Alpine Garden Club of British Columbia



Acanthus, Graptopetalum paraguayensis, Lewisia ×edithae, and Polygala amara, in Dana Cromie's garden.



AGC-BC 2019

NOTICE OF

In This Issue	
Notice of Proposed Bylaw Amendment	67
Upcoming Events	68
From the Editor	69
Club News	72
Club News - In Memoriam	74
How Alpine Plants Will Be Impacted by Impending Climate	ž
Change	75
15 Years of a Mini-Garden on a Hot Shed Roof	81
Sneak Peak - Photo Book	87
Gardens Rock by David Sellars	90
Editorial ID Challenge Answer	92

Executive

President: Chris Byra, president@agc-bc.ca,

Past President: Richard Hankin, Vice President: Jay Akerley,

Second Vice President: Rosemarie Adams,

Treasurer: Philip MacDougall,

Secretary: Lynn Batt, secretary@agc-bc.ca **Directors:** Peter Brolese, Jane Byra, Laura Caddy, Andy Matheson, Bruce McConnell, Jo

Turner

Annual Pot Show: Bob Tuckey,

Bulletin Editor: Laura Caddy, bulletin@agc-

bc.ca

Bulletin Associate Editor: Valerie Melanson,

bulletin@agc-bc.ca **Library:** Marika Roe,

Meeting Pot Shows: Dana Cromie

Membership: Jane Byra, membership@agc-

bc.ca

Name Tags/Membership Cards: Karen

Shuster, cards@agc-bc.ca

Plant Sales: Chris Byra, sales@agc-bc.ca

Programs: David Sellars, programs@agc-

bc.ca

Publicity: Rosemarie Adams **Refreshments:** Marika Roe

Seed Reception: Linda Verbeek seedlist@agc-

bc.ca

Seed Requests: Pam Yokome,

Honorary Life Members: Margaret Charlton, Pam Frost, Diana Hume, Bodil Leamy, Amanda Offers, Ian and Phyllis Plenderleith, David Sellars, Linda Verbeek,

Bob Woodward

PROPOSED BYLAW AMENDMENT

Pursuant to our bylaws we propose adopting a Special Resolution at the AGM to change the vote for Honorary Life Membership from simple majority vote of general membership at an extraordinary (regular) meeting, to unanimous vote at an executive meeting.

Bylaws, Part 2 Membership

Section 10 The Directors may recommend that the Society confer Honorary Life Membership upon a person who exemplifies to an outstanding degree the spirit and objectives of the Society.

- (1) Such a person must be recommended by the Directors an approved unanimously at an Executive Meeting of the Society.
- (2) A honorary life member has all the privileges of membership without payment of annual dues and includes the right to vote.

This notice complies with our bylaws which require proposed amendments to be published in the Bulletin at least 30 days prior to the Annual General Meeting, and a majority of votes cast by members who are present at the Annual General Meeting.

Membership Renewals Due

If you have not already renewed your membership for 2019, please send a cheque for \$30 to Membership Secretary, Jane Byra, with your name and contact info. Cheques should be made out to the Alpine Garden Club of BC and for mailing information please email membership@agc-bc.ca.

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

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.

2018 AGC-BC Upcoming Events

- Sept 4 AGC-BC Meeting
 - Geir Moen: European Treasures
 - NOTE DATE: First Wednesday in September
- Sept 21 AGC-BC Fall Sale
 - UBC Botanical Garden, 11 am 3 pm
 - In conjunction with Treasured Bulb Sale
- Oct 9 AGC-BC Meeting
 - Workshop: Egan Davis Plants from Cuttings
- Nov 13 AGC-BC Annual General Meeting
 - Plant Ideas from the Seed Exchange

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

From the Editor

Laura Caddy

I hope everyone is having a wonderful summer. I've been enjoying the periodic summer rains. It helps relieve the stress of irrigation, and let's face it, rain is always better than sprinkler heads.

The free time from not fighting with irrigation has helped enable me to collect seeds. Though we're just entering August, I have already collected fruit from more than 50 taxa. I say fruit, and not seed, as technically they have not all been cleaned to free the seed from all the other plant parts (chaff) that are not welcome when shipping and storing. This year, I'm collecting for three different reasons. The first is for the *Index Seminum*, an international seed exchange between botanic gardens world wide. This is one of the main ways I bring in seed for the Alpine Garden, as it's a great way to introduce uncommon species into the collection. It is also a cost effective way to capitalize on other garden's collecting trips. Wild collected seed of known origin is highly sought after, but the trips can be expensive and time consuming to organize. This is especially true if you are collecting outside of your own country. The *Index Seminum* is a way curators can share the extra seed from their collecting expeditions, and a way I can order seed I may not otherwise have access to.

The second reason is for our own garden. Though it is still early to be collecting seed in the alpine environment in the wild, I plan to be getting out to a couple of locations at the end of summer. As I mentioned, this will be for the collections at UBC, but also for the *Index Seminum*, and the club seed list. Which is the last, but certainly not least, reason I'm collecting seed this year. Both plants from the wild and plants in the garden should be making their way to Linda this fall for the club seed exchange.

All in all, I'm expecting to collect over 100 taxa. I am so thankful for the efforts of staff at the UBC Botanical Garden for their help in cleaning the seeds. It's something we undertake when it's just too darn hot in the Alpine Garden to weed. I'm also grateful for the the Friends of the Garden, who have a dedicated group of seed collectors. Many, if not all, of the seeds from the Alpine Garden that end up in our seed exchange are processed by them.

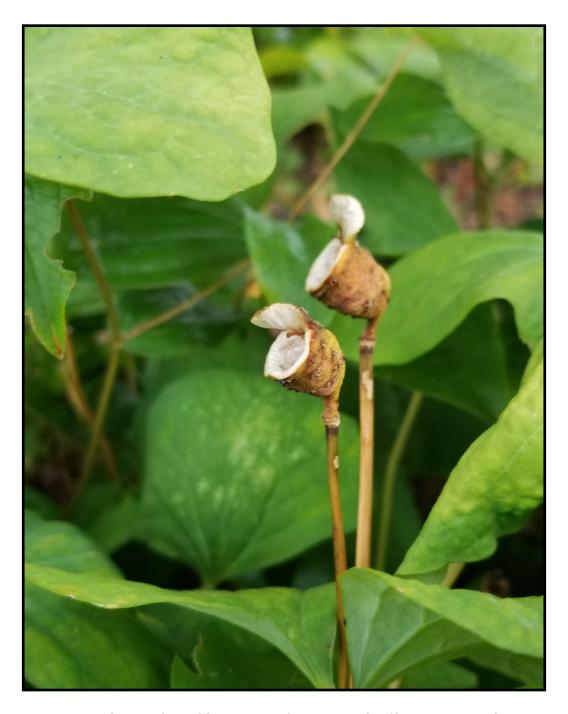
This is only my second year running the *Index Seminum* program (you must contribute seed in order to receive any). I had done very little of this work before coming to UBC, and have learned a great deal. Some fruit give up their seed fairly easily, such as pods and capsules. They are relatively easy to clean, and a great place to start if you're just getting your feet wet in the whole seed collecting process. Fabaceae (pods), *Penstemon* (capsules) and dry Ericaceae (capsules) fall into this category. One of the most time consuming and challenging groups (I find) are the Lamiaceae. They have four little nutlets often tucked way into the calyx, and can be onerous to free. However, we have so many neat plants in this group, I can't help myself and keep collecting them. One of my favourite fruits to clean are berries. *Vaccinium*, *Rubus*, and *Prosartes*, are good examples. They are very satisfying to smush, or use a blender (with the blades taped) to free the seeds from the rest of the fruit, before straining. It's all quite fun and a great learning process. And don't worry, if you haven't started collecting yet, you still have time. There's no time like the present!

Seed collection has certainly inspired a few sections in this Bulletin. We also have an excellent article from our second Willie Dickenson Scholarship recipient, Charlotte Swanson, an inspiring overview of a roof top garden from Dana Cromie, a sneek peak of a photo book from member, Bulletin contributor, and fellow UBC staff member, Daniel Mosquin, and of course a contribution from David Sellars in the regular Gardens Rock. All that in only 28 pages!

You may notice the slightly smaller Bulletin length. In the past few years they have been 32 pages. The smaller size is to accommodate shipping charges for paper copies (that extra four pages puts us into a higher shipping bracket), and also help me out in terms of content. I'm always on the hunt, so please don't be shy if you think you'd like to contribute. Chat to me at a meeting, or I can always be reached at bulletin@agc-bc.ca.

All the best, and happy seed collecting!

Editor's ID Challenge



Too easy? Too hard? Let me know at bulletin@agc-bc.ca

Club News Donating to the Seed Exchange

Linda Verbeek

It is time to think of seeds again. The Seed Exchange is a major activity for the Club, and it depends completely on people sending in seeds. Therefore seed donors get special treatment when it comes to ordering seed from the seed exchange: they get the first chance at seeds that are in short supply, and they can order more packets than non-donors. So why not give it a try this year, if you are not already a donor? We all grow interesting plants, and it is actually quite fun to hunt for seeds – in your own garden or in the wild. Please ensure that the seed is as free as possible from chaff and other kinds of contaminants. Also, please make sure the seed is dry, especially if you send it in plastic baggies. We don't recommend plastic baggies as we end up throwing away seed every year because it arrives moldy (sometimes to the extent that it is hard to recognize any seed). Please make the label easily legible – I am sometimes left guessing, and I might guess wrong.

You need 5 different kinds of seeds to qualify as a donor, and for people in North America, these need to be natives of North or South America. Overseas members get donor credit for seed from any country. That said, we like seed from anywhere, and we do take into account how many kinds of seeds you send, so we certainly hope you'll go beyond the minimum!

It is a great help to us if you can include with the seed an alphabetical list of what you are sending. Also, if you have wild collected seed, please include the location where you collected it, and if you are not sure of the species, some details of height, flower colour (if you know it), possible growing conditions, etc. Seed is much more likely to be interesting to others if it is described as: Penstemon sp., 20 cm, compact, small leaves, flowers pink, growing at 8000ft, than if it is described as: Penstemon sp., and no more.

The seed should be mailed in a package labeled: **flower seeds of no commercial value**, to Linda Verbeek. Please contact seedlist@agc-bc.ca for mailing address, and mail them to arrive before **25 October 2019**. This gives us barely enough time to complete the seedlist by the time the fall bulletin is due.

Although the mail seems to be working OK again, for security's sake, please e-mail a list of your seed donations to me (seedlist@agc-bc.ca) when you mail your seeds. Or, if you feel you cannot make the deadline because seed is ripening late or whatever, please, before 25 October, e-mail a list of what you will be sending. And also, please make sure that you actually send what you say you'll send.

Finally, to end as I started, the donors are the pillars of our exchange – without you there wouldn't be one – so I'd like to thank in advance everyone who'll be sending seeds this year.

Fall Plant Sale at UBC Botanical Garden

Chris Byra, Sales Coordinator

The Alpine Garden Club of B.C. will be holding its annual Fall Plant Sale in conjunction with the Friends of the Garden Treasured Bulb Sale at the UBC Botanical Garden Reception Centre on Saturday, Sept. 21. The combined sale is an opportunity to find more interesting plants and bulbs at one location this autumn. Doors will be open to the public from 11AM until 3PM. Further details regarding setup times will be announced later this summer. We look forward to seeing you there.

Club News In Memoriam Vale Lesley Gillanders Horticulturist, Botanical Artist

Lesley was born in 1932 in Swan Hill, Victoria, Australia and moved with husband Ken to Tasmania in 1975 to start a specialist plant nursery. She shared 37 years at Woodbank Nursery with Ken, where her love of horticulture was displayed working alongside him as true partners in life and in business.



Lesley with Fritillaria imperialis in Iran in 2001.

Ken and Lesley travelled widely over 32 years, being known for attending and speaking at international conferences and collecting and introducing plants to the horticultural industry. Lesley also contributed greatly to seed distributions of the societies she was a member of worldwide.

Lesley travelled to every continent, climbing mountains to see plants in their natural habitat and collecting seeds, including the sub-Antarctic islands. Her travels encompassed unique places including climbing Mt Kilimanjaro, the glaciers in Tierra del Fuego, camping in the highland steppe of Kyrgyzstan, the Andes, the Rockies, bamboo forests in Japan, Easter Island, Canada, USA, UK, Ireland, New Zealand, China, Chile, Ecuador, Egypt, Bolivia, Peru, Lesotho, Kenya, safari plains in South Africa, and the Galapagos Islands.

Lesley was also a gifted artist, and her beautiful botanical and bird watercolour paintings have been enjoyed worldwide, and recognized in many displays and competitions. She shared much with plant enthusiasts as a respected and recognized regular writer in numerous Australian and international botanical magazines. Her last article was published in April 2019.

Lesley passed away very peacefully in May 2019, and is survived by her husband Ken, 5 children and a tribe of grandchildren and great grandchildren.

How Alpine Plants Will Be Impacted by Impending Climate Change

Charlotte Swanson

When considering alpine plants, their incredible physiological resilience should immediately come to mind. This specialized flora can thrive in conditions that most organisms couldn't fathom, such as low temperatures, short growing seasons, extreme winds and extended snow-lie. The Earth's climate is changing, however, as global temperatures are on the rise. Some of the observed effects of increased temperatures in alpine zones, including glacier reduction, reduced snow cover and earlier snowmelt, have a direct impact on the quality and formation of alpine soils, negatively affecting erosion, tree-line migration and changes in soil-water balance. What will these changes mean for alpine ecosystems? Global research is beginning to scratch the surface concerning how such factors may impact these plant communities in the near future.

Plants Are Expanding Their Range Upwards

Part of the success of short and slow-growing alpine plants depends on the harsh conditions that keep taller and faster-growing competition in check. In a study examining alpine plant communities on several mountains across Europe, several species were shown to have notably increased their altitudinal range by 200-300m since the 1930s. These species include grasses such as wavy-hair grass (*Deschampsia flexuosa*), low-shrubs like downy willow



1. Salix lapponum

(*Salix lapponum*) and dwarf-shrubs like crowberry (*Empetrum nigrum*). While extinctions of shorter species are rare, population reduction has been observed in many alpine species, including alpine mouse ear (*Cerastium alpinum*) and pygmy buttercup (*Ranunculus pygmaeus*). As long as tall competitor plants are able to increase their range, they will be a continued threat for shorter species.

Temporal Mismatches in Plant-Pollinator Relationships

As a result of the modified length of alpine plant growing seasons, the timing of pollinator life cycles is likewise impacted. These distortions are often simultaneous, with the change in the flowering period matching the change in timing of larval hatching and development. (This is not always the case, however, as some studies show an increased number of procreative mismatches, leading to reduced floral resources for insects.) As well, studies

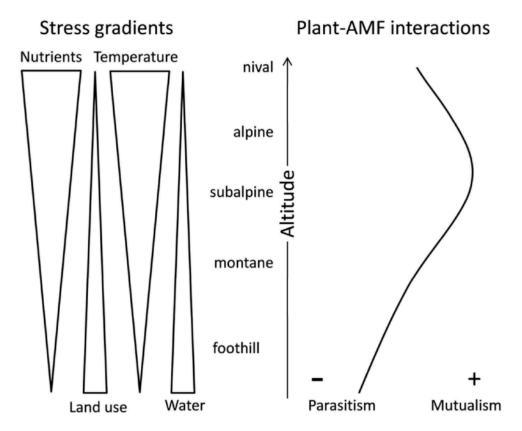


2. Parnassius smintheus

show that increased carbon dioxide levels could create phenological shifts that reduce the available floral resources for 17-50% of pollinators. One example of a population on the decline is the alpine Rocky Mountain parnassian (*Parnassius smintheus*), who primarily feeds on the leaves and nectar of *Sedum lanceolatum*. Due to the rising tree line, the range of this alpine butterfly and its preferred meadow habitats have decreased by over 78% since 1952.

Relationships With Symbiotic Fungi May Become Less Mutualistic

Arbuscular mycorrhizal fungi (AMF) are found at the foothills of all alpine habitats. With a highly evolved symbiotic relationship that can be traced back over 460 million years, these fascinating organisms are ubiquitous among land plants, suggesting AMF's reciprocity may be responsible for its successful colonization. Recent research shows that relations between AMF and alpine plants are complex, but observed trends show that their relationships (like plant-plant relationships) tend to become more mutualistic as altitude increases - with the most cooperative arrangements located in the sub-alpine zone.



Graph: Wahl, Anne-Lena. *Plant-fungus interactions in the alpine environment subjected to future climatic conditions*.

As climate change persists and stress gradients at various altitudes are altered [see above], there will be subsequent changes in the relationships between alpine plants and their surrounding mutualistic and parasitic fungal communities.

Associated Risk From Human Development And Changes in Land Use

Along with the direct risks from change in climate conditions, it is important to consider how they combine with the effects of social living and global commerce to harm biodiversity. Ecotourism and ski and winter sport facilities can fragment wildlife populations, along with hydro-electric development and its associated erosion and degradation. Introduced invasive species and nitrogen deposition via urbanization also genetically hinder local native species. These accumulated factors may amplify the challenges caused by climate change, working in combination to threaten alpine plant species.

Fossils Can Help Predict The Results

Fossilized pollen, leaves and seeds preserved in lake sediments at alpine sites can help foresee the future for alpine plant communities. The rapid warming that occurred at the transition from the late-glacial to the current Holocene period saw a change in air temperatures of 10°K in 60 years. In fossil studies in Kråkenes, Norway, it was observed that some alpine plants were intolerant of the warm temperature, such as the arctic poppy (*Papaver radicatum*) that went regionally extinct within said 60 year period.



3. Papaver radicatum



4. Bistorta vivipara

While some species suffered, there were many temperature-tolerant alpine species, including the alpine bistort (*Bistorta vivipara*), that became more abundant during this period and flourished for 350 years before being overcome by competition from taller grasses, shrubs, and eventually, birches. Some of these species still survive today in regionally exposed habitats like sea-cliffs and wind-exposed ridges. Specialists can predict that some alpine species may be at greater risk, but perhaps others may thrive in these warmer conditions and areas they have not before.

Are The Challenges Enough to Overcome Alpine Resilience?

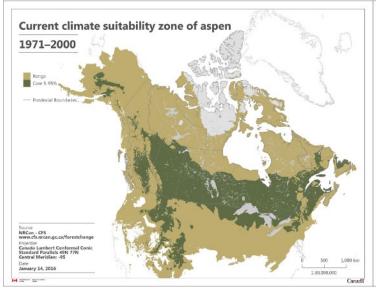
Researchers continue to study these risks to help society make informed decisions on how we treat the environment around us, but these ecosystems are likely more capable of managing the physical environment than we give them credit for. Plasticity, an ability to adapt to changes in the environment, is one of the many vital specialties of alpine plants. Some plants have formed highly specialized relationships with pollinators, such as the Campbell Island

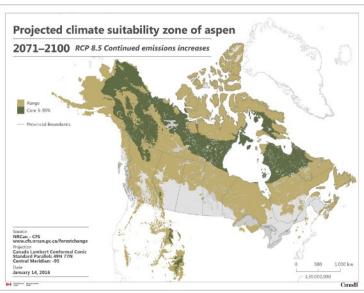


5. Pleurophyllum speciosum

daisy (*Pleurophyllum speciosum*), which is able to maintain a temperature on its leaves and flowers about 10°C warmer than the surrounding air, creating a thermal reward for its pollinators.

While alpine plants continue to show incredible resilience in the face of change (e.g. most summits being studied showing movement of populations to higher elevations), it is important to consider what these factors could mean for plant future communities. Canada's Plant Hardiness Site interactive mapping tool is an online interactive mapping tool that predicts changes to the nation's plant hardiness zones, and seen below is an example of the range of the trembling aspen (*Populus tremuloides*). With the aid of such predictive technologies, the consequences of climate change must be better understood in the hope of mitigating environmental risks before it is too late.





Charlotte is a lifelong lover of all things green with a passion for sharing the curiosities of nature with others. She has a BSc in Biomedical Sciences, a postgraduate diploma in Museum Management and Curatorship, and recently completed the Horticulture Training Program with UBC Botanical Garden. You can read more of her science writing on the Science World British Columbia Blog, or see one of her presentations with Science World at community events across the province. With



her newfound gardening skills, she is hoping to take a more hands-on approach to maintaining natural ecosystems in our public and private spaces.

Charlotte is the 2019 recipient of the Willie Dickenson Scholarship.

References:

Birks, J. *Plants and Recent Climate Change*. Climactica.org.uk. 2013 http://climatica.org.uk/alpine-plants-and-recent-climate-change

Chersich, S. *Climate change impacts on the Alpine ecosystem: an overview with focus on the soil.* Journal of Forest Science. 2015. https://www.agriculturejournals.cz/publicFiles/47 2015-JFS.pdf

Forrest, J.R.K., *Plant–pollinator interactions and phenological change: What can we learn about climate impacts from experiments and observations?* Oikos. 2015. http://www.plantevolution.org/jc/Forrest2015.pdf

Gillespie, M. High Arctic flowering phenology and plant–pollinator interactions in response to delayed snow melt and simulated warming. Environmental Research Letters. 2016. https://iopscience.iop.org/article/ 10.1088/1748-9326/11/11/115006/pdf

Memmott, J. *Global warming and the disruption of plant-pollinator interactions*. Ecology Letters. 2007. https://www.ncbi.nlm.nih.gov/pubmed/17594426

Wahl, Anne-Lena. *Plant-fungus interactions in the alpine environment subjected to future climatic conditions*. Global Changes. Université Grenoble Alpes, 2016.

Photo Credits:

- 1. Momo [CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0)] via Wikimedia Commons
- 2. xpda [CC BY-SA 4.0 (https://creativecommons.org/licenses/by-sa/4.0)] via Wikimedia Commons
- 3. Berland [CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0)] via Wikimedia Commons
- 4. Jörg Hempel [CC BY-SA 3.0 de (https://creativecommons.org/licenses/by-sa/3.0/de/deed.en)] via Wikimedia Commons
- 5. Twiddleblatt [CC BY-SA 2.0 (https://creativecommons.org/licenses/by-sa/2.0)] via Wikimedia Commons

15 Years of a Mini-Garden on a Hot Shed Roof

Dana Cromie

In 2004, Greg and I built a shed for motorcycles and bicycles next to our front stairs, on the south-west corner of our house. Technically, sheds can only be built in backyards, so we made this as invisible as possible, ten feet by ten feet, only five feet tall, and lots of potted trees in front. Since the roof is only two-thirds the way up our stairs, we made a rock garden on top, visible from the stairs and our den.

To ensure we could put lots of weight on it (and we haven't yet), we used four 4×4 posts on each end, and 2×6 joists on 16" centres. The sides of the shed are plywood clad with cedar shingles, the side facing the house is open and there is a sliding window in the south wall, which allows lots of light into the interior. The roof slopes towards the house (east) to reduce afternoon baking with a four inch drop for drainage.

The roof is one inch plywood with a 1×2" lip around the edges on three sides and a gutter on the lower edge. All is draped with a single piece of pond liner up and over the sides. A layer of heavy landscape felt was laid to the inside edge of the lip to protect the liner from sharp rocks or errant garden tools and to ensure even water flow under the planting mix. A row of 6×12" concrete pavers around the edge holds everything in place and provides a place



Overview, with new plants going in.

for my feet. At the lower edge, the pavers are arranged to catch water in two wetter beds and provide two main drainage points. A 1×2" cedar strip protects the top edge of the liner from UV and 1×8" strip covers the outside face. Irrigation is provided using a ¼" soaker hose all along the west (uphill edge) and another $\frac{2}{3}$ the way down and $\frac{2}{3}$ the way across above the two damper beds.

Site Plan Environment

There are five different planting areas: two long beds running east-west, six by three feet, and three smaller beds at the low end. One of the long beds is landscaped with fresh basalt from a roadcut on the east side of Lillooet Lake into a series of mini-valleys and mini-cliffs on the north side of each rock. The other long bed has a similar layout with chunks of tufa, but with no valleys. The southernmost small bed is a nonirrigated desert bed. The other small beds were originally bog gardens.



Early view of basalt bed.

Landscape and Mix, and Evolution

The biggest bed is filled with smaller chunks of the basalt along with fines from the same roadcut. To this, I added some local subsoil, pumice, and fine red and black lava, top-dressed with scree-size bits of the same rock. In the tufa side, I added some oyster shell and forestry sand, and top-dressed with a coarse washed sand with a warm colour. For the desert bed, I used only rock. The bogs were peat combined with subsoil. The central area is filled with 1" of forestry sand with pebbles on the south edge. The mix is four inches deep at most and slopes away from that height. The tallest rocks are a foot thick.

I pick up all the garden debris that lands on the roof at least once a month and vacuum as much organic material as possible twice a year, mid-summer and before the glass goes back on.

Winter Cover (end September-end March)

For winter cover, tempered glass with broken seals was scavenged from building sites; these were thrown away in those days. After the 2006 Stanley Park storm lifted the sheets of glass and smashed them together mid-air to cover our neighbour's garden and house with thousands of sharp cubes of glass, I learned that the glass must be tied down.



Originally, I placed the glass on cinder blocks, but after a couple of years I had aluminium frames made. These were relatively inexpensive, look better, and are extremely lightweight, perhaps a pound each. The trees are pruned or weighed down each fall to fit under the glass.

Plants as Planted, and Evolution

Early plantings included many bulbs, *Lewisia*, *Iris*, *Saxifraga*, *Yucca*, *Fritillaria* and small trees. The bogs included *Sarracenia* and smaller ericaceous plants.

Seeing as this is a small part of my garden, I don't take the time to coddle plants here. The soil is very lean and thin, and this roof gets full sun plus reflected light from the house from noon until seven pm. Most of the original plants are gone (90%), but the remnants are tough and seem to take care of themselves. Some years, seeds from the exchange have been sown directly, but most things didn't take

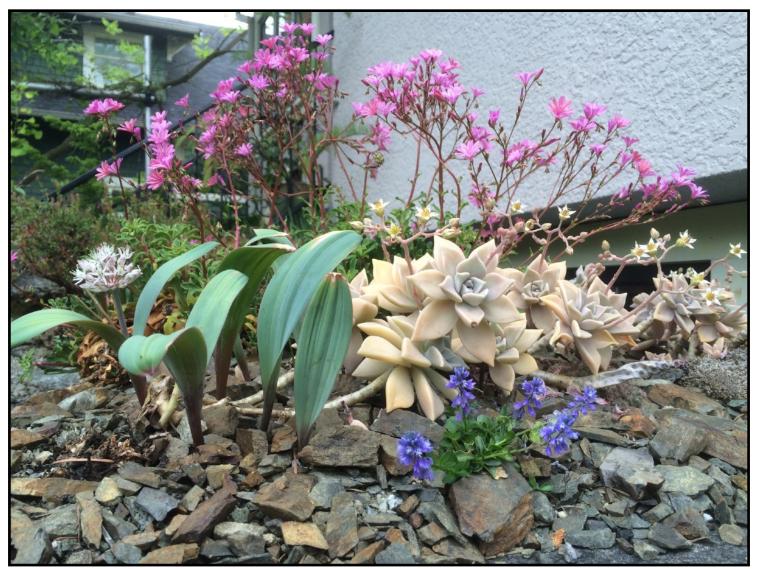
Lewisia ×edithae from Vera Peck.



and some that did have become way too large, several *Astragalus* in particular. Vol. 62, No. 3

Over the years, the trees have been a great success and seem indifferent to the heat: *Betula apoiensis* and *B. nana* 'Ingwersen's Form' ex Norway; *Ulmus parvifolia* 'Seiju' and *U. parvifolia* 'Jacqueline Hillier'; and *Salix nakamura* subsp. *yezoalpina*. The *Daphne arbuscula* and *Rhododendron campylogynum* are happy.

The desert bed has also surprised with its hardiness. I have lost hardy *Dasylirion* and *Agave*, but *Graptopetalum paraguayense* and *Allium karataviense* have persisted since the beginning. Most of the bulbs planted have failed; I suspect the lack of depth is the cause. The *Sarracenia* slowly declined and were overtaken by *Vaccinium macrocarpon* in one bed and *Rubus arcticus* in the other.



Desert bed with *Allium karataviense* whose many seedlings don't survive their first summer. This bed is very sunny and only gets summer rain.



Polygala amara seeded into the Raoulia australis.

The three stars of the garden are *Lewisia columbiana* var. *rupicola, Polygala amara,* and a *Townsendia* sp. These seed about freely and bloom everywhere, even in the shallow forestry sand.

Recent Work

In 2018, the centre bed of *Vaccinium* was removed (actually picked up in a lump) and replaced with a Mexican bowl rock on edge, filled with Sechelt sand and a number of small plants. The Sechelt sand produced unexpected vigor and now the plants will have to be edited.

The over-robust bed made with Sechelt sand. Clockwise from the top *Lomatium nudicaule*, *Iris gracilipes*, *Salix* ×*boydii*, *Scabiosa japonica* var. *alpina*, *Daphne jasminea*.

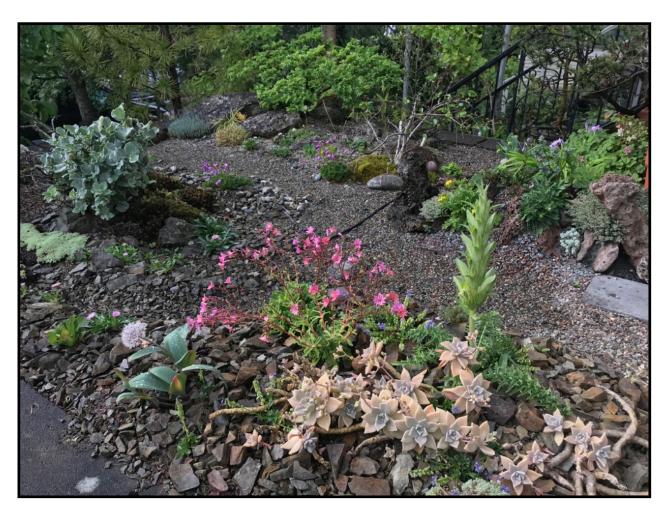


Plans Going Forward

Going forward, I am removing all the moss that has built up over the years and making the soil deeper. I was going to use more Sechelt sand in rebuilding/replanting, but may stick with the nutrient deficient scree.

We no longer have motorcycles, so now the shed is used for storing dormant plants in a dry environment.

Dana Cromie is a 3rd generation Vancouverite. As a lifelong gardener and mature artist, he is fascinated with variation on familiar things, whether a plant, a landscape or a concept. He is most attracted to light, colour, and rhythm. He has a deep interest in nature and is concerned with human impact on the environment. An avid collector with a focus on Rhododendrons and ferns, he has additionally more than 300 pots which are moved seasonally for protection from various elements.



Clockwise from the bottom, desert garden, basalt bed, tufa bed, new Mexican bowl rock/Sechelt sand bed

Sneak Peak - Photo Book

Daniel Mosquin

Below are some representative images from an upcoming photo book by AGCBC member Daniel Mosquin on his 2019 late summer trip to Chile and Argentina. More information in a future newsletter!



An extraordinary chain of 4 concurrent blossoms on Chile's national flower, *Lapageria rosea*.



Above: Looking up into the canopy of an Araucaria araucana forest.

Below: Monkey puzzle trees at elevation in the Malalcahuello National Reserve.





Above: A fallen log decorated with a *Fascicularia bicolor* that came down with it in the Valdivian Rainforest.

Below: A purplish form of *Empetrum rubrum* in Patagonia on the trail to the foot of the Serrano Glacier.





Gardens Rock

David Sellars

More on Mulch

Rock gardens need mulch just like other areas of the garden. A stone mulch is the preferred medium for rock gardens as it provides:

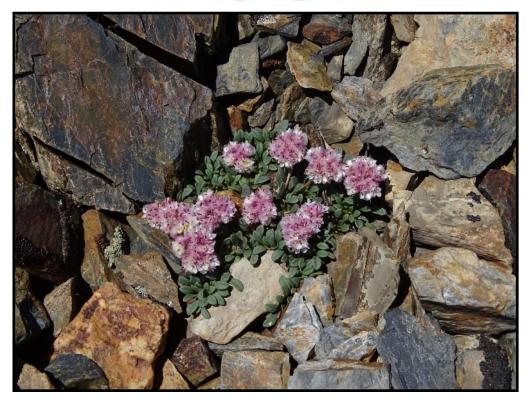
- Support for the plant crown
- •Rapid drainage to reduce the chance of crown rot
- •Protection for the plant against soil "splash"
- Enhanced rainfall infiltration
- Moisture retention for the roots
- Erosion protection
- Reduced weed germination

And of course a stone mulch reflects the natural growing conditions of alpine plants in the mountains.

The challenge for the rock gardener is sourcing stone mulch that looks realistic and matches the surrounding rocks. Although alpine plants in the mountains grow in crevices they are found most often on coarse scree. The scree is generally formed of the native rock and is uniform in colour but varies considerably in the range of stone sizes. It is very difficult to source stone mulch with different sizes of stone. Stone purchased from a landscape yard is usually fairly uniform in size and looks rather artificial in the rock garden.

One solution is to take a sledgehammer and break up rocks to make the mulch. This is not as crazy as it sounds if you build a stratified crevice garden with tight crevices. The narrow space between the rocks can be constructed of small pieces of broken rock. For larger areas you may have to use uniform angular stones from a landscape yard. To create a more natural look you could add a few random larger stones.

Gardens ROCK



Alpines in the mountains growing in natural mulch illustrating the uniform colour of the stones and wide range of stone sizes. Photo above: *Cistanthe umbellata*. Below: *Ranunculus glacialis*.



Editor's ID Challenge

In honour of seed collecting season, I though I would test your fruit identification. When I say fruit, I am of course speaking botanically (as I tend to do, to the dismay of friends and family, but I'm guessing many readers can relate to this). When referencing a plant's fruit, most people think of the fleshy, edible kind. But, a fruit is really just what the flower ovary develops into after fertilization has taken place. They come in many forms, fleshy and dry. As such, the different forms of fruit are named. Our mystery



plant's type is called a follicle. It is dehiscent, which basically means it splits open at maturity (as opposed to an indehiscent fruit, such as a sunflower seed). This is important to note if you're planning to collect seeds from a fruit. On more than one occasion I've had a dehiscent fruit on my list to collect, and have been disappointed because I was a day late. However, if you get the timing right, it is very satisfying to just pour your seeds into an envelope. No fuss, no muss. The other option is to collect just before it splits, and allow it to open in the safety of a paper bag. The trick there is to not collect it too early.



But I digress, let's get back to our mystery plant. If you don't recognize the fruit, I think perhaps the leaf will help. Both the common name and the scientific name reference its shape. The second half of the species name (specific epithet) translates to "two-leaf". A bit misleading as it's really just one leaf divided into two

lobes. The flowers, which appear in spring, are fleeting, but beautiful.

