed your address lately, send an email to: <nargs@nc.rr.com>

In the Subject line, type (or copy/paste): NARGS seedex email address

In the body of the text, simply type your name and full postal address.

When you type your email address on the website's Seedex Ordering Instructions page, the system will recognize you as a NARGS member and you will be sent an email message with a link to an order blank to fill in with your first- and second-choice seed numbers.

If you have a print copy of the seedlist, **or if you wish to download the order form from the website and mail it**, send your order and US$15 check (U.S. and Canadian members only) to:

Dick Hammerschlag
Potomac Valley Chapter
7106 Deer Valley Rd.
Highland, MD 20777
U.S.A.

You can also reach Dick, with any questions, at <peachnfrog66@comcast.net>

After February 10, the main distribution will close, inventory of the remaining seeds will be taken and posted on our website on March 1, and the second round of orders will begin. If you wish to receive a printed list of the Surplus Seeds (just numbers, so hold onto your main seedlist for the names) to order in the second round, you must indicate that by either checking the appropriate box on your main order, or contacting Laura Serowicz to request a copy:

15411 Woodring Street
Livonia, MI 48154-3029
U.S.A.
Email: <seedintake@mi.rr.com>

Once all your seeds are sowed, you can begin the really fun part: dreaming about the unprecedented germination you will have this year (I did call it dreaming, didn't I?), and also planning how you will share the wealth of seedlings with your chapter this Spring and your garden's seeds with NARGS in the early Fall. Enjoy the whole process!

Joyce Fingerut, Director, Seed Exchange, <alpinegarden@comcast.net>

Bulletin Board
ONLINE EXTRA

Expanded versions of items marked

Chapter Service Awards

These awards celebrate contributions to chapters by members who render great service and those who are awarded them are rightly honored and here congratulated.

Detailed citations are given below.

Elisabeth Zander - Berkshire Chapter

During the sixteen years that I have been a member of NARGS, I have seen Elisabeth Zander repeatedly contribute to the success of the Berkshire Chapter of the North American Rock Garden Society (BNARGS). In addition to being a past Chairperson of BNARGS and previous editor of the newsletter for many years, she also prints paper copies of the newsletter, has been in charge of our program committee for the last several years, has given presentations on her gardens and those that she has visited, hosted speakers, helped plan the annual luncheon, and assisted the chapter in a myriad of other ways.

Submitted by Erica Schumacher

Donna Noctor - Delaware Valley Chapter

Donna Noctor has been a member of the Delaware Valley Chapter since 2003. She has contributed to the organization in many ways and with beautiful results.

Her first year in the group, she helped with the chapter's Winter Study Weekend, helping with written materials and assisting wherever she could during the event itself. She published the 2005 Members Guide, working with a longtime member to collect the needed information and then put-

ting it together in an artful and well-structured way. Donna has written and published a number of documents and handouts for the chapter including the Philadelphia Flower Show DVC-NARGS brochure for many years. She took on the chapter newsletter, *The Dodecatheon*, over six years ago.

The Dodecatheon is published every other month and has gone from a black and white paper-only format to a gorgeous color, electronically delivered publication. Donna has a very quiet and gentle way of persuading the many gifted members to write articles and publish photographs. She creates themes for each newsletter, orchestrating a cohesive and interesting product for the membership. Her eye for style and accuracy has lifted this publication into a magnificent benefit for our chapter.

Donna has served on the chapter's board of directors for a number of years, sharing her wisdom and calm. She brings refreshments to meetings when a plea goes out, while working full time at her paying job. She has worked almost every slot we have at our twice a year plant sales, checking plants in, moving them to pricing and onto tables, running the Silent Auction and helps with the glamorous job of sweeping the area before we leave. Donna most recently volunteered to be our Libations Director, procuring and serving a fun selection of drinks for our annual members meeting. It is in these many ways that Donna has made our chapter a vibrant, engaging and informative organization. She is well deserving of the NARGS Award for Service.

Submitted by Tammy Harkness and Ann Rosenberg

Hilary Clayton and Albert Martin - Watnong Chapter

It is my privilege to nominate our current newsletter editor, Hilary Clayton, and newsletter photographer, Albert Martin, for the NARGS Award for Service. Both Hilary and Albert are long-time members of both the Watnong Chapter and NARGS. Our members truly appreciate their dedication and the results of their seamless collaboration.

Over a year ago, Hilary and Albert jointly volunteered to take charge of our newsletter, Growing Interests. Together they have injected new life into Growing Interests, and they continue to provide distinguished service and devotion to the Watnong chapter.

Hilary's proactive approach, attention to detail, humorous writing and brilliant editorial skills paired with Albert's professional-quality photography as well as the articles he frequently contributes have made Growing Interests shine--issue after issue. Watnong members can count on Hilary's reports to be timely, relevant, and informative and beautifully presented. From the first day they became Watnong's newsletter team, at least one of them is always present at our chapter's meetings or events. While other

members were enjoying chapter activities, Hilary and Albert would be busy respectively taking notes and photos. They always made sure they captured our chapter's news first-hand; they never missed a beat. Following our events they worked tirelessly at home behind the scenes, dedicating many hours to make Growing Interests the best they could.

Like many of us, Hilary and Albert are busy parents with family obligations. However, they generously took time from their busy lives to give 100% to Growing Interests whenever needed. At this moment, no other members of the Watnong Chapter deserve this award more than Hilary and Albert.

Submitted by Ying Huang

Hedwig "Hedi" Eulau - Hudson Valley Chapter

Hedwig "Hedi" Eulau of Tarrytown, New York, has been the faithful treasurer of the Hudson Valley Chapter for over ten years. She has tactfully reminded members about their dues and kept track of the funds collected at plant sales and the joint chapter meeting hosted by the chapter in the fall. She keeps cool when things get hectic and is the voice of common sense at board meetings. Hedi has kept an eye on the chapter's rock garden at Lyndhurst in Tarrytown, always joining in on the weeding party. She also maintains a nearby community garden. This past fall she hosted the chapter's picnic in her beautiful in-town garden.

Submitted by Don Dembowski

Don Ohl - Long Island Chapter

Don Ohl has been chair of the Long Island Chapter of NARGS for nine years. I can honestly say that I do not believe our chapter would still exist without Don's tireless efforts keeping it vibrant and spirited. He has arranged many garden visits and bus tours for our chapter. His newsletters are always interesting and informative, detailing the attributes of many rare plants and in keeping members informed about chapter activities. He has, of course, attended many study weekends and national meetings.

Don has a special talent for rock garden construction. He has built gardens for the Fall Flower Show at Planting Fields Arboretum and also has constructed gardens at the Nassau Coliseum, Clark Gardens, and Atlantic Nurseries in Dix Hills, New York, his place of employment. Don started gardening at his parents' home in Hempstead, New York, at a young age, learning and gaining experience along the way. He gardens intensely at his home in Northport, New York, and his garden reflects his diversified interests in many aspects of horticulture. He has constructed a rock garden that looks as if Nature placed it there. It contains dwarf conifers, alpines,

and many other saxatile plants. Don also has extensive woodland gardens showcasing many rare plants, cultivated to perfection.

One of Don's specialties is constructing troughs of all shapes and sizes, each planted to look like a miniature rock garden. He also grows a large assortment of perennials as well as a wide variety of shrubs and small trees.

I believe Don is more than qualified for and deserving of the NARGS Award for Service.

Submitted by John Bieber

Carol Earle - Rocky Mountain Chapter

Every organization needs someone who can accurately capture and preserve its institutional memory and help make sense of its records. Since 2009, Carol Earle, the Rocky Mountain Chapter's secretary, has done just that – and more. She has attended every board meeting and faithfully taken minutes. She has clearly and concisely captured the board's discussions in clear language and guided us with our bylaws. She has maintained our documents and been an indispensible resource for those of us whose memories sometimes fail. She also took the additional step of compiling all awards the chapter has made since its inception.

Carol's service extends beyond her contributions as chapter secretary. She has also regularly helped with refreshments for chapter events and provided articles for our monthly newsletter, Saximontana. Her articles invariably reflect her extensive knowledge of plants and her gift for expressing herself in understandable prose. In addition, Carol is a Master Gardener, serving as an ambassador for the craft of gardening at a metro-area farmers market twice a week during the growing season.

Submitted by John Brink

Mary Jenson - Rocky Mountain Chapter

Mary Jenson has worked in the green industry throughout her professional life, beginning as a garden center employee in Seattle, Washington. Before coming to Colorado and joining the Rocky Mountain Chapter of NARGS in 1998, she lived in Salt Lake City, where she became captivated by alpine plants and joined the Wasatch Chapter. She has served as our chapter board's Metro-Area Member-at-Large since 2010, bringing fresh new ideas to the chapter. Beyond that, Mary has contributed to Saximontana and she chaired the chapter's successful spring 2011 plant sale, which is the chapter's principal annual money-making activity. Through her extensive knowledge of plants and the green industry and her warm personality and efficient organization, Mary was able to recruit new growers to the sale and bring in the most extensive offering of garden art yet seen

at the sale. Mary continues to broaden the reach and vision of the chapter through her contributions.
In addition to her service to the Rocky Mountain Chapter, Mary owns and operates Bitterroot Gardening & Design, a landscaping company located in Boulder.

Submitted by John Brink

Development of the new NARGS Website

The website is the external face of NARGS. There is currently a lack of consistency between what NARGS is and what is presented on the website and in the Quarterly. There are both structural and organizational problems that prevent a strong editorial role that can market the organization and truly keep the site up to date.

At the direction of the AdCom, the Internet Committee was encouraged to aggressively pursue an upgrade of the current NARGS website. The Internet committee drew up a list of needs and recommendations for the new site. NARGS contracted with Monarch Digital to make an evaluation of the present site and make recommendations for implementing a new site based on the needs of the organization along with cost estimates. The Internet Committee then prioritized this list of recommendations and came up with an estimated budget. A proposal for the new website was developed and along with supporting documents was submitted to the AdCom. This proposal was accepted and a Request for Proposals was sent out to a select list of web developers deemed capable of meeting our specific needs. Four proposals were received and are currently being evaluated.

The proposed site will have an improved user interface. There will be non-technical editorial control, enhanced navigation and ease of use, updated and enhanced visual design, single user login, and enhanced e-commerce. The new site will have an integrated membership database. This will automate many tasks for the Executive Secretary and remove unnecessary burdens. The on-line database will facilitate on-line joining and renewal. Members will be able to update their profiles, but their information will be kept private. There will also be an enhanced Rock Garden Quarterly page and an event calendar.

To replace the current web administration, we envision a new set of roles for and responsibilities to manage the site: A Website Developer will make major upgrades to the site. A Site Administrator will perform day-to-day technical administration. The Executive Secretary will manage the membership database. A Content Editor will have overall editorial control and assign tasks to Content Managers who will make changes and update pages. Members will be able to login, view member-restricted material, make changes to the WIKI and Forum pages

All, except the Executive Secretary and the Developer, doing contract work, will be unpaid positions. Daniel Dillon has agreed to be the new Site Administrator and Malcolm McGregor has agreed to be the initial Content Editor. This will provide continuity between the Rock Garden Quarterly and the website. Administration and editorial management of the Forum and WIKI pages will not change.

Ben Burr <bnfburr@verizon.net>

NARGS Speakers Tour Program 2013-2014

This year promises to be a very exciting year for NARGS chapters who will enjoy programs by two speakers who are touring some eastern and western NARGS chapters.

Plans are nearly complete for ***James Locklear****, highly acclaimed author from Nebraska of the much-awaited book on phlox, one of the most beloved of all garden plants. Jim will tour seven primarily western chapters during March 2013. The schedule for his and other tours listed below are posted on the NARGS website* <www.nargs.org> *under "Speakers Tours"*

<http://www.nargs.org/index.php?option=com_content&view=category&id=62&Itemid=121>

along with the program selections, dates, and chapter contact information.

Ian Young*, noted author, lecturer, photographer and artist from Scotland, will tour primarily eastern NARGS chapters the last three weeks of October 2013. It promises to be a wonderful opportunity to hear this member of the team that created the monthly e-magazine for the SRGC,* International Rock Garden*. He began to specialize in the cultivation of bulbs and is author of a daily Bulb Log Diary. A list of the topics that will be available for him to speak about are listed on the NARGS website. Those who are interested in securing Ian as a speaker should contact me.*

Two speakers have been selected to tour our chapters in 2014. Martin Walsh is an Irish garden designer, consultant and a frequent traveler to remote areas of the world, including the Himalaya, the Drakensberg Mountains in South Africa and Lesotho, Tien Shan in Central Asia, China, the Alps, and Turkey to see alpine plants in their native habitats. He will speak to primarily western chapters in March 2014.

Mike Kintgen, chair of the Rocky Mountain Chapter of NARGS, Senior Horticulturist at the Denver Botanical Garden, where he oversees the Alpine Collection along with nine other gardens, will tour the eastern chapters in October 2014. Mike has been a member of NARGS since age 12 and travels extensively to alpine areas around the world including Alaska, Hawaii, Spain, the Alps, Argentina, and throughout the western U.S.

Barbara Wetzel, NARGS Speakers Tour Program <aparkplace@aol.com>

NARGS 2013 Awards - Call for Nominations

I would like to receive the new nominations by February 5, 2013 for 2013 Awards. A listing of previous recipients of the awards are on the NARGS web-site *<http://www.nargs.org/images/stories/4articles/nargs_award_recipient_2009.pdf>*

Award of Merit is given to persons who have made outstanding contributions to rock and alpine gardening and to NARGS. In addition, the recipients will be people of demonstrated plantsmanship and active members of the Society.

Marcel Le Piniec Award is given to a nursery person, propagator, hybridizer, or plant explorer who is currently actively engaged in extending and enriching the plant material available to rock gardeners.

Edgar T. Wherry Award is given to a person who has made an outstanding contribution in the dissemination of botanical and/or horticultural information about native North American plants. The recipient does not have to be a member of the Society.

Carleton R. Worth Award is given to an author of distinguished writings about rock gardening and rock garden plants in a book or in magazine articles. The recipient does not have to be a member of the Society.

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

Linc & Timmy Foster Millstream Garden Award is for an outstanding contribution to the North American Rock Garden Society for creating a superior garden. Not meant to be a competition, but to recognize members' great gardens across the various styles and regions of the United States and Canada. It is intended to reward the creation of private gardens, there are four categories: Container Garden, the Alpine Rock Garden, the Woodland Garden, and the Special Garden.

Any additional questions, concerns, please contact me directly:

Betty Spar, NARGS Awards Committee Chair
<bettyannespar@aol.com>
206 Wolfe Street, Alexandria VA 22314
Telephone: (703) 549-0214.

Digitization of the Bulletin and Quarterly

For some years there has been an intention to provide access to electronic copies of back issues of the Quarterly and Bulletin and this is now nearing completion. We have been able to assemble a complete, clean set of issues of all the society's publications since its formation: *Saxiflora*, *Bulletin of the American Rock Garden Society*, and *Rock Garden Quarterly* through volume 68, number 3 at which point Malcolm McGregor became editor. Thereafter, we have digital copies. This collection comprises 15,660 pages in 307 issues. Document Imaging Solutions of Great River, NY has spent considerable effort to find optimal conditions for scanning these issues and scanning should be completed by the time this issue of the Quarterly goes to press. Digital copies of back issues should be available when the new NARGS website goes up early in 2013.

We must thank Joel Spingarn and his late wife Ellie for the bulk of this collection. Other issues came from Larry Thomas, Michael Riley, Tom Stuart, Jacques Mommens, and the Mertz Library of the New York Botanical Garden. Thanks are also due to those NARGS members who provided generous donations towards the expenses of digitizating our archive.

For further information, contact Ben Burr at <bnfburr@verizon.net>

The Norman Singer Endowment Fund

The NARGS Norman Singer Endowment Fund is accepting applications for grants to support projects that "advance the art and science of rock gardening." Areas that fit the grant criteria include publications, education, preservation, conservation, and promotion to the general public by creation of public rock gardens. Both individuals and institutions may apply. Endowment fund guidelines, application form, a list of previously funded projects, and photos of public rock garden projects can be found on the NARGS web site home page **<www.nargs.org> under "Norman Singer Endowment Fund."**

Proposals for funding in 2013 must be submitted by **March 1, 2013**, to Jane Grushow, preferably by email **<jgrushow@comcast.net>**, or by mail to Jane Grushow, 1707 Marietta Ave, Apt 3P, Lancaster PA 17603-2478

Award recipients will be announced at the Annual General Meeting in Asheville in May 2013.

Jane Grushow, Norman Singer Endowment Fund

NOTE: Deadline for Bulletin Board submissions for Spring 2013 issue is February 1, 2013

Personal Notice

Male 63, MA, USA, degrees in biology and medicine; seeking activity partner(s), with some rock gardening knowledge, for garden, outdoors, or nature related activities -- possible friendship. Life-long interest in plants. Single. Have humanist and progressive values. Now much interested in western USA rock garden plants, Clivia, caudiciforms, etc. "externmed" -- NARGS forum. <caswan2@netzero.net>

NARGS CHAPTERS (meeting place/area) & CHAIRPERSONS _____

Adirondack (Ithaca, NY)	Carol Eichler - carolithaca@gmail.com
Alaska (Anchorage & Mat-Su Valley)	Carmel Tysver - garden@gci.net
Allegheny (Pittsburgh, PA)	Albert Deurbrouck - adeurbrouck@verizon.net
Berkshire (Stockbridge, MA)	Judith Brown - jloveys@nycap.rr.com
Calgary Rock & Alpine Garden Society (Calgary, AB)	Cathy Kurio - cakurio@shaw.ca
Columbia-Willamette (Portland, OR)	Jan Jeddeloh - janjeddeloh@gmail.com
Connecticut (New Haven, CT)	Virginia Gingras - ginnygingras@netzero.net
Delaware Valley (Philadelphia, PA)	Tammy Harkness - plant_nerd@msn.com
Fells (Newbury, NH)	Thelma Hewitt - Tkhewitt@aol.com
Gateway (St. Louis, MO)	Bruce Buehrig - buehrig31@aol.com
Genesee Valley (Rochester, NY)	Betsy Knapp - eeknapp@rochester.rr.com
Great Lakes (Southern MI)	Bonita (Bonnie) Ion - bonnie.ion@gmail.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)	Michael A. Riley - ManhattanNARGS@verizon.net
Mason-Dixon (Norrisville, MD)	Joan King - jsking11@juno.com
Minnesota (Minneapolis/St. Paul, MN)	Michele Wallace - mrwallace@mwap.us
New England (Waltham/Boylston, MA)	Mike Saganich - ceruleanprism@yahoo.com
Newfoundland (St. John's, NL)	Todd Boland - todd.boland@warp.nfld.net
New Mexico (Santa Fe/Albuquerque)	Jean Warner - jean@cybercomp.net
Northwestern (Seattle, WA)	Donna Wylie - donna@dpwylie.com
Nova Scotia (Halifax & Truro, NS)	Morton - jeff.morton@dal.ca
Ohio Valley (OH & surrounding states)	Chuck Gleaves - gleaves.charles@gmail.com
Ontario (Don Mills, ON)	Veronica Callinan - vcallinan@sympatico.ca
Ottawa Valley (Ottawa, ON)	Judy Wall - jpwall@ripnet.com
Painted Hills (John Day, OR)	Gail Klodzinski - gailkathryn3@hotmail.com
Piedmont (Raleigh, NC)	David White - dmwhite_nc@yahoo.com
Pikes Peak (Colorado Springs, CO)	Bill Adams - sunscapes@comcast.net
Potomac Valley (Alexandria, VA)	Richard "Dick" Hammerschlag - peachnfrog66@comcast.com
Quebec (Montreal, QC)	Robert LeClerc - leclercr@bell.net
Rocky Mountain (Denver, CO)	Mike Kintgen - kintgen444@hotmail.com
Shasta (Etna, CA)	Clara Church - collinus@sisqtel.net
Sierra (Sonora, CA)	Dianne Szymanski - dgszymanski@gmail.com
Siskiyou (Medford, OR)	Lillian Maksymowicz - lillian@jeffnet.org
Southern Appalachian (Asheville, NC)	Mary Lou Kemp - sargsnc@hotmail.com
Wasatch (Salt Lake City, UT)	Tony Stireman - tonystireman@msn.com
Watnong (Far Hills, NJ)	Ying Huang - yh2.2005@gmail.com
Western (San Francisco Bay area, CA)	Ted Kipping - tkippingsprint@earthlink.ne
Wisconsin-Illinois (Madison-Chicago)	Dave Collura - jdsongraham@aol.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 at an annual meeting.

The Board of Directors of NARGS consists of the four above-named officers, the immediate past president of NARGS, nine elected directors, and the chair of each NARGS chapter. Chapter chairs are required to be NARGS members by NARGS by-laws.

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	Peter George, petergeorge@verizon.net PO Box 833, Petersham, MA 01366
Vice President	Harvey Wrightman, wrightman@golden.net RR#3, 1503 Napperton Dr., Kerwood, ON N0M 2B0
Recording Secretary	Ben Burr, bnfburr@verizon.net PO Box 549, Bellport, NY 11713
Treasurer	Bill Adams, 330 Carlile Ave., Pueblo, CO 81004-1054
Director-at-Large	Betty Anne Spar, 206 Wolfe St., Alexandria, VA 22314
Immediate Past President	Grazyna Grauer, Dublin, OH

Directors of the Board

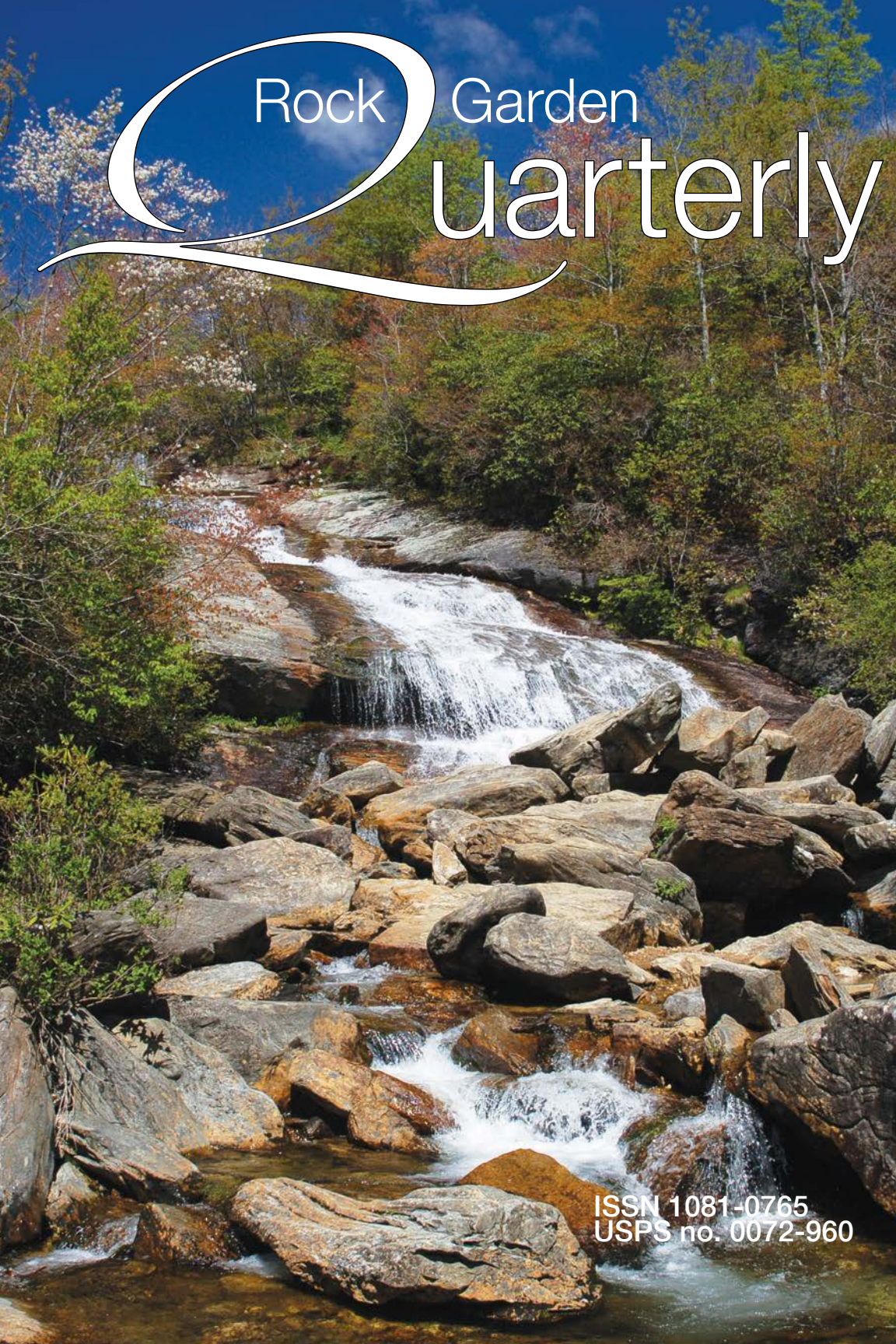
2010–2013	Jane Grushow, Ephrata, PA Philip MacDougall, Surrey, BC Anne Spiegel, Wappinger Falls, NY
2011–2014	Lola Lloyd Horwitz, Brooklyn, NY Janet Novak, Philadelphia, PA Betty Spar, Alexandria, VA
2012–2015	Jan Jeddeloh, Portland, OR Matt Mattus, Worcester, MA Gwen Moore, Lakewood, CO

Managers

Executive Secretary	Bobby J. Ward (919) 781-3291 PO Box 18604, Raleigh, NC 27619-8604 nargs@nc.rr.com

Back cover: Graveyard Fields Falls near milepost 419 on the Blue Ridge Parkway in North Carolina – Donald W. Hyatt

Rock Garden Quarterly



ISSN 1081-0765
USPS no. 0072-960