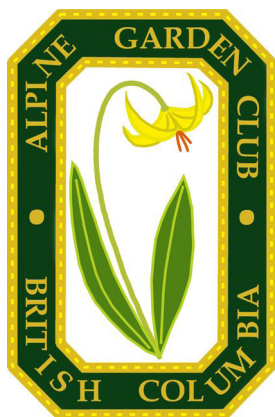


Alpine Garden Club of British Columbia



Richea scoparia meadow on Mount Rufus,
Tasmania

Volume 61, Number 1 Quarterly Bulletin, 2018



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AGC-BC 2018 Membership Renewals Due

If you have not already renewed your membership for 2018, please bring a cheque for \$30 to Membership Secretary, Jane Byra, with your name and contact info.

Or renew online using your credit card through PayPal on our website
www.agc-bc.ca/membership-renewal

AGC-BC meetings are held on the second Wednesday of each month except July and August in the Floral Hall, VanDusen Botanical Garden. Doors and Library open at 7:00 p.m. and the meetings start at 7:30 p.m.

Please bring plants for the plant draw; the proceeds of which go toward paying for the hall rental. Don't forget to bring your coffee/tea mug.



January blooms of *Hamamelis mollis* from AGC-BC member Bill Bischoff's garden.

From the Editor

What a pleasure it is to write my first entry as Editor of the AGC-BC Bulletin. My sincere thanks to Valerie Melanson, for not only making the transition as painless as possible, but for agreeing to stay on as Associate Editor.

First, please let me introduce myself, my name is Laura Caddy. Most likely you're wondering "who the heck is that?", and rightly so, as I'm still quite new to BC and the club. Originally from Alberta, I studied and worked in horticulture out east before returning to my prairie roots to take a position as Curator/Horticulturist for the Patrick Seymour Alpine Garden at UofA's botanic garden, just outside Edmonton. Looking for a new adventure, I joined UBC as Curator/Horticulturist of the E.H. Lohbrunner Alpine Garden in the summer of 2016. A year and a half in, I can honestly say that jumping 5 zones to manage a garden on the "wet coast" has been quite the exciting experience, and a transition that being a member of the AGC-BC has certainly helped with.

Taking on the role of Editor is certainly a daunting task, especially as a "nubie" to the group. I spent many hours mulling over what my first edition would contain, and I suppose I couldn't help but be affected by the winter season. Inspired by those who managed to get out of the grey to adventures in brighter, floriferous areas, I assembled a loosely themed travel edition. Chris Byra, club President, takes us on a cycling trip through South America; Tim Chipchar relives his travels to Tasmania; and for those who missed the January meeting, there is a report on Howard Wills' presentation on his road-trip through California. If looking for a winter reprieve, I hope these articles provide a mental escape, or perhaps they will inspire you to plan a literal one. Maybe the trip to Newfoundland for the NARGS meeting will speak to you; it looks like it will be a great one!

Of course, I couldn't resist to opportunity to highlight some great plants. Ben Stormes provides an in-depth look at the genus *Epimedium*, in the first of a two-part article, and Plant Portraits return with some great selections.

I hope you enjoy reading this edition as much as I enjoyed assembling it. I would love to hear any feedback you have, suggestions for future articles, series or authors (including yourself!). I can be reached at bulletin@agc-bc.ca.

2018 AGC-BC Upcoming Events

- **February 14 - AGC-BC Meeting** - Chris Byra on Mountain Gardening: Amateurs Building a Garden
- **March 14 - AGC-BC Meeting** - Paul Spriggs on Rock Gardens of the Czech Republic
- **April 7 - AGC-BC Spring Show and Sale** - Van Dusen Floral Hall
12:00 pm - 4:00 pm
- **April 11 - AGC-BC Meeting** - Julia Corden: In the Footsteps of George Sherriff
- **May 5 - AGC-BC Tour** - South Surrey/Langley Garden tour

For more information, visit <http://www.agc-bc.ca/events>

Member Garden Tour Saturday May 5, 2018

Member gardens in South Surrey and Langley will be open from 10:00 am to 4:00 pm on Saturday May 5, 2018. Visit the gardens at any time during that period in any order. Pack your lunch and enjoy it on the Sellars garden porch between 12 noon and 1:00 pm.

For updates on the tour, log in to the website with your email and password and visit: www.agc-bc.ca/south-surrey-langley-garden-tour

Any questions contact: programs@agc-bc.ca

Related Events

VIRAGS Spring Show and Sale

The 2018 Spring Show and Sale of the Vancouver Island Rock and Alpine Garden Society will be held at Cadboro Bay United Church, 2625 Arbutus Road, Victoria BC on Friday, April 20 from 1 pm to 8 pm and on Saturday, April 21 from 9 am to 3 pm. The members' plant sale will open 11:00 am on Saturday.

This is a well-established juried show, featuring wonderful rock and alpine garden plants, succulents, woodlanders and bog plants. As well as show entries, there will be commercial and member plant sales, seed sales, displays, door prizes, a silent auction, and refreshments. Admission is by donation.

For more information go to: www.virags.com or email: virags.news@gmail.com

Botany BC 2018

Botany BC is an annual meeting of botanists and plant enthusiasts of British Columbia and is open to anyone interested in plants. Although Botany BC meetings are focused to British Columbia, we welcome all the plant enthusiasts from the neighbouring provinces/states, and from elsewhere in the world.

Botany BC 2018 is taking place on the beautiful island of Haida Gwaii. This year's event will be longer than usual, running over 6 days from the evening of Thursday June 21, 2018 to the morning of Tuesday June 26, 2018.

Maximum registration limits have been met. A waitlist has been established and registrations will be placed on the list in the order they are received. We are working on expanding the event capacity - visit <http://eastons.ca/botanybc/> for more information.



Where Alpines Meet the Sea
NARGS Annual Meeting, St. John's, July 6-8, 2018
Hosted by the Newfoundland Chapter

Welcome to Newfoundland, the far east of North America! Eastern Newfoundland is a land of botanical extremes; boreal forest of balsam fir, black and white spruce with associated northern woodland plants; a multitude of bogs and fens were grow a multitude of orchids and insectivorous plants; and rocky barrens of the coast which house wind-swept contorted trees and plants of an alpine nature more in common with high elevations of the New England Appalachians. We have the largest population of North Atlantic summering humpback whales, some of the largest seabird colonies of eastern North America and are along the passing route of icebergs calving off glaciers in Greenland. This NARGS venue provides participants with a chance to visit one of the most hauntingly beautiful regions of North America. Newfoundland is truly where alpines meet the sea.



Arethusa bulbosa. Photo by Todd Boland.

The summer 2018 NARGS meeting will take advantage of the Memorial University of Newfoundland Conference Facility. One of the main highlights from this meeting will be a visit to the Memorial University of Newfoundland Botanical Garden, an informal garden with 13 themed gardens including rock gardens, crevice garden, trough display and alpine house.

Our guest speakers hail from the coasts of eastern and western Canada as well as Scotland. The plants discussed will be alpinists that can tolerate months of snow and overall wetter climates, with examples from the wild and how they perform in the garden. Day trips will introduce participants to the plants of the eastern Newfoundland coastal barrens and peatlands. Book sales and author signing for the field guides “The Trees and Shrubs of Newfoundland and Labrador” and “Wildflowers and Ferns of Newfoundland” will be available. Before the conference there will be open gardens. Consult the Winter issue of NARGS Rock Garden Quarterly for more details. To register visit the NARGS website at <https://nargs.org/news/2017-12-11/registration-open-newfoundland-meeting-and-post-conference-tour>

The conference registration fee is **CAD \$495.00 Canadian or USD \$415**. Registration for the conference will close as of June 1, 2018. The price of the conference fee includes access to the speaker’s presentations, field trips and some meals. For any questions contact Todd Boland at todd.boland@warp.nfld.net



Diapensia lapponica. Photo by Todd Boland.

Club News

Seed Exchange Report

Diana Hume

First of all, I would like to thank all the seed donors once again. We couldn't have an exchange without our wonderful donors. They are all listed at the beginning of the seed list. Please consider donating seeds next year.

And the workers were all terrific - we have fun too. They are Ruth Anderson, Lynn Batt, Wendie Kottmeier, Margot Ketchum, Geri Barnes, Angela Miller, and Pam Yokome on the North Shore, Pam Frost, Linda Verbeek, Marilyn Plant, Patricia North, Betty Griffiths, Gill Collins, Karen Thirkle, and Jo Turner in Vancouver, and Verity Goodier, Bill Terry, Karin Tigges, Ali Thompson, Nancy Webber, and Sue Evanetz up in Sechelt.

A number of seeds were especially popular - *Lilium nepalense*, *Clematis scottii*, *Aquilegia jonesii*, *Astragalus purshii*, *Dryas octopetala* 'Tundra Pygmy', *Erythronium revolutum* 'Kinfaus Pink', *Fritillaria pudica*, *Hesperochiron pumilus*, *Iris* Pacific Coast Hybrids Black, *Lewisia tweedyi*, *L. nevadensis*, *Mertensia longiflora*, *Paeonia brownii*, *Petrophytum hendersonii*, many of the trilliums, *Tecophilaea cyanocrocus*, *Adonis vernalis*, *Arisaema nepenthoides*, *Crocus mathewii* 'Dream Dancer', *Cyclamen purpurascens*, *Erythronium caucasicum*, *Gentiana verna*, *Meconopsis* 'Lingholm', *Narcissus cyclamineus*, *Nomocharis farreri*, *Polygala calcarea*, *Primula minima*, *Saxifraga dinnikii*, and others as well.

Christmas Potluck and Raffle

Laura Caddy

The Christmas Potluck and Raffle was a great success, with a plethora of delicious food, mulled wine, and of course, plants! The auction, expertly conducted by Douglas Justice, with Philip MacDougall at his side, raised \$1,584.00 for the BC education program *Planting a Promise*. There was a great diversity of plants: from bulbs, to cushions, to houseplants, with one of the hottest items being an *Epimedium wushanense*. Thank you to everyone who contributed food and drink, donated and/or bought plants and the all the members who facilitated the successful event.

New Additions to Library

Marika Roe

Ian Plenderleith has donated seven excellent books to the AGC-BC library from his personal collection. Thank you Ian for this thoughtful gift.

B. LeRoy Davidson: *Lewisia*s

Christopher Grey-Wilson: *Cyclamen*

Will Ingwersen: Manual of Alpine Plants

Malcolm McGregor: *Saxifrag*es

NARGS (Editor Jane McGary): Rock Garden Plants of North America

Dee Strickler: Northwest Penstemons

Ronald Taylor: Mountain Plants of the Pacific Northwest

In Memory of Andree Connell

Pam Frost

In October this year The Alpine Garden Club of BC lost a long-time member and faithful contributor to the Seed Exchange. Until recently, Andree would travel over from the Island for the Fall Plant Sale, to donate plants and work on the Club table. She also spoke to the Club more than once on her abiding passion, the genus *Cyclamen*.

I first met Andree at a Club meeting in 1978 when she spoke and showed a pot of *Cyclamen creticum*, an elegant species unknown to me. She and her husband later moved to Galiano Island where, on fifteen acres in the middle of wilderness, she created a fascinating garden, growing outside every species of *Cyclamen* (except *C. somalense*), unusual small shrubs and many species of *Daphne*. A few years ago they “downsized” to a beautiful four acre property outside Victoria where, among the rocks, lichen and stunted oaks she planted her shrubs, alpiners and cyclamen, gradually adding many forms of these, grown from *Cyclamen* Society seed. She also became intrigued by the variations in the different forms of *Galanthus elwesii*, which have naturalized around Victoria.

Andree was a great gardener and supporter of the Alpine Garden Club. Long may she continue to bring joy through her plants and their seeds, which she even managed to send this year.

Botano-Cycling the Lakes District of Chile and Argentina

Chris Byra

Although the late November trip through the northern extremity of Patagonia was primarily a cycling trek, botanizing from a bike was possible. My gradually worsening worn out knees still allow for relatively pain-free cycling but very limited hiking, hence an organized bike trip. The trip started 1,000 km south of Santiago, in Puerto Varas, Chile, looping through Argentinian Andes heading north and back to the Parque Nacional Conguillío, in Chile. Free days allowed small excursions to the Catedral ski resort in Bariloche, Argentina, the base of the volcano Villarrica, in Pucon, Chile, and the *Araucaria* forest. On an excursion to the ski area, Valle Nevado, near Santiago, alpine flowers lay hidden on slopes that appeared barren.



Map of the cycling tour.

The most striking images throughout the trip, besides the beautiful vistas, are the numerous *Embothrium coccineum* (Chilean firebush) and the introduced invasive *Genista monspessulana* (French broom), both in full flower. The species are ubiquitous both in nature and in gardens. We were struck by how well gardens and roadsides were maintained throughout our trip. The climb through the Andes consisted of riding ferries on several lakes and steep gravel roads as well as lovely paved bike lanes. The forest density rivalled our own with trees right to the water and snow-covered peaks in the distance.



View of Lago Nahuei Huapi, Argentina, with *Genista monspessulana* in the foreground.

The Patagonia region received an unusually heavy snow pack this past winter consequently had a late spring in the alpine. The snow melt line at the Catedral ski resort, a 30 minute city bus ride from Bariloche, Argentina, yielded several rosulate viola species. Red and green forms *Viola sacculus*, *V. columnaris* not yet in flower, and another rosulate *Viola* sp.

displaying a few mauve blooms could be seen at the elevation we explored. Unfortunately, we did not have time to search lower down the mountain. The flowers could only be seen close up in the scree of the ski slopes.

Tristagma bivalve and *T. nivale* growing through *Berberis empetrifolia* could be seen flowering sporadically near the snowline. A Northern Irish cyclist, looking for an outing on a slack day, decided to join me on the hunt for flowers, a first for him. He became quite enthusiastic and had a good eye for spotting new species.



Above: *Viola sacculus*
Below: *Tristagma bivalve*



After taking a transfer over a 100 km of busy highway heading north back into the Andes through the Seven Lakes district, we cycled toward San Martin de los Andes. We continued to be laggards in the keen cycling group as we looked for flowers. I was pleased to observe an orange *Chloraea alpina* in a meadow because livestock commonly graze in this area. The bright yellow French broom continued to be the most prevalent display of colour in many areas.



Chloraea alpina

The trip back through the Andes was a difficult ride on 54 km rough gravel but we were rewarded with a 20 km downhill ride on a tarmac bike lane to our hotel in Panguipulli, Chile. We passed a large field of cream coloured *Anemone multifida* that had not been grazed.



On our second free day we hiked up the lower forests and lower reaches of the Villarrica volcano that dominates the tourist town of Pucon. The forests hid lovely yellow *Viola magellanica* and white *Codonorchis lessonii* amongst three meter tall ferns. On the open lava slopes are *Sedum* sp., the large pink fruits of *Gaultheria mucronata*, and the ever-present symbol of Patagonia, *Berberis microphylla*.

Gaultheria mucronata

During the last two days of riding we entered the Conguillio National Park with its massive lava and ash field below the volcano Llaima. While only *Senecio chilensis* grew on the lava field, the flora along the border of the lava flow was interesting. In moist areas were *Lathyrus nervosus*, *Fuchsia magellanica*, and *Solanum valdiviense* shrubs, with numerous patches of *Calceolaria biflora* along road cuts.



Lathyrus nervosus (left) and *Solanum valdiviense* (right), growing in Conguillio National Park.

Cycling to spectacular *Araucaria* forest (*Araucaria araucana*, Monkey puzzle tree) was the final leg of the trip. It is the national tree of Chile. The usually dioecious species has female trees that are somewhat conical when immature, then develop a distinctive umbrella shape with trunks free of

foliage. The female has obvious 15 to 20 cm globose cones. The largest tree, called “Araucaria Madre” is 2.2 m in diameter, 50 m tall and 1800 years old.

Paul Krystof recommended that we visit Andean ski areas just east of Santiago. The Valle Nevado ski area, one and a half hours from the city by tour bus, up a mountain road with 60 switch back curves was ablaze with California poppies (*Eschscholzia californica*), an introduced species, and numerous patches of *Alstroemeria* sp. At lower elevations the pale yellow flowering large cactus *Echinopsis chiloensis* was prevalent, with occasional plants showing the bright red inflorescence of *Tristerix aphyllus*, a parasitic plant of this cactus. At 3000 meters, the slopes appeared to be barren until one wandered uphill from the village. Beside the tiny flowering *Viola philippii* were scattered *Tristagma bivalve* and large cushions of *Laretia acaulis* and *Anarthrophyllum gayanum*. The latter cushion was flowering where there was protection. The bright pink *Oxalis squamata* was beginning to flower as were two other yellow *Oxalis* species. One was *O. compacta* while the other may have been *O. cinerea*. *Astragalus vesiculosus* in early bloom and pre-bloom *Nassauvia pyramidalis* were also observed.



Viola philippii and *Phacelia* species.



Oxalis squamata (left) and *Oxalis compacta* (right).

The scenery in the Lakes District of Chile and Argentina is spectacular whether seen from a bicycle or other vehicle. Perhaps the only regret was the pace of the ride, leaving less time than desired for botanizing. However, with the encouragement and advice of Paul Krystof and Alan Tracey, we found some flowering gems in the alpine and along the road through the Andes.



Anarthrophyllum gayanum

Chris and Jane Byra have gardened since getting to know each other but mainly vegetables in the early years. Chris' interest was always in building walls and overall design whereas Jane was the horticulturist. The rhododendron, rock garden and alpine plant attraction started with Don Martyn, Charlie Sale and Margaret Charlton and has grown through membership in the AGC-BC. Our latest and longest project is a garden on Chilliwack Mountain.

The *Richea* and Marsupial Meadows of Mount Rufus

Tim Chipchar

Tasmania, with its mild, wet climate, has served as a refuge for Antarctic flora whose range on mainland Australia has been contracted by millennia of warmth, drought, fire and the influx of competing genera from South-East Asia. Its mountain forests and alpine areas contain plant species with strong links to relatives in New Zealand and South America and provide a fascinating glimpse into the ancient Gondwanan wilderness. The islands isolation has also resulted in a high rate of endemism and around 70% of its alpine flora is found nowhere else in the world. I was fortunate to experience this fascinating ecosystem firsthand and on the sole sunny day of my trip. Though still battered by intense “Roaring Forties” westerly winds, I ventured onto the beautiful Mt. Rufus Circuit.

Mt. Rufus rises 1416 m above Lake St. Clair at the southern end of Tasmania’s famous Overland Track. From open lakeside eucalypt woodland with an understory of *Lomatia tinctoria*, *Callistemon citrinus*, and arborescent *Banksia marginata*, the track climbs through primeval rainforest of contorted *Nothofagus cunninghamii* enrobed in moss and lichen. As the wind grows harsher upslope, the forest gives way to subalpine heathlands of *Boronia*, *Leptospermum*, *Ozothamnus*, and other low shrubs growing thickly between the skeletal white trunks of snow gum, *Eucalyptus coccifera*. Patches of silvery *Astelia alpina* add to the otherworldly landscape.



Dracophyllum minimum (left) and *Gentianella diemensis* (right).

The weather-beaten peak and surrounding alpine zone is carpeted by tattered *Microcachrys tetragona*, a prostrate conifer species which can be found growing happily at UBC Botanical Garden, as well as a number of cushion species and wildflowers. Among these is the endemic *Dracophyllum minimum*, *Euphrasia striata* and the charming snow gentian, *Gentianella diemensis*. While the ascent to the peak certainly offers abundant botanical interest it doesn't match the floral spectacle of the descent to Shadow Lake through Richea Valley.



A mass of *Richea scoparia* showing colour polymorphism

Richea is a genus of 11 species within Ericaceae; all but two of these are endemic to Tasmania. In particular abundance on Mt. Rufus are two of the most striking taxa, *R. scoparia* and *R. pandanifolia*. The former is a low shrub, to 1.5 metre, with an interesting ecology.

A morphological feature of the genus is a fused conical flower corolla. The distal portion is referred to as an operculum, and detaches to reveal the reproductive organs. Studies of *R. scoparia* have shown that the detachment of the opercula, and subsequent pollination by insects and wind, is much aided by the nectar foraging of a lizard species, the snow skink, *Niveoscincus microlepidotus* (Olsson et al.). The flowers also happen to be stunning. Within a single population their colour can range from pale yellow to deep pink, with all fading to rusty orange.



A snow skink removing the operculum of *Richea scoparia* for the nectar.*

Richea pandanifolia, commonly known as pandani, is a massive, distinctive heath plant more closely resembling a cordyline or yucca than something in Ericaceae. Stems are usually unbranched and can reach heights of 10 metres or more. Unlike other members of the genus, its inflorescences occur in the axils of its long, strap-like leaves, rather than in terminal spikes. Pollination is most frequently aided by nectar feeding birds.



Left: A grove of exotic looking *Richea pandanifolia*
Above: A close up photo of *R. pandanifolia* flowers.

While a number of *Richea* species are surely worthy of cultivation, they appear to be rarely grown outside of Tasmania. Like many other ericaceous heath plants they are slow growing and tend to spontaneously keel over. The mild oceanic climate they are adapted to is hard to replicate in the garden and they seem to have a strong aversion to root disturbance. *R. scoparia* is likely to be one of the most cold-hardy in the genus and, given a cool sheltered position, might be worth trying in the Vancouver area. *R. pandanifolia* is likely tender but could be fantastic as a potted specimen brought in for the worst winter weather. A few seed sources offer these species and they could be a fun challenge for a masochistic propagator.

All along the trail Tasmania's importance as a refuge for Australian wildlife is made apparent by the abundance of bizarrely cube shaped wombat droppings. The grazing of these large, squat marsupials plays an important role in shaping these high elevation plant communities, much like marmots in the Northern Hemisphere. Their activities maintain large golf green like openings in the shrub layer that an Aussie friend referred to as "marsupial meadows".



A "marsupial meadow" in the subalpine of Mt. Rufus

Tasmania has avoided much of the devastation caused by invasive species which can be seen on mainland Australia. Forty percent of the island is also protected in national parks and reserves. In spite of these efforts to preserve its rare and ancient ecosystems Tasmania's alpine might face an uncertain future. It's a remnant of a cooler past in quickly warming world.

Tim Chipchar is a horticulturist at UBC Botanical Garden. He has a background in plant ecology and worked for a number of years as a field botanist and taxonomist in Alberta. He has a passion for sedges, willows and other tricky taxa and sings loudly to himself while he weeds.

References:

Olsson, et al. Lizards as a plant's 'hired help': letting pollinators in and seeds out. (PDF) *Biological Journal of the Linnean Society*. 71:191-202).

Photos: All photos provided by author, except *www.flickr.com/photos/tindo2/11903139875/

***Epimedium* – Grace Incarnate**

Ben Stormes

As many experienced gardeners will report, personal interest in particular plant groups may ebb and flow over time. While focus may be unwavering for some, the hot pink petunias that caught your eye at a certain point in your horticultural history may, or may not, be something that still offers interest. You may come to find yourself a bit bored of your now enormous collection of *Cyclamen*, though given their charm, I find this highly unlikely. Still, should it be the case, then you move to something new, something different, and something you find refreshingly exciting. If you are finding yourself a little ho-hum with your current pallet of plants, and are looking for something that could be the obsession nouvelle, may I present to you *Epimedium*.

The genus *Epimedium*, commonly known as barrenworts or bishop's hats, are herbaceous members of the Berberidaceae family. If you have not made yourself familiar with the herbaceous members of this plant family, please do so at your earliest convenience. There are some true gems to be had, many of them suitable in scale and aesthetic for the alpine garden. Numbering 55 to 70 species, depending on whose taxonomy you follow, the genus *Epimedium* provides enough diversity to be of lasting interest, while also remaining small enough to conceptually grasp and commit to memory. By-and-large, they are forgiving, easy to cultivate plants with great year-round interest from both flowers and foliage. As a group they have received a respectable amount of interest in recent decades, and I feel it is most warranted. Increased devotion is largely due to the discovery of a number of new species, with the genus being expanded from 23 recognized species in 1958 to the current 50 plus species recognized today.



Epimedium brevicornu growing in the Alpine Garden at UBC.

The genus is restricted to the Old World, though across that massive land mass two distinct regions of occurrence can be identified. The Mediterranean region represents the western distribution of the genus, including the Alps of northern Italy (*E. alpinum*), the Balkans (*E. pubigerum*), the western Caucasus and northern Iran (*E. pinnatum*), and the African Kabylia mountains of Algeria (*E. perralderianum*). The remaining species are all found in China, Korea, Japan, and Siberia, with China being the center of diversity and home to 40 endemic species. These western and eastern sites of distribution are thought to be the disjunct remnants of a once continuous region of distribution, long since cut off by changing climate and geologic barriers.

The expansion of our understanding of this genus in recent decades is due in large part to three individuals; Mikinori Ogisu of Japan, Darrell Probst of the United States of America, and the late William Stearn of the United Kingdom. Ogisu carried out extensive botanical forays throughout China with a particular focus on *Epimedium*, and has been honored for his effort with not one, but two species carrying his name: *Epimedium mikinorii* and *E. ogisui*. Both are wonderful plants. Darrell Probst also carried out botanical expeditions in search of new *Epimedium* species, and is responsible for collecting the type material for recently described taxa, as well as those still awaiting description. Lucky for the gardening community, Probst also operated a specialty nursery, and as such his field work resulted in numerous introductions of various



Epimedium mikinorii.

species into the horticultural trade. William Stearn was instrumental in clarifying our understanding of both the newly collected material as well as historical collections, and his authoritative monograph The Genus *Epimedium* And Other Herbaceous Berberidaceae Including The Genus *Podophyllum* was published in 2002, the year following his death. It seems criminal that no species is yet named in his honour.

Enough of the people and place. Let's talk plants!

Epimedium species are by-and-large easily recognizable by their distinctive foliage, and are often grown for the foliage effect as much as their flower display. The leaves (with few exceptions) are compound, often ternate or biternate, though increasing degrees of division may occur which result in up to 50 leaflets. Regardless of the degree of division, the overall effect remains constant; a mound of dense leaflets held on thin, wiry petioles. Leaves may be evergreen or deciduous depending on species, though in colder climates the evergreen types usually look a little worse for wear come spring, benefitting from an early spring trim before the new shoots emerge. In Vancouver's mild climate, however, I've observed a number of the evergreen species to come through our winter looking just fine; even the cold and snowy 2016/2017 onslaught showed little impact.

Leaflet size varies from species to species, with some selections of *E. grandiflorum* having leaflets but a centimetre in length, while those of *E. wushanense* which can exceed 25 cm long. Most fall somewhere between five and 15 cm. Leaf margins are occasionally entire, though more frequently display small, stiff spines, occasionally to great aesthetic appeal. While visually striking, a mature clump of *E. ilicifolium* may actually hurt quite a bit as the foliage hardens off by mid-



Epimedium 'Spine Tangler' has notable spines along the margin.

summer, and the aptly named *E. wushanense* 'Sandy Claws' may also prove painful during routine weeding around the crown. Many species produce two distinct flushes of growth, the first emerging with smaller leaflets accompanying the flowering stems, the second producing larger leaflets on taller pedicles. Regardless if it is the first or second flush, the new growth in many species is richly coloured with tan, copper, burgundy, or peach tones. *Epimedium franchetii*, *E. lishihchenii*, and *E. chlorandrum* come to mind as particularly striking in this respect, as do some selections of *E. wushanense*, *E. grandiflorum*, and *E. sagittatum*. These colours may be solid across the leaf blade, displayed as reticulate mottling, or in rare cases narrow marginal bands. As the leaf blade expands and matures, these colours and patterns fade way to solid green, often with a high-gloss sheen.



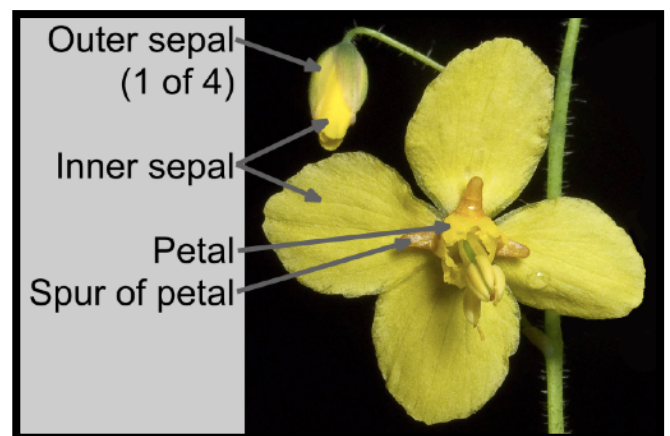
A variety *Epimedium* spp. growing together, demonstrating diversity of foliage.

The leaves and flowering stems of *Epimedium* arise from rhizomes which vary in character depending on species, and may be important diagnostic features for identification. Broadly speaking, plants may be spreading (leptomorphs) or clumping (pachymorphs). Don't let your mind wander to the bamboos when you see these terms, as not all spreaders are inherently problematic or aggressive. Even the most rambunctious *Epimedium* is likely to spread only a few inches per year, not a half dozen meters. Rhizomes give rise to buds that form at or just below the soil surface in late summer, and benefit from a good layer of mulch. Small leaves or conifer needles are best, as larger, coarse leaves may inhibit shoot emergence if they mat down. Bark mulches may also be used. In cold climates with insufficient snow cover, shallow rhizomes or exposed buds may desiccate in drying winds and extreme fluctuations in temperature. A mulch of some type will help guard against this.

Flowers are held on delicate, wiry stems which arise in early spring. Care must be taken during spring maintenance to not break these emerging shoots, as they are fragile at this state and are easily damaged. What is worse, a second flush of flowers is not usually produced if these shoots are damaged.

As the flowering stems mature, the inflorescence character becomes apparent; racemes or panicles depending the species. Flowers may number between very few (not uncommonly only three or four in *E. pauciflorum*) to over 100 (*E. stellulatum*, *E. truncatum*, and their allies). Flowers emerge from tiny, round buds which I find have an airy and subtle appeal of their own in species that produce them in profusion.

The flowers themselves are 4-merous, that is, consisting of parts in multiples of four. This is unlike most of Berberidaceae, with flowers consisting of parts in multiples of six. In *Epimedium*, the outermost whorl consists of four tiny outer sepals which protect the developing flower buds. These miniscule structures are soon shed as the bud swells and opens. The next whorl of four are the inner sepals, and these are often very showy. They may be bright yellow, creamy white, pink, red, or purple. In some species, such as *E. perralderianum* and *E. pinnatum* of section *Rhizophyllum* of the genus, these inner sepals provide most of the floral show, with the petals themselves greatly reduced in size and appeal.



Flowers of *Epimedium x perralchicum* 'Fröhnleiten' labelled to show the main parts*

The inner-most whorl consists of four petals, and in a number of species the base of the petal forms a long, often curved nectar spur that may exceed the inner sepals. These spurs give the flowers their 'spidery' look that is so characteristic of the genus. All but three species (*E. campanulatum*, *E. platypetalum*, and *E. diphyllum*) produce these spurs, though some (*E. perralderianum*, *E. pinnatum*, and *E. pubescens* come to mind) form short, more saccate spurs that never exceed the inner sepals, and are rather inconspicuous. The shape, length, and colour of the petal and nectar spur are diagnostic features in identifying species.

Stay tuned for Ben’s cultural advice and species recommendations in the continuation of this article in the spring Bulletin.



Epimedium acuminatum ‘Night Mistress’ is cultivated for its especially dark, prominent flower spurs.

Ben Stormes is Curator and Horticulturist for the North American Gardens at The University of British Columbia Botanical Garden, a position he has held since the summer of 2016. Prior to his current position, Ben worked with a number of public and private horticulture organizations, as well as completing academic pursuits in ornamental horticulture, landscape architecture, and public garden leadership.

References:

Flora of China Online. http://www.efloras.org/flora_page.aspx?flora_id=2

Stearn, Willima T., *The Genus Epimedium And Other Herbaceous Berberidaceae Including The Genus Podophyllum*. Timber Press & The Royal Botanical Gardens, Kew. 2002

Steffen, Richie. *Epimedium: Queens of the Woodland*. Accessed Online from The Pacific Horticulture Society website: <http://www.pacifichorticulture.org/articles/epimediums-queens-of-the-woodland/>

Images:

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Report on January Speaker

Laura Caddy

Howard Wills: California National Parks: Amazing Plants and Scenery

On January 10, 2018, AGC-BC had the pleasure of welcoming back speaker Howard Wills. Members may remember him from his presentation on *Sempervivums* from the December 9th meeting in 2015. If you missed it, Jo Turner provided an excellent review that can be found in the Bulletin, Vol. 59, No. 1.



Title slide from January presentation

Howard hails from Devon, where he runs Fernwood Nursery. It is a three-acre operation, where he holds the National Collection® of *Sempervivum* and *Jovibarba*. However, the recent presentation is quite a departure from this niche, as he shared with us what was a wonderful botanical road trip on the west coast of the USA, focusing on the parks of California, including Redwood, Sequoia and Yosemite National Parks.

The trip started in Vancouver, and though he travelled down the Oregon coast, the first destination was in California at Humboldt Redwood State Park, home to the famous *Sequoia sempervirens* trees. Stops at JD Grant Grove, Founders Grove, and a visit to the Dyerville Giant tree are always hard to capture in a single image, but Howard did a great job of expressing how powerful those large plants are, through his presentation and images. His delight in visiting one of the famous “drive-through” trees, the Chandelier Tree, was apparent, and who could blame him.

Next on the list was Sequoia National Park, famous for the large *Sequoiadendron giganteum* trees. When visiting, Howard saw first hand how ecologists manage the park with controlled burns. The park staff explained how these fires are essential for giant sequoia forest regeneration and to maintain the amount of debris on the forest floor. Due in large part to the type of bark giant sequoia's have, the established trees are well adapted to resist damage from fire.

Perhaps the most famous tree in the park is General Sherman, the largest single trunk tree by volume known on earth. It's stats, which Howard included, are truly impressive. This 83 metre tall tree measures 11 metres in diameter at the base. Howard did a wonderful job at attempting to capture the grandeur of this, and the other trees in the forest, always including a person or two for scale.

Though visitors cannot get up close to General Sherman (as the root zone around it is protected), other trees are more accessible. Howard, a self-professed tree hugger, was able to access the base of other giant sequoias, such as the impressive McKinley Tree, the Room Tree (which was hollow and could fit upwards of 12 people inside), and The Senate. The later had old scorch marks on it, demonstrating the tree's fire resistance.



The Senate (*Sequoiadendron giganteum*) with presenter Howard Wills for scale.

It was apparent that ancient *Sequoiadendron giganteum* aren't the only plants of interest in Sequoia National Park. Hiking the Moro Rock Trail revealed interesting herbaceous plant in bloom on the June trip, such as *Claytonia perfoliata*, *Cistanthe umbellata*, and the Californian endemic *Collinsia tinctoria*. The hike to Crystal Cave was lined with *Tritelia*, *Dichelostemma volubile* and *Toxicodendron diversilobum*, the later with clear warning signs as to its potential skin irritation. Howard seemed to be especially taken with the endemic *Leptosiphon montanus*, found when hiking the Big Trees Trail.



A pink form of the endemic annual *Leptosiphon montanus*, also known as mustang clover.

The famous Yosemite National Park was also on the trip itinerary, and by Howard's account they were lucky to book accommodation, as it was incredibly competitive. Many images of trails and waterfalls were full of familiar plants, such as *Sedum spathifolium*, *Heuchera micrantha*, and *Aquilegia formosa*.

Not all trails were accessible, however. One, the Half Dome hike, is restricted to only 300 people a day, and those lucky hikers are decided by a lottery draw. Although entered, Howard was not selected. But it didn't seem to impact his positive impression of the park. Many more plants were found, photographed and identified. Some of the most striking and interesting were the *Ivesia santolinoides*, well camouflaged on rocks with leaves reminiscent of silver tails, the rocky dwelling cliff-brake fern *Pellaea bridgesii*, charming *Penstemon newberryi*, and Howard's favourite, *Calochortus leichtlinii*. With Californian plants not his area of specialty, his delight in learning about and identifying the plants on the trip was obvious in his presentation. New to him were *Streptanthus tortuosus*, with its notable, large bracts, and yet another Californian endemic, *Achyrachaena mollis*, a dandelion relative.



Calochortus leichtlinii.

Perhaps the most memorable aspect of what appeared to be amazing days of hiking in Yosemite, was a picnic lunch crashed by an unexpected guest. Just after finishing a midday snack, Howard rounded a boulder to find President Obama, with his family and full entourage, visiting the park! Apparently both parties were equally surprised, and security ushered them away.

The Ancient Bristle Cone Forest was the final major stop on the tour. This is home to Methuselah a 4,849-year-old tree, long thought to be oldest known living (non-clonal) organism. It was only six years ago, that another, un-named *Pinus longavea* was found to be older, by about 200 years.

Despite its unseating, Methuselah is still famous enough that its identity is protected. Therefore, as Howard relived for us the hikes through the hot, dry, harsh conditions of the grove, it could have been in the background of the

images, without us knowing. When seeing his images of the park it becomes clear how the identify of these old trees could be obscured. All look half-dead, as they don't seem to need much living wood to survive, and are typically only 3-5 metres tall. They were a stark contrast to the giants from the beginning of the presentation.

Despite the inhospitable growing condition, interesting plants, often found in alpine garden, also grew there. Howard noted, and shared images of *Eremogone kingii*, *Opuntia polyacantha*, and *Eriogonum ovalifolium*. *Stanleya pinnata* was striking with its large plumes, and he shared pictures of *Oenothera xylocarpa*, whose flowers only open for a few hours.

Extreme heat was replaced with snow, as Howard travelled on to Lassen Volcanic Peak. *Draba aurea* and *Smelowskia ovalis* were alpine plants of note found in that area. Although the later is common and native to BC, this is the only location it is found in California. One of the last images of the tour was of neighbouring Mt Shasta, with Shasta daisies in the foreground.



Smelowskia ovalis

It's hard to believe that he was able to complete such an adventure in three weeks in June of 2016, and even more so that he was able to share it with us in just over an hour. Howard travelled by car, camping along the way, and timed the trip to account for plant blooming, waterfalls (before they dried up) and weather, and he seems to be blessed on all accounts. All and all, I felt it was an inspiring presentation, and maybe just the motivation I need to visit some of these wonderful botanical areas that no longer seem so far from Vancouver.

All images for this article graciously provide by Howard Wills.

BC Native Plant Portrait

Ipomopsis aggregata

David Sellars

An unusual flower in the October garden of 2012 was *Ipomopsis aggregata* or scarlet gilia. The plant came from seed we collected on Mount Kobau in 2011, which we planted in the fall and germination was excellent in early Spring. The plants formed attractive rosettes in the garden and one plant produced a long flower spike.



Ipomopsis aggregata in the garden in October.

With extended sunshine it decided to start flowering in October. Unfortunately, the plants did not survive our wet winter. *Ipomopsis aggregata* is normally monocarpic but sets lots of seed so it can easily be started again. According to information on the web, the plant is not always monocarpic in the garden and multiple flower spikes in subsequent years are possible so in drier areas it might be successfully grown.

Ipomopsis aggregata occurs in dryland areas in much of the western United States and in the interior of BC. It is very drought tolerant and needs very good drainage in the garden. We grew it in Sechelt Sand with a small percentage of humus.



Left: *Ipomopsis aggregata* in the Wenatchee Mountains.

Right: *Ipomopsis aggregata* garden rosette.

This plant portrait was previously published in AGCVI "The Crevice" # 12, October 2012, and updated by David for this issue.

International Plant Portrait

Cortusa matthioli subsp. *turkestanica*

Valerie Melanson

This *Primula* is a member of the *Cortusoides* section (formerly placed in the genus *Cortusa*), and is a vigorous herbaceous perennial. DNA studies have confirmed its identification as a *Primula* and subspecies of *P. matthioli* (id info from Kevock Garden Plants). It has light green rounded scalloped leaves, which make dense clumps in a relatively short time (20 cm wide). The densely clustered flowers are borne on slender stems (to 30 cm) and are rich purple-pink (occasionally white), pendulous and bell-like and usually hang to one side. This subspecies is larger in all of its parts than *Primula matthioli*. It needs moist humous soil with some shade. It originates from Turkey and Central Asia, hence *turkestanica*.



First flower stalk in 2012.

In my garden the plant faces east but its base is protected from most of the midday and late afternoon sun. If it had more shading, the leaves and flowers would last longer, provided the deer didn't get them! I started my plant from AGS 2010-11 seed on Jan 15, 2011. The seed was just covered in granite grit and given outdoor treatment under a dome, sprouted by mid April, potted up mid May and planted out summer of 2011.



A happy plant in its location nevertheless, as it had numerous flower stocks (right) in 2013.

References:

Plant information from <http://www.plant-world-seeds.com>,
And <http://www.kevockgarden.co.uk>

Caring for Potted Kabschia Saxifrages

David Sellars

Kabschia saxifrages can be spectacular in pots when in or out of flower but the foliage can die off without warning. The most common reason is overheating of the pot in the summer months. The effects don't show up until months later with browning of the leaves and often the plant cannot be saved. Kabschias must be kept cool and moist in the summer and I have found that the best location is on the north side of the house in complete shade most of the day but open to the sky. Shade cloth can be unsatisfactory because it traps the heat.

The best potting mix for saxifrages has been debated over the years. In his comprehensive 2008 book *Saxifrages*, Malcolm McGregor advises against using peat-based mixes in favour of loam-based mixes. However, Adrian Young of Waterperry Gardens in the UK is convinced that a mix with about 50% peat works well. A few years ago I visited Phil Pearson who ran a saxifrage nursery near Seattle with Steve Doonan. The mix they originally developed had very little peat in the mix and Phil has since moved on to just using pumice.

A potting mix only with pumice is too loose for my taste as it all falls apart when a plant is repotted, plus you need a lot of pumice! I now use a mix that is about 50% Sechelt Sand, 25% pumice and 25% limestone chips. This mix is very free-draining but still clumps together when moist. Saxifrages love this mix and quickly grow long, healthy, well-aerated roots to the bottom of the pot. The absence of any organic matter does not seem to be a problem and in fact I believe is an advantage as it is impossible to over-water. I suspect that saxifrage pots with soil or peat in the mix can easily get too warm in the summer. The gritty mix with no peat can be kept well-watered to keep the roots cool.

The rock dust in Sechelt Sand provides mineral nutrients and very little additional fertilizing is necessary. For the potted saxifrages I follow the fertilizing practice of Wisley Gardens with dilute high potash fertilizer just twice a year, in the fall and after flowering. I think the Sechelt Sand is an essential component of the mix but it is quite possible that the pumice and limestone chips could be replaced with granite grit. But now that I am happy with my mix I have no incentive to try something different!