

Alpine Garden Club of British Columbia



Viola copahuensis in Patagonia, photo by Ger van den Beuken

Volume 59, Number 3 Quarterly Bulletin, Summer 2016

AGCBC 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.

2016 AGC-BC Upcoming Events

- **September 14 - Mike Kintgen on The Rise of Rock Gardening, Romanticism and Conservation**
- **Saturday, September 17, 12 noon to 4:00 pm - AGC-BC Fall Plant Sale**
VanDusen Gardens, Floral Hall, 37th and Oak, Vancouver
Cash/cheques only – Visa and Mastercard not accepted.
- **October 12 - Susie Egan on The Wonderful World of Trilliums**
- **November 9 - Jay Akerley on North American Cordillera Plants for the BC Garden**
- **December 14 - Annual Christmas Potluck and Rare Plant Auction**

Seed Exchange

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 that kind of contaminants. Also please make sure the seed is dry, especially if you send it in a plastic baggy. We don't recommend this 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.

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You need five 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!

Important, Please Note

Because Linda Verbeek will be out of town for part of the time the seed list is put together, this year the seeds should be mailed to:

Pam Yokome
13073 – 61 Avenue
Surrey, BC V3X 2H4
Canada

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), possibly growing conditions, etc. Seed is much more likely to be interesting if it is described as:

Penstemon sp., 20 cm, compact, small leaves, flowers pink, growing at 8,000 ft, 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 Pamela Yokome at the address above, and mailed to arrive before **October 26, 2016**. This gives us barely enough time to complete the seed list by the time the Fall Bulletin is due. If this is impossible, please make sure we do at least get a list of what you are planning to send by that date. This can be emailed to:

p_yokome@yahoo.ca

And please make sure that you will actually send what you say you are sending. It is important that you send the seed as soon as possible, if you can't make the deadline. Packaging the seed is another major job and it starts soon after the deadline.

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

Linda Verbeek

From The Editor

Dear Readers,

As is par for the course here in Qualicum Beach, a summer drought is now upon my rock garden. Expected but not as dire as anticipated—the occasional rain has helped, as has the maturity of much of the garden. The real alpine plants are ticking along nicely, flowering well and many now setting fine seed for my ‘bank’. Which brings me to the AGC-BC Seed Exchange—please don’t forget to send in some of your treasure trove—see full details on pages 63 and 64 from Linda Verbeek.



As promised this issue features an article from Alan McMurtrie on his “Canadian Bred Reticulata Iris”—Alan will be visiting the AGC-BC in May 2017, so here is your chance to get some advance information. Ger van den Beuken continues with part 2 of his “Rosulate Viola Tour” with more fascinating detail and ‘eye candy’ photos. David Sellars gives us valuable information on sand beds in “Gardens Rock”.

As mentioned in the last editorial, I invite your contributions about your experiences using alpine carnivorous plants and hardy and/or native orchids in your alpine garden, towards future articles. Please do email me at melanson.valerie@gmail.com.

And don’t forget, for any submissions, the deadline for the Fall issue is November 1st.

Wishing you well in your gardens,
Valerie Melanson

*Damp bed in the editor’s rock garden, planted with purple and white *Liatris spicata*, *Sarracenia flava* and *S. ‘Scarlet Belle’*. This bed was inspired by footage of damp meadows in the SE USA shown in a documentary called *Plants Behaving Badly: the secret life of orchids and carnivorous plants*, narrated by Sir David Attenborough.*



*Cypripedium ‘Kentucky Pink’, a hybrid based on *C. kentuckiense*, in the editor’s shade garden.*

Canadian Bred Reticulata Iris

Report and Photos by Alan McMurtrie of Toronto

Great news: several new Reticulata Iris, bred in Toronto, are now commercially available...and more are coming.

Why is this of interest?

I have done something truly magical! I have created, and am continuing to create, an array of colours and patterns that were never imagined possible. Including green, brown, and orange, plus combinations of yellow and wine red, etc. “Whites are easy.”

It has taken 30 years for this to happen: to create something exceptional; to build up stock in Holland; to get wholesalers and retailers interested in carrying them; and now, making you aware they exist. It has been a long uphill battle, which continues today. I can tell you from experience, it's not been easy. For me this is a hobby—something that is supposed to be fun. Working with some nurserymen in Holland has turned out to be very, very challenging. But now, happily, the first cultivars are starting to be sold.

Until now Reticulata Iris have largely been blues and purples. We also have the lovely lemon yellow *Iris danfordiae*, but unfortunately it has a reputation of disappearing after about two years. Typically, bulbs from Holland give 100% bloom the first year, and are large enough the first season to help regenerate two bloom-size bulbs for each original bulb. So you get close to 200% bloom the second year. However, our growing conditions aren't quite good enough for bloom-size bulbs to regenerate after that. If you were to dig up the bulbs would find a lot of rice grain-size bulblets, which is why people say *Iris danfordiae* “shatters” (note: with hybrids these bulblets can be quite helpful).

Keep in mind the clone in Holland is a triploid. It was selected for being larger (more showy), than the others that were collected at the time it was being evaluated for commercial production. Remember also that Holland has ideal growing conditions—in particular a long growing season. Which is to say, we need varieties that are better suited to our growing conditions. This doesn't just apply to *Iris danfordiae*. I got similar results when I also planted 100 bulbs of William van Eeden's lovely 'George' (named after the Russian botanist, Dr. George Rodionenko). It too gave ~200% bloom the second year; then very little after that; eventually dying out.

Thirty years ago, in 1985 and 1986 I went plant collecting in Turkey for three weeks each year, with the express goal of finding a diploid form of *Iris danfordiae* for use in hybridizing. I was also looking for any other Reticulata Iris that would be more genetically diverse than existing available clones. Back around 1955, E.B. Anderson made a cross between *I. histrioides* and *I. winogradowii* that resulted in the lovely

'Katharine Hodgkin'. In the early 80s I wondered what sort of hybrids I might be able to create if I had a fertile *Iris danfordiae*.

As rock garden enthusiasts, we love pure species, but sometimes they are very difficult to grow in our gardens. This is where a little hybridizing between species can help to make plants that are more robust for our gardens. A few people are not happy. They want only plants that are found in nature. Everything else is an abomination. It may be that those people thrive on the challenge of growing things that are difficult!

I love species, but at the same time, if I can create something amazing, that's easy to grow, then why not? We should be encouraging other people to enjoy alpines. If they give it a go, and many of their plants die, they're simply going to give up. In a sense all I'm doing is giving Mother Nature a helping hand. If *Iris danfordiae* and *I. sophonensis* were to come together in the same valley in Turkey, then many of my hybrids would be the result. (It is also fascinating to wonder how the various species came into existence in the first place.)

Last year, two of my hybrids were available in select locations in British Columbia as a trial: 'Spot On' and 'Eye Catcher'. I am glad to report sales went well, and as a result this year four more will be available: 'White Caucasus', 'Sea Breeze', 'Splish Splash' and 'Sunshine'.



'Spot On'



'Eye Catcher'



'White Caucasus'



'Sea Breeze'



'Splish Splash'



'Sunshine'

Note: although 'White Caucasus' and 'Eye Catcher' might both be considered "whites," 'White Caucasus' is a late blooming pure white, which nicely compliments the early blooming 'Eye Catcher' (white with blue accents: blue style ribs and fall dotting).

This year Veseys is the only retailer carrying 'Scent-sational'. It should be more widely available next year, along with 'Mars Landing' and 'North Star'.

There's a good chance all of these will be on display at



'Scent-sational'



'Mars Landing'



'North Star'

Butchart Gardens next Spring. I've been told the Retics bloom there at the end of February, into the beginning of March.

One unique feature of 'Eye Catcher' is that it tends to give extra flower parts. You might think that would be a negative, but I think you would agree that in fact it adds an interesting twist: 'Eye Catcher' with Multiple Flower Parts.

Earlier this year when I was in the field in Holland, I wondered if some day a sport of one of my hybrids would be found. Little did I know that I would actually find one during my visit. Here is an 'Eye Catcher' sport I found with light yellow falls:

This flower with deeper yellow shows how a sport can start. In this case about one-quarter to one-third of the standard is also yellow.

I moved the bulb so we can see what happens next year. Conceivably a bulblet from that corner of the bulb may eventually yield a flower with yellow falls and standards, but with white style arms.

A previous Dutch grower of my 'Eye Catcher' had allowed 'Amazing' (00-KN-1) to be mixed in. In 2015 I spent about two days overall during the week I was there, going through the 150 m of 'Eye Catcher' and pulling out the 5-10% "contamination" and replanting it elsewhere. This year there was less than 1% and I was similarly looking over the bed (now 280 m) and taking out 'Amazing' and replanting them



'Eye Catcher' with Multiple Flower Parts



Yellow Eye Catcher



Eye Catcher in Straw



Eye Catcher with Yellow Fall

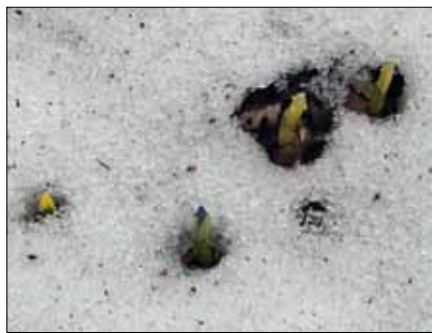


'Amazing' (00-KN-1)

with the others that had been rescued the previous year. It was because of carefully looking over the bed that I discovered the sports.

'Eye Catcher' is beautiful. What will people think of the sports? Are they something that should be tossed away? Will that characteristic show up in hybrids—yellow on the fall and not in the style arms or standards? Time will tell...

The thing I particularly like about *Reticulata* Irises is they are one of the first plants to bloom each year. Here in Toronto, they bloom right as the snow is disappearing—perfect for helping get rid of the Winter blahs. Some years they seem to come up right through the snow. Individual flowers last three to seven days (sometimes longer), depending on the temperature. Overall, the bloom season is three weeks in length, but can be longer if mild conditions allow for an early start to Spring. Occasionally we get a snowfall while they are in bloom, and they stand up fairly well to this; picking themselves up so-to-speak as the snow melts (I don't have photos of them fully recovered because at that point I'm more interested in what's new).



Retics coming up through Winter snow

Fresh snow on blooming flowers

I have been paying a lab in Holland to covert some of my hybrids from diploids to tetraploids (going from two to four sets of chromosomes). One of the benefits is the flowers should be 20-30% larger, and the petals should correspondingly be thicker and stand up even better to the weather. Does this mean the flowers will similarly last a little longer? That's something I'm looking forward to studying once I have some in my garden. In Holland I have seen that tetraploid 'Orange Glow' flowers are indeed 25% larger.



'Orange Glow'
(left: diploid; right: tetraploid)

The reason for wanting larger flowers is diploid *Iris danfordiae* flowers are small, as are flowers of an unnamed purple species I collected near Çat, Turkey (i.e., the Çat species) and am using in my breeding (it's responsible for orange). For large-scale commercial production I keep being told the market wants large flowers. For hybrids that are small, a 20-30% boost will mean they'll be an acceptable size. As alpine enthusiasts we don't mind small flowers, but of course I want my hybrids to be enjoyed by as many people as possible.

A second, and extremely interesting reason is, with tetraploids you can intercross the various groups, and importantly maintain fertility. I am looking forward to seeing where this will take me.

A unique characteristic of Reticulata Iris is they have square leaves. After flowering these leaves elongate to 18-24 inches (45-60 cm). A new bulb is forming at the base of each leaf, so it is important not to damage the leaves. A bit of low nitrogen fertilizer can be helpful after blooming to aid the bulb generation.

I have been working closely with the firm Jacques Amand in England to show off my hybrids. At this year's Royal Horticultural Society show in London on February 16-17 about half the display was of my hybrids.

Over the past two years we have been able to put a number in front of The Joint Rock Garden Plant Committee and received several awards. In early March Jan Ligthart had a nice display of my hybrids, along with his Tulips, at the Lentetuin ("Spring Garden" in Dutch) flower show in Breezand, Holland (an hour north of Amsterdam by train).

Plans are under way for next year to additionally feature my hybrids in Jacques Amand's display at the Philadelphia Flower Show.

Ideally we want to plant our bulbs and have them bloom year after year. The good news is my hybrids will form clumps. They aren't perfect, but they were selected under the somewhat harsh Toronto conditions, with its modest 10-week growing period. I do recommend planting a variety in two locations, that way if something happens to one clump, you've still got the second one. Also one can be in a sunny location, and the second can be in a shaded/cooler location where it will bloom slightly later.

Jan Ligthart's display at the Lentetuin flower show—His Tulips with my Reticulata Iris in front



Jacques Amand Stand at RHS show



It's hard to give gardening advice since everyone's situation is different. In England where there's lots of moisture I would emphasize raised beds, which can be as simple as dumping a wheelbarrow of soil on top of a garden to make a raised area. A key would be not to plant by a tree whose roots will dry out the soil in late spring. The bulbs need as long a growing period as possible so they can get up to bloom-size.

I'll point out *Iris sphenensis* has died out in four different spots in my garden. Each time I was fortunate to move a bit to a new location prior to it dying out in the previous location. Currently it's doing quite well at a friend's farm, where I have been given some space, but have to dig up the bulbs and store them in my garage over summer. So another solution, although it requires a bit of work, is to dig up the bulbs, just as the leaves are starting to turn brown (slightly earlier if you discover you are having problems with disease). The bulbs can be stored in mesh bags, and then replanted in the fall. Key of course is to ensure the bulbs are all properly dried before being stored. For Toronto that's typically not an issue because of how hot it is at that time of the year.



Retics being dug and stored in netted bags

I think it is important to give the bulbs a bit of space initially, rather than planting them close together for an instant clump effect. You might even try planting a couple of individual bulbs off in different spots to see how they do. So, about 3 inches deep (7 cm), and ideally about a similar distance apart.

To get them to bloom every year it's a matter of giving them conditions where the bulbs can properly regenerate. Often in our gardens other "friendly" plants will tend to crowd out the things we really want. For example Cornflowers, Daisies, Violets, Forget-Me-Nots, strawberries, etc. It's a matter of keeping them under control and not letting them smother the good things.

The Dutch tell me "Alan, you've got too many." In some ways they are right. Once-upon-a-time I had a list of my top 10. Now the truth is, there are too many to count. Have a look at my Popped Photos webpage and see what you think (www.reticulatas.com/HTML%20Pages/Popped%20Photos.html).

Keep in mind Dutch large-scale growers are looking for ease of production. They would rather grow two hectares of one variety rather than two hectares of four different varieties and have to stop and clean their machinery in between each variety. Worse yet (from their point-of-view), would be two hectares of ten varieties. To me, "Variety is the spice of life."

There's a lot more that can be said. The key point for the moment is to let you know my hybrids are available, and you should check fall catalogs at retailers like www.botanus.com, www.flowerbulbsrus.com, www.phoenixperennials.com and



'Katharine Hodgkin' in middle 4 rows Versus Small Stocks or Lots of Very Small Test Quantities

www.veseys.com. Last year GardenWorks in BC was one of the garden centres trialing sales of my hybrids, so I expect they will carry some again this year. 'Spot On' and 'Eye Catcher' are being offered to nurseries across Canada. It's a matter of getting the nurseries to see there is demand, and at the same time, getting people to realize something new and exciting is available. Ideally retailers need to "shout out" that they have something truly new. Otherwise most customers aren't going to know.

A future article will provide more information about why I have been able to create these hybrids.

I will be speaking at the 2017 British Columbia Iris Society's Annual General Meeting on March 13, 2017 in Saanich, BC, giving a special 2-hour talk, including wild forms. I will also be speaking to the Alpine Gardeners of Central Vancouver Island on May 8 at Qualicum Beach and to the Alpine Garden Society of British Columbia on May 10 at the Van Dusen Botanical Garden in Vancouver.



Alan McMurtrie is a retired Electrical Engineer. He has been an Iris "nut" for close to 40 years. In 1985 and 1986 he went plant collecting in Turkey with a primary goal of finding diploid Iris danfordiae. As a result of his hybridizing work, he has opened up a whole new world of colours and patterns for Reticulata Iris. "So far we are only seeing the tip of the iceberg."

See the new world at his website, www.reticulatas.com. Also, for further information and photos, check out:

"Eyeing up new iris" by Phil Clayton, in RHS' The Garden, February 2016, pp. 50-52.

"Breeding new Reticulata Irises" by Alan McMurtrie, in RHS' The Plantsman, March 2016, pp. 20-27.

The Rosulate Viola Tour

Highlights of an Expedition in Northern Patagonia

Part 2

by Ger van den Beuken

Cerro Colohuincul: The Habitat of *Viola coronifera*



The next day would be a hard day with a long steep walk to the top of the Cerro Colohuincul. Personally, my main goal for this expedition was seeing *Viola coronifera* in its natural habitat. I remember our visit to David and Anke Wright and the story told us many years ago by this young English couple living in Luxembourg. They were trying to find *Viola coronifera* on the Cerro Colohuincul and were almost getting lost in bamboo

forest. Finally, after two long days, they reached the summit and found this very spectacular species. This experience has subsequently convinced other people to climb the mountain from another side, which is not as risky, but not easy as well. Our group worked hard to reach the top. But first, our trip started in the steppe region amid beautiful orchids like *Gavilea glandulifera* and *Chloraea magellanica*. A new species of the day was *Rhodophiala elwesii*, a species distinguished from *Rhodophiala mendocina* by the dark underside of the yellow flower petals. Another, *Rhodophiala andicola*, was growing here in large numbers. This species has shorter single pink flowers. *Perezia pilifera* with white inflorescences was found higher up in small numbers. One of the most unusual plants during this day trip was *Valeriana moyanoi*, a small monocarpic species with relatively large flowers. The rosettes are up to 4 cm in diameter and the inflorescence is about 5 cm tall. *Oxalis nahuelhuapensis* is a small yellow flower species with smooth leaves and is often confused with the similar looking *Oxalis compacta* with slightly hairy leaves. The surface we walked on was grassy, but occasionally interrupted by rocky outcrops. At these rocky places we found some other very interesting species. For example the very rarely seen *Polygala salaciana* with its bright blue flowers, really outstanding between the large rock pieces. The hard cushions of *Azorella lycopodioides*, more than one metre in diameter, were in perfect condition.



Rhodophiala elwesii

After a long and hard climb we reached the ridge where *Viola coronifera* grows, a flat single 5-6 cm wide rosette or group of rosettes. At first, we found a number of plants not in flower, but after some additional climbing we found a few plants in bloom. The bright yellow flowers have a very special waxy color which is very unusual in the world of high alpine plants and stand in a flat upwardly facing ring around the rosette. This species grows in the volcanic regions of northern Patagonia on windy flat ridges between boulders in stony soil at an altitude of about 2400 m. The day was very worthwhile and very successful.



Perezia pilifera



Polygala salaciana



Valeriana moyanoi



Azorella lycopodioides



Oxalis compacta



Viola coronifera

Moquehue Region

Next we travelled all day from San Martin de los Andes to Moquehue, a small town close to the Chilean border. Here we found our base and accommodation for the next few days. During this day trip we passed spectacular *Araucaria* forests. The first rock plants we found in a flat valley close to the hosteria where we stayed overnight was *Viola cotyledon* in small numbers. Not the most beautiful flowering plants, but this would surely change the next day when we were travelling to the volcano Batea Mahuida, not far from the town Moquehue. Half of the volcano rim was gone, but the crater itself was still intact and filled with water. This would be one of the best days of our trip. Our walk was along a ridge with fantastic views over the crater lake. The first plants of *Viola cotyledon* appeared together with gorgeous yellow flowering cushions of *Oreopolus glacialis*.

On a huge scree near the edge of the crater were fine specimens of *Senecio boelckei*. If this yellow flowering species with nice silvery leaves would retain its compactness, it certainly would be a great asset to our rock gardens. Arriving on the summit, *Viola cotyledon* was waiting for us in large numbers. *V. cotyledon* is to my knowledge the only rosulate *Viola* species in cultivation. It's a very variable species with flowers from pure white to dark blue. The flowers stand in a ring around the outer edge of the rosette. Some flowers are even very hairy, something we would see later in the trip as well as a form making a cushion of small rosettes. *Viola cotyledon* is endemic in Argentina and Chile from the southernmost central Andes to northern Patagonia and grows mainly in volcanic sand but also in scree conditions between large boulders at altitudes ranging from 900 to 2500 m. On an excursion to the Botanical Gardens of Gothenburg in Sweden a few years ago I saw this species in the



Viola cotyledon



Oreopolus glacialis



Senecio boelckei



Viola cotyledon white



Viola cotyledon



Calceolaria borsinii



Nassauvia revoluta



Nassauvia juniperina

alpine house, however without flowers. Another notable species here on the windswept ring of the volcano, that we did not see the rest of our trip was the very stunning *Calceolaria borsinii*. This species is closely related to *Calceolaria polyrrhiza* but has much larger flowers on short stems. Four different *Nassauvia* species were also growing here: *Nassauvia lagascae* ssp. *lagascae* in an extremely compact form, *Nassauvia revoluta* with some elongated inflorescences which is not unusual, and the white flowering species *Nassauvia pymaea*, a wonderful tiny species not in flower.

Last but not least was *Nassauvia juniperina*, a strain with little purple-coloured rosettes which certainly had my preference. I remembered a picture of my *Chaetanthera villosa* in the AGS Encyclopedia. This species would be endemic here. After some searching, we found a few plants, but not in flower. *Chaetanthera villosa* is a very special plant with silvery rosettes covered with long silvery hairs. Like many other *Chaetanthera* species it has yellow flowers.

Adesmia is a very large plant family and one of the nicer species is *A. longipes*, a beautiful small one with yellow flowers that we found on our way down from the summit, growing in some kind of volcanic pumice.

Our plan for the next day was an excursion to Primeros Pinos and near a small river we found some interesting plants. A humid place is the biotope to see *Calandrinia affinis*, a truly magnificent species with large white flower. It turned out that *Gentiana prostrata* was growing there in the same conditions. This is an annual with small pale blue flowers. I can remember that we found this species in northern Chile as well in wet bogland. Thus it turns out to be a species that grows over a huge range. A little further on, in less wet spots was *Tarasa humilis*, a species belonging to the family of Malvaceae that has large purple flowers. This is a species



Chaetanthera villosa



Adesmia longipes



Calandrinia affinis



Tarasa humilis

sometimes seen in cultivation. The biggest discovery of the day of the day were two rosulate *Viola* species. The first was *Viola aff. coronifera*, a population that differs somewhat from the plants we previously found on the Cerro Colohuincul. Unfortunately, these plants were without flowers.

Azorella monantha meanwhile proved to be the most common *Azorella* species seen during our tour. A huge number of plants with some specimens more than a metre wide were growing everywhere here. This species grows as a very hard cushion with small insignificant yellow flowers. There were also two *Plantago* species: *P. uniglumis* and *P. sempervivoides*. The latter species especially would be a wonderful addition for our rock garden. *Maihuenia poeppigii* was present in the most arid places as huge cushions with bright yellow flowers. In cultivation it is a very disappointing species as it loses its compactness and flowers are hard to find.

In contrast *Calandrinia colchuaguensis* is worthwhile to try. This species with purple flowers and pretty broad leaves is easy to propagate from seeds. *Discaria nana* is a small Rhamnaceae which grows in low spiny cushions with white flowers. Finally we arrived at Primeros Pinos, the place where we would see our second rosulate *Viola*. This annual species is called *Viola trochlearis* and belongs to the Volcanica group. The leaf margins are similar to those of *Viola volcanica* but the flowers have pink veins. *Calandrinia dianthoides* was growing at the same place. This is a beautiful plant with narrow, elongated leaves and large pink flowers and is fairly easy to grow from seeds. The problem with many South American plants is that they lose their compactness.



Azorella monantha



Plantago uniglumis



Maihuenia poeppigii



Calandrinia colchuaguensis



Viola trochlearis

Volcan Copahue

In my opinion Argentina as a country does not compare with asiatic countries like China, Nepal and many others for depths of culture. An exception is the magnificent capital, Buenos Aires, with its world famous tango. Most impressive however are the gauchos driving their herds of sheep, cattle, goats or horses along the steppes. Nature, landscape and vegetation in Patagonia is hardly inseparable. Important also for plant lovers is that they can enjoy almost all the plant species described in this

article without difficult climbs or extremely long mountain walks. This was certainly true during our next transit, to Lago Caviahue. Brilliant *Azorella trifurcata* were in full bloom and could be seen in large numbers in a riverbed. This *Azorella* sp. is in cultivation in large numbers and should be in every alpine plant collection. When we approached Pino Hachado at 1778 m, the weather conditions were changing dramatically. However a very brief field survey yielded some new species like *Mimulus*



Mimulus cupreus



Saxifraga magellanica

cupreus with striking orange-red flowers. And along a mountain stream, we found *Pinguicula chilensis*, a small carnivorous species with lavender flowers. The highlight, however, was the small *Calceolaria poiklianthus*. This plant grows in flat rosettes with yellow, very wide lip-shaped flowers, accented with red dots on the petals. Also not seen previously was the Asteraceae member *Hypochoeris acaule*, a rosette-forming species with stemless yellow flowers. We were looking forward to finding *Primula magellanica* in bloom, but found just a single rosette with no signs of any flower. Usually there is a lot of snow in this part of Patagonia and it was clear to us that the flowering season was very late this year, perfect timing for us. The next stop was the small village of Pino Hachado. On previous trips Marcela had found good plants of *Saxifraga magellanica* on basalt rock there. A brief search by one of our travellers resulted quickly in some specimens, unfortunately not in excellent condition. At the same place however there was a nice plant of *Glandularia araucana* of the Verbenaceae with beautiful yellow flowers.

Between Primeros Planos and Caviahue we found several large cushions of *Argylia bustillosii*, a species with big yellow flowers from the Bignoniaceae. The rain turned into snow and we were happy to reach our accommodation in Caviahue without problems. The village was near a big lake with a beautiful view of the surrounding snow-capped peaks. Our hotel was heated by volcanic water and all the rooms were warm and cozy. We hoped weather conditions would improve in the following days. Caviahue and Lake Caviahue are located on the lower slopes of the Volcan Copahue. This enormous volcano has a height of 2997 m and is located on the border between Argentina and Chile. The volcano has several craters and is very active, with several eruptions in the last twentieth century. The largest eruption was on 1st July 2000 when rocks up to 13 cm wide were ejected a distance of more than eight kilometres and ash rained down up to hundred kilometres away. Marcela told us about an evacuation plan posted at the desk of the hotel, but the owner removed it to avoid scaring the tourists. The next morning the weather looked



Volcan Copahue

fine, but it was still cold. You could see there was still a lot of snow in the mountains and that is why we decided to travel to Puento del Agrio to explore the steppe vegetation.

Grindelia anethifolia a 50 cm high Asteraceae looked spectacular. There were also plants of *Rhodophiala araucana*. This species, named after this region, is similar to *R. elwesii* and *R. mendocina* but is distinguished from its relatives by the orange tips on the petals. This species has more flowers per stem and additional leaf development. The flowers are a bit smaller. From the genus *Chuquiraga*, we found several species during our trip. Here *Chuquiraga straminea* was definitely the best. This shrubby plant from the genus *Asteraceae* is up to 80 cm high and has beautiful orange-yellow flowers. A bit further on, in Salto del Agrio we came to a spectacular waterfall.

Ourisia microphylla, one of the most popular alpine plants, was spotted with binoculars on a vertical cliff near the waterfall. Growing there, below an overhanging rock, it was certainly well protected.

Tropaeolum incisum grew in inaccessible terrain. We drove on a dirt road to Copahue and at higher altitude we finally arrived at a layer of melting snow. The village, a health spa, at 2000 m and surrounded by hills, suffers from poor winter conditions and is



Grindelia anethifolia



Rhodophiala araucana



Ourisia microphylla



Viola cotyledon

only open during summer. It has lots of hot baths, mud baths, etc. and is world famous. The contrast between the hot tubs and the snow and ice was impressive. Along the roadside where the snow was partially melted, the beautiful cushions of *Viola cotyledon*, covered with beautiful blue flowers, poked through. This reminded me of *Soldanella alpina* in the Alps on the edge of snowfields. There was no reason to look further for plants at this altitude.

through Salto del Agrio, beautifully situated amid ancient Araucaria forests. Notable species that we saw here were a little *Gunnera magellanica* along a stream and *Cortaderia pilosa*, a pampas grass species about 50 cm high. Our last stop for that day was just south of Lago Caviahue. Every day on our tour we found interesting plants—here, for example, *Viola volcanica* and *Oxalis compacta*. Despite the tremendous acidity of Lago Caviahue we spotted interesting birds, including a nice flock of flamingoes. The schedule for next day was to explore an elevated area above the village of Copahue and we hoped we would no longer be bothered by snow. Alfredo, our driver, dropped us at a trail behind the village where we would walk towards the Chilean border and then to Laguna las Mellizas, where he would pick us up again.



Salto del Agrio



Viola copahuensis

The temperature rose and the snow disappeared. One of the first plants we found was *Calceolaria polyrhiza*, one of the most widespread species in Patagonia. A stunning plant for our gardens, making large cushions of yellow flowers on 10 cm stems. There was excitement all round for our first *Viola copahuensis*. These plants are columnar and up to 10 cm high. The flowers are always smaller, white streaked with purple or pale lilac and not at all to be compared with those of *Viola cotyledon*. Also the leaves are slightly serrated. In general, this species grows in sandy substrate between boulders, but



Nassauvia revoluta



Olsynium frigidum

is also found in crevices of basalt rock. Here too we found some plants of *Nassauvia revoluta* and *Azorella lycopodioides*. We were too late to see *Olsynium frigidum* at its best. Only a few plants sported their last flowers. *Olsynium frigidum* is a beautiful, bulbous plant, a member of the Iridaceae family. The species has long narrow leaves and pale yellow flowers. The highlight of the day however, were the extended colonies of *Viola cotyledon*. On a large, fairly flat, basalt plateau, it showed the most amazing forms, from pure white to deep blue. On some plants the flower petals were hairy, something we had not seen before. *Gaultheria caespitosa* is a beautiful dwarf Ericaceae, forming cushions of at most 5 cm, with small pink flowers we found it near snow fields. *Olsynium junceum* and *Sisyrinchium junceum* we saw regularly during our expedition, but here was a big spectacular white form. We were most lucky to have beautiful weather for our exploration of the slopes of Volcan Copahue.

We Continue to Caviahue Chos Malal

Travelling farther north we admired large groups of parakeets. Descending from a pass, just before the town of El Cholar, we found the perfect-looking bush *Chuquiraga straminea*, close to one metre tall and in full bloom. The area became arid and the vegetation was changing clearly. We found two Cactaceae: *Maihuenia patagonica* and



Viola tectiflora

Austrocactus patagonicus—in great numbers here. Near El Cholar we came across a small population of *Viola tectiflora*. This is an annual species from the *Viola Volcanica* group with rosettes somewhat smaller than those of *Viola volcanica* and closely connected to *Viola trochlearis*. The *Viola tectiflora* leaves are also smaller and have glands that attract ants for pollination. *Junellia spathulata* with blue flowers and about 30 cm high is frequent here. Between El Cholar and Chos Malal was a steep descent—Chos Malal itself is at only 974 m

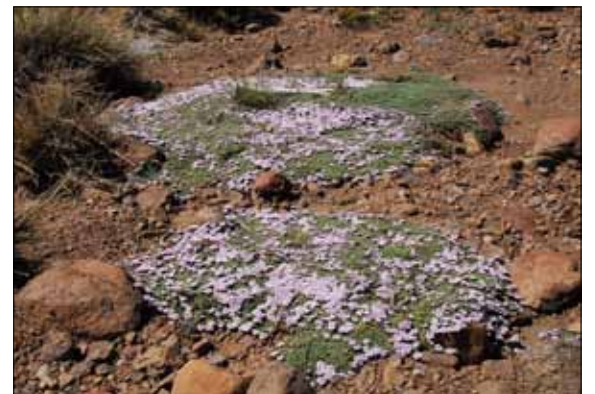


Volcan Tromen

altitude and has a continental climate with cold winters and hot summers. This area belongs to the phytogeographic Monte province and has diverse vegetation, more desert-like than alpine with flowering somewhat earlier in the year. We arrived at our last area of exploration, the 3978 m high Volcan Tromen. According to reliable data this volcano has not been active for more than 2,000 years. There is a very dry area south of the volcano, as evidenced by finding the cactus species *Pterocactus hickenii*, *Mahueniopsis darwinii* var. *hickenii* and *Maihuenia patagonica*. *Maihuenia darwinii* was collected during the voyage of the 'Beagle' and described by John Henslow as *Opuntia darwinii* (Henslow, 1837). Despite the increase of altitude it reminded us of a steppe-like environment. I recalled from my last trip to Patagonia the compact *Junellia patagonica*. Here in volcanic sand the very compact *Junellia micrantha* was endemic. Perfect rock hard cushions and covered with beautiful lavender flowers. *Viola tectiflora* too was growing here in larger numbers. It also proved to be an excellent location for *Oxalis compacta*. On the road side, huge cushions of *Azorella monantha* formed part of the local vegetation. We found a perfect place for our lunch at Laguna del Tromen, a lake between two volcanic craters. From this spot you could see everywhere the striking *Montiopsis* aff. *dianthoides*, with big pink flowers, along with *Junellia spissa*, a species with pale yellow flowers that we had



Junellia patagonica



Junellia micrantha



Montiopsis aff. dianthoides

not previously seen. At the foot of the volcano crater we found *Maihuenia poeppigii*, the only Patagonian cactus that grows in the high Andes. The most avid alpine plant enthusiasts were very excited to find three different, fantastic species together: *Nassauvia ulicina*, *Hypochoeris hookerii* and *Arjona tuberosa*. *Nassauvia ulicina*, especially, is an uncommon species. It has needle-like leaves and forms cushions about 8 cm high in open dry steppe to 500 m altitude. *Hypochoeris hookerii*, an Asteraceae, is a rosette-forming perennial with a

thin taproot and erect bright yellow flowers on 20 cm stems. This beautiful species likes especially hot sandy soil. *Arjona tuberosa*, from the Santalaceae family, is a somewhat sloppy growing species with white flowers on about 20 cm stems. The mainly Chilean and famous yellow-flowering *Rhodophiala montana* was here in poor condition. This species has the same properties as *R. elwesii*, *mendocina* and *araucana*, but clearly distinguishes itself by its narrow leaves. A few plants of *Pantacantha ameghinoi*, a member of the Solanaceae family, were also found here. It is a small species with spiny leaves and white-yellow flowers. Over the next two days we made our last tours. The first was a long drive to the Natural Protegida EPU Lauquen National Parque, a protected area. Our goal—to find the last *Viola* species of our trip, *Viola congesta*.



Natural Protegida EPU Lauquen National Parque

On our way we again found plants of *Viola trochlearis* and *Rhodophiala*. Just before the entrance of the park was a pretty purple blue form of *Solenomelus segethii*. After a short walk through *Nothofagus* woods we found *Viola congesta* near Laguna Superior. This truly magnificent rare rosulate *Viola* species has quite soft beautifully drawn leaves and bright white flowers. Unfortunately, there were only six of these plants. This was very strange and worrisome, because Marcela knew of a big colony here only two years previously.



Viola congesta



Oxalis squamata



Alstroemeria diazii



Alstroemeria aurea



Mutisia linearifolia

In an attempt to save this species from extinction, GPS co-ordinates were transmitted to a park ranger. *Oxalis squamata* was just outside the exit of the park, a pink flowering strain. I remember this species from our trip to Chile where we found it in the Maipo Valley near Santiago, sporting a most beautiful dark pink colour. Despite its attractiveness, gardeners are strongly discouraged to give it a place in the garden as it is a species that spreads massively. In lightly shaded places between bushes were two beautiful *Alstroemeria* species. At about 30 cm high was pink flowering *A. diazii* and somewhat taller species *A. aurea* with orange flowers. The yellow *Oxalis valdiviensis* which would probably behave as a weed under cultivation, was found near the roadside together with *Loasa tricolor*, a species which is closely related to *Cajophora*. The last plant of the day was certainly the most interesting for Marcela, the very rare *Mutisia linearifolia*. She had been seeking this species for years. Here it was flowering in a few places. This very beautiful species, about 10 cm tall, has orange flowers. At the same location there were still plants of *Viola trochlearis* and *Junellia minutifolia* f. *Rosulata*. This plant is a hard cushion of maximum 1 cm height. The leaves look somewhat silvery, the flowers are pink to purple and it lives mainly on stony mountain slopes.

Time goes fast when you're travelling and it was almost impossible to imagine that our last day in Neuquen had arrived. This day would be filled with an excursion to Anda Colla, Las Oviejas and a geyser in Los Tachos. It was a very long journey in

the direction of the Patagonian mountains. The first special plant we found was a strange rosulate *Viola* species that showed much affinity with *Viola cotyledon*. The species was finishing flowering and its leaves were a different brown colour. *Viola trochlearis* was again a part of the show. Therefore this is a wide spread species in the province of Neuquen. We enjoyed our lunch near the geysers of Los Tachos. During the short walk to the geysers, we found *Junellia minutifolia* and the beautiful yellow flowering species *Calceolaria volckmannii*



Calceolaria volckmannii

and *Anarthrophyllum burkartii*, unfortunately overblown. This semi-shrub grows about 30 cm tall and blooms with yellow or orange flowers. On our way back to Chos Malal we walked along a ridge for a while and found on dry vertical cliffs, some plants of *Ourisia microphylla*, a species we did not expect in these dry places, as usually it grows in damp places or rock crevices drawing up water from the underlying moist soil. Anyway, it was a surprise and a highlight of that day. At the base of these cliffs grew the spectacular species *Calceolaria dentata*, covered with hundreds of yellow flowers on about 30 cm high stems. These last few days north of Chos Malal provided us with very rewarding plants we had not seen further south. This was all, Marcela said, due to the differing phytogeographical regions.

To Sum Up

Our expedition was very successful in terms of botanizing and certainly for the number of *Viola* species we found. We saw a wide range of plants in excellent condition. The season was very late that year, so we are convinced that November and December would have been too early to see all these North Patagonian alpine plants at their best. I was honoured with the thanks I received from my fellow travellers for organizing this expedition. We all gave our heartfelt thanks to our professional botanist and guide, Marcela Ferreyra and last, but not least, to Alfredo Gastambidez, our driver, who safely transported us to the most remote locales.

Culture

Of course it's impossible to give complete cultural instructions for all the species we saw on our trip. If time permits I will write an article about it next year. For Rosulate *Viola* species, the main emphasis of this article, I will give some advice.

These *Viola* species are just only possible to propagate from seed. It is important to get good, fresh seed. Years ago, John Watson and Anita Flores were suppliers of good seed. Unfortunately they no longer have that business. At this time I know in Chile a good source, www.chileflora.com. Myself, I had the opportunity to collect some seeds on this trip from *Viola volcanica*, *V. troclearis* and *V. tectiflora*.

From experience I know that seeds of *Viola* species generally are difficult to germinate. My method to break the germination is the use of GA3, Gibberellic Acid. I also use this with the North American species *Viola beckwithii* and *V. trinervata*, and for *Viola delphinantha* from the Mt. Olympus in Greece. This treatment is fantastic—it is just important to not use too much of this acid, to avoid elongated seedlings. I use the following method: the seeds are spread on a tissue and moistened with sterile water. Then the seeds are sprinkled with a little GA3—I use a small amount on the tip of a toothpick. Use too much GA3 and you can forget good seedlings. Fold the tissue and put it in a plastic bag for 24 hours at 21°C. The next day, to dry the seeds, you must spread them on a newspaper. Then you can sow the seeds in basic seed compost with an additional amount of perlite, and cover. After three to four weeks, you can expect germination. You will see immediately that the seedlings are somewhat elongated, despite the minimal use of GA3. This is the disadvantage of GA3. However, this problem can be ameliorated by transplanting the seedlings deeper. I prick out the seedlings and replant them in individual pots to prevent disturbance of the root system in the future. The compost I use is a fairly loamy soil with low pH value, and very well drained duet of added perlite and lava grit. In spite of one's assumptions made of the plants natural habitat, I keep the soil fairly moist. I came to this decision after investigating conditions in the wild—upon removing the top layer of dry volcanic sand, I found the ground underneath was nicely moist. An alpine house or at least a glass-covered raised bed is a must. Good luck!!!



Ger van den Beuken became interested in alpines 35 years ago and, since retiring, now runs a small nursery specializing in rare species. He and his wife, Mariet, have explored widely in Europe, the Sierra Nevada, Patagonia, Tierra del Fuego, Central and northern Chile, the USA, China, New Zealand and Turkey. In the last nine years he has organized several expeditions to Patagonia. He has done speaker tours for NARGS and the SRGC as well as lecturing in England, Germany, the Czech Republic, Belgium, New Zealand, and at home to the Dutch Society of which he is President.

Gardens ROCK

David Sellars

Sand Beds

Growing alpine plants in sand beds is becoming increasingly popular though the practice has been around for at least four decades. In the 1986 book *Rocky Mountain Alpines*, Norman Deno describes the advantages of growing in sand beds, particularly the excellent drainage and relatively sterile environment that is created, which reduces the presence of fungi and bacteria. I use a locally available product called “Sechelt Sand” for our sand beds. It is coarse sand mixed with about 15% “crusher fines” left over from the process of crushing rock. I have promoted the use of this material for sand beds in previous Alpine Garden Club of BC Bulletins (Winter 2008 and Winter 2012).

In his 2013 book¹, Peter Korn notes that the minimum depth of a sand bed is 20 cm but he recommends 30-40 cm. I purchase Sechelt Sand by the truckload and have built sand beds as deep as 1.5 m or more. However I have noticed that many plants seem to prefer shallow sand beds and I suspect the reason for this is that most alpine plants need constant moisture at the roots in the growing season. This is difficult to achieve in a deep sand bed unless you use a buried perforated pipe irrigation system to solve the problem. However, in a shallow sand bed, our clay soil below the sand holds moisture which wicks up into the sand and a sub-irrigation system is not really necessary.

Some plants grow better than others in sand beds. The best performers for me have been *Daphne*, *Lewisia*, *Eriogonum* and *Penstemon*. These plants have deep vigorous roots and can easily find moisture at depth. With plants such as *Androsace* and *Saxifraga*, you have to be more careful about providing moisture to the roots. Plants that originate from moist alpine meadows such as *Anemone* generally do better in a more moisture retentive soil so, in beds allocated for those plants, I mix in organic material with the sand.

Building a sand bed to a depth of 30-40 cm is quite simple, either by excavating the existing soil or, better still, raising the bed with some rocks around the edge. I top off the sand bed with about 3-5 cm of stone mulch to ensure perfect drainage around alpine buns. Many alpine plants can be grown successfully in a sand bed if you have at least six hours a day of full sun exposure in the summer.

¹Peter Korn's Garden: Giving Plants What They Want