

Alpine Adventures in Argentina: In search of Violas

Written report on a Joint AGS/Merlin Trust Funded
Trip

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Introduction & Background

The Alpine Garden Society ran this tour to Northern Patagonia led by Martin Shearer, an expert in flora of the area.

Patagonia is a region in the far south of South America which is divided between Chile and Argentina. We toured the Argentine Patagonian province Neuquen travelling around Zapala, Villa Pehuenia, Caviahue and Chos Malal.

The landscape in these areas was dry, grassland steppes in the main. However we also saw a wide-range of micro-habitats, due to the different localised conditions. For instance, boggy wetlands caused by snow melt, shady cliff faces, *Auracaria* forest floors, rocky crevices and pumice-covered cliffs to name a few. This enabled us to see a wide range of varied species endemic to the area.

At this time of year it was spring in that part of the world. Most of the weather experienced was dry and warm. Though the higher we got, the windier it was and these could be quite chilling at times. The areas we visited would be under snow for the winter months, but warming spring temperatures cause it to melt, providing abundant moisture for dormant plant life to come into growth.

A wide range of plant families were seen but one of the main species that were the focus of the trip on were *Violas*, of which we saw a range of different species, all quite different and unique from one another in the way they have grown and adapted to the various environments they were observed growing in.



Day by Day Log

Saturday 30th November we arrived at London Heathrow Terminal five for a 21:45 13.5hr Flight to Ministro Pistarini International Airport, Buenos Aires.

From this airport was an hours bus ride to Jorge Newbery Internal Airport, Buenos Aires. Our scheduled flight was cancelled and had to wait an extra two for the 2hr flight to Neuquen Airport. Gave me a chance to walk along Buenos Aires seafront, it was around 30°C.

From Neuquen was a 2hr drive to Zapala, Arrived at Hotel Hue Melen at 1am on Sunday 1st December.

Monday 2nd December

From our hotel was an hours bus ride to Laguna Blanca National Park, Zapala. It is a world heritage RAMSAR site for its rich bird fauna & flora.

The weather was warm, dry and sunny but with strong winds, especially as we got to higher land, reaching 1300m.

On the steppe on the way into the Park, the ground was covered in *Junellia micrantha* and *J. caespitosa*, a great start to the trip. It was dry, volcanic landscape made up of a lot of low - growing, spiny shrub and cushion vegetation. The

soil was dry and dusty. Other species at this first stop include *Azorella monantha*, *Ephedra chilensis*, *Mulinum spinosum*, *Maihuenia patagonica*, *Nassauvia axillaris*, *Acantholippia seriphoides* & *Acaena caespitosa* to name a few.

We got back on the bus and drove further along the road seeing *Leucheria achilleifolia*, *Geranium sessiliflorum*, *Junellia cedroides*, *Hypochaeris incana*, *Adesmia adriani*.

The main part of the day was spent around the south-eastern side of the lake, we saw a flock of



Above – First stop at Laguna Blanca, *Junellia micrantha* covering the ground.



flamingos on the way. It was noticeably windier being nearer to the lake.

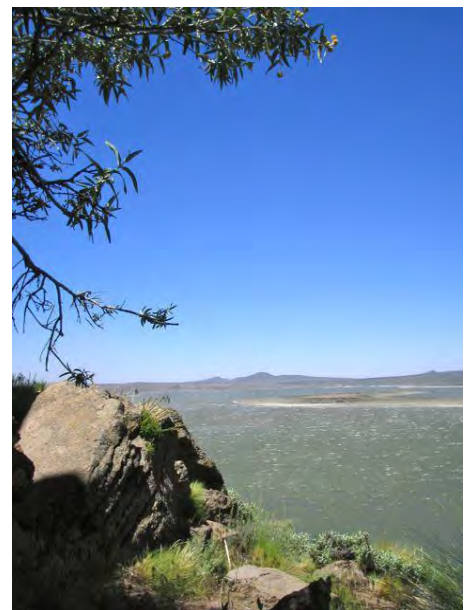


The flat steppe land was again dotted with *Junellia caespitose* along with *Junellia connatibracteata*, *Adesmia lanata* & *Grindelia chiloensis*. Started to see more succulents, *Maihuenia patagonica* in flower and *Pterocactus araucanus*. The slightly damper ground that gently sloped down to the lake was covered in *Nicotiana acaulis*. We walked following the path round the lake then turned off to mount the cliff side. As we started on the grassy slope we came across a very boggy patch, caused from the snow melt; the water could be seen flowing downhill. In this were growing *Mimulus glabratus*, *Lobelia oligophylla* and *Calceolaria filicaulis*.

Above –views of the lake and cliff-top meadow

The cliff face provided a micro-habitat for many species, i.e. the water is more free-flowing and shade is cast by the rock formations. We saw grasses and ferns growing out the rocks and a large *Buddleja araucana*, *Tetraglochin alatum var. alatum* and a few *Calceolaria germainii*. At the top the wind was so strong it was difficult to stand up straight. The ground levelled out and was rocky and dry ahead but to the left hand side was a grassy meadow. We followed the rocks and walked around the top of the cliff seeing *Arjona tuberosa*, *Junellia patagonica* & *Nassauvia juniperina*.

We descending down towards the van and as we got close we spotted the first rosulate *Viola* of the trip, *Viola tectiflora*. Though not an amazing example it got everyone excited for finding more. On the way back to the hotel we had a quick stop to see *Senna arnottiana* flowering profusely.



Above – the cliff face and view from the top

Tuesday 3rd December

We left Zapala early in the morning to travel through the Rahue Pass on Peninsula route 66 to reach Villa Pehuenia, a 250km drive. It was a warm, clear day but again a bit windy.

First quick stop was at Laguna del Burro, though it had dried out, at 1400m. This was a dry steppe with species such as *Mulguraea cedroides*, *Mulinum spinosum*, *Arjona tuberosa*, *Grindellia chilensis*, *Nassauvia juniperina* & *Trevoa patagonica*.

Our next stop was to look at the large cushions of *Anarthophyllum strigulipetalum*, the orange/yellow colouration was so striking. They were growing on quite steep slope which was had a thin stream at the bottom, filled with rather large tadpoles. We were at around 1590m. A few of the other plants we saw were *Calceolaria borsinii*, *Viola maculata*, *Nardophyllum bryoides*, *Acaena antarctica*, *Nassauvia glomerulosa*, *Adesmia boronoides*, *Collomia linearis* and our first *Oxalis nahuelhuapiensis*, which was so small it would be easily overlooked. We also *Tropaeolum incisum*, though

not in flower, but the foliage is rather unusual.

The third stop was to look at *Grindelia prunelloides* all over the flat steppe at 1050m. Here we saw *Mulinum spinosum* (a regular throughout the trip) & *Nassauvia axillaris*,

Another stop was at 1460m where we saw some orchids. *Chloraea alpina* had a bright yellow but sadly were just going over and also *C. magellanica* with an unusual green flower. Also there were some low growing shrubs, *Berberis empetrifolia*, *Berberis microphylla*, *Baccharis magellanica* and slightly larger *Nothofagus Antarctica*. Also saw *Arenaria serpens*, *Armeria maritima*, *Calceolaria borsinii*, *Vicea magellanica* and another *Viola*: *V. maculata* a yellow non-rosette forming type.

The main stop of the day was at Rahue Pass up a dirt-track hill to a Radio mast at 1635m. Not far from the bus *Rhodophiala andicola* was spotted on the lower steppe land. Also saw *Montiopsis gayana*, *Chloraea alpina* (full flower), *Tristagma nivale*, *Berberis empetrifolia*. Heading up hill alongside the track was a scree slope covered in *Oxalis adenophylla*. As we reached the top there was another species of rosette *Viola*, but undescribed as of yet. It was more of a taller, clump forming rosette than previously seen. Also *Oreopolus glacialis*, *Euphorbia collina*, *Nastanthus patagonicus*,



Above – Reached the top! At the radio mast .
A rather large *Azorella monantha*.
Not far to lake Alumine!

Polygala stenophylla, *Azorella monantha*, *Perezia recurvata* ssp. *recurvata*. Also growing down the side of the mountain was more *Nothofagus antarctica*, although the same species that were seen

previously, these were much lower growing. This is due to the gradient of the slope, they are not getting so much moisture and so do not grow so much on top and put more energy into developing more advanced root systems to seek out water.

On the final leg of driving for the day we had to go descend a long, winding dirt-road down the mountainside. We arrived at Villa Pehuenia, a small, picturesque town; lots of wooden buildings and vibrant, non-native *Cytisus* hedges everywhere. and checked in to Hosteria La Balconada, our accommodation for the next few days which overlooks Lago Alumine.



Above – A typical Villa Pehuenia Residence



Above -Don't look down...



Above – view from our hotels balcony over Lake Alumine



Wednesday 4th

December

Ventured out from Villa Pehuenia along RP13, stopping at high points along the road and Primeros Pinos. It was a bright day, with minimal clouds in the sky but quite a cold wind.



First stop of the day was at 1850m. We went uphill firstly. It was made up of grasses and low shrubs, with a rocky larvae cliff higher up. The soil here was slightly cooler than previously experienced. We saw another *Viola* species here *V.coronifera* with quite unique orange-yellow flowers. Also we saw lots of *Berberis empetrifolia* growing out the rock cracks and the ground and *Maihuenia poeppigii*, *Gaultheria pumila*, *Mulinum echinus*, *Ephedra frustillata*, *Armeria maritima*, *Oxalis adenophylla*, *Nassauvia*

lagascae and *Oreopolus glacialis*.



We descended down to the bus and then crossed the road and going further down hill. A slightly different habitat here, still a rocky steppe land where we saw lots of *Jabberosa volkmannii* which had bronze foliage and 5-petalled flowers that glittered in the sunlight. There was also a flowing river that created damp, boggy ground on either side allowing a niche habitat for different species to thrive. We saw *Caltha sagittata* and also *Primula magellanica*, the only *Primula* that's native to South America.



We went next to Primeros Pinos which was dry steppe and sand dunes dotted with *Araucaria araucana*, at a height of 1600m. Here we found *Viola trochlearis*, some of which were tiny and well blended in with the ground and rocks. Also saw *Tarasa humilis*, *Calandrinia colchaguensis* and *Geranium sessiliflorum*.

Third stop of the day was at 1830m on RP13. The main event here was *Viola copahuensis*,

Above- rocks, streams, snow and monkey puzzles, varied views of the day.

Charlotte Reynolds

which seems to grow in little clusters of rosettes together. The hill was dry and dusty and there were still lengths of snow nearer the top. Around the snow there was not any sign of plants growing, this is different to what I was expecting as in the Alps this is where a lot of flowers are growing as it is moist and cool. Also present lower down was *Rhodophiala andicola*, *Empetrum rubrum*, *Tristagma nivale*, *Anemone multifida* and *Arjona tuberosa*.

On the way back to Villa Pehuenia we had a quick road side pitstop as the damp banks were covered in *Calandrinia affinis* with *Senecio trifurcatus*. As we got nearer the Hotel we saw *Embothrium coccineum*, the Chilean firebush.



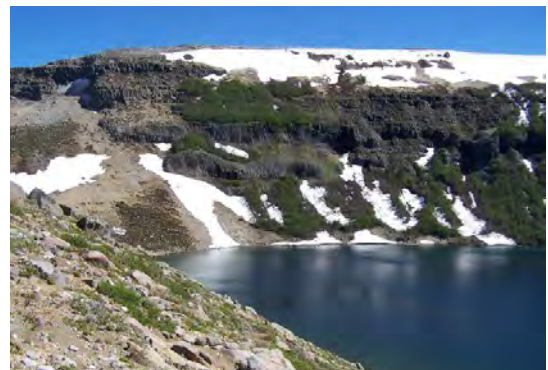
Above - *Jaborosa volkmannii* and the vibrant Chilean firebush.

Thursday 5th December

Today we ventured to nearby Volcan Batea Mahuida. We climbed to 1800m around a U-shaped mountain with a large lake in the middle, of which I couldn't resist paddling in the blue water.

Climbing up the slopes were made of pumice.

This is produced by volcanoes after they initially erupt and was blown in to this area from volcanoes to the west. Underneath the pumice is cool and moist about an inch down, I thought perhaps the light colour helps to reflect the light and warmth from the sun. We saw a lot of *Viola cotyledon* and more *Viola maculata*. Also we have seen *Quichamalium chilense*, *Nassauvia lagascae*, *Nassauvia revoluta*, *Gaultheria*



Above – Snow and Pumice. covered slopes.

Natural Crevices with a view.

pumila, & *Berberis empetrifolia*.

The top was a rocky scree and I saw a lot of natural crevices, which I enjoyed as Crevice gardens as a way of cultivating alpinists are my favourite, and I have had involvement in constructing them back home. The vertical crevices are good microhabitat for Alpine plants as the roots are maintained at a cool temperature by the rocks and also it helps with drainage. We saw *Gamocarpha dentata*, *Gamocarpha alpina*, *Nassauvia pygmaea*, *Tristagma nivale*, *Cerastium arvense*, *Oreopolus glacialis*, *Ourisia fragrans*, *Calceolaria pennellii*, *Senecio poeppigii*, *Senecio subdiscoideus*, *Oxalis adenophylla* & *Acaena splendens*. From the top the view included seven volcanoes.

On the way down we cut across the steep snow and into the valley by the far side of the lake, we definitely needed a walking pole to keep balance on this descent. We then followed the lake back round to the bus. We saw *Tristagma nahuelhuapinum*, *Gaultheria punila*, *Fragaria chiloensis*, *Berberis empetrifolia*, *Berberis microphylla* and masses of *Viola cotyledon* not far from the waters edge, which is one of my trip highlights, it was stunning.

After this we were on the road again heading towards the Arco Pass. We stopped by the roadside to look round an *Araucaria araucana* forest which cast dappled shade underneath its canopy. Saw *Nothofagus Antarctica*, *Chloraea alpina*, *Chloraea alpina*, *C. alpina* x *C. magellanica*, *Chusquea coleou*.



Above – *Viola Cotyledon* en masse and the monkey puzzle forest

Friday 6th December

Headed out of Villa Pehuenia today on RP23 through the valley of the Rio Litran. It was a clear, warm day.

The first botanising of the day was in an *Araucaria araucana* forest at 1370m. It was on a steep, rock-covered hill. The under canopy was fairly shaded, and it was rather cool and windy, but we were there rather early so the sun was still rising. The ground was covered in discarded monkey puzzle leaves and branches, which acted as a natural mulch that kept the soil underneath slightly moist and cool. We saw a couple of orchids; *Chloraea cylindrostachya* and *C. speciosa*. Also saw *Calceolaria prichardii*, *C. valdiviana*, *Astragalus palenae*, *Viola maculata*, *Euphorbia collina* & *Nothofagus antarctica*.

Next we stopped at a high point on RP23 close to the Pino Hachado Pass. The low lands were boggy with lots of small pools and streams from the snow melt. Here we saw a lots of Dandelions, but more interesting species included *Caltha appendiculata*, *C. sagittata*, *Primula magellanica*, *Gentiana prostrata*, *Senecio trifurcata*, *Arenaria serpens*, *Symphyotrichum vahlii* & *Mimulus cupreus*. But what was unique here was *Patosia clandestina* which is a type of rush that was growing in huge cushions in the water as separate male and female forms.

As you started up hill the lower part was *Chusquea coleou*, but above this it was all low growing grasslands. When you got to the top of the hill it turns into a volcanic rock landscape, in which we found *Viola dasyphylla*. Also seen was *Azorella monantha*, *Berberis empetrifolia*, *Tristagma nivale* and *Adesmia parvifolia*. Coming down a different way the ground was just pure pumice with mainly grasses growing but also *Geranium sessiliflorum*.

We carried on following road and stopped to admire masses of *Argyria bustillosii* cushions. Also saw *Fabiana imbricata*, *Mulinum spinosum*, *Grindelia chilensis*. We stopped at Cordon del Cajon Chico which was an impressive valley that runs around Cavihue caldera, with basalt cliffs topped with *Araucaria araucana*. Here we saw *Viola volcanica*, *Calceolaria germainii*, *C. prichardii*, *Senna arnottiana*, *Glandularia araucana*, *Famatina maulensis*, *Maihuenia poeppigii*, *Olsynium junceum* and *Calandrinia affinis*.



Above – Boggy lands, Pumice covered slope, basalt cliffs and the valley.



We arrived in Caviahue, a small town on the Chilean border. It sits just under Volcan Copahue, the only active volcano in Argentine Patagonia. We stayed at Hotel Nevado Caviahue.

Saturday 7th December

We drove up to the spa settlement of Copahue and climbed up the hill and through an old crater towards Chile, before looping back round on a rocky ridge, reaching altitudes of up to 2500m. It was cold & windy here and there was a lot more snow cover than other places we'd been, due to the higher altitude. But it is in the process of melting so there were lots of pools, streams and waterfalls, which of course I managed to fall in and get wet legs. We got to a point where the snow had not started melting and no plants had come into growth yet, so this was the point we decided to head back down.



In the wet areas we saw *Cerastium arvense*, *Ranunculus pendularis*, *Valeriana macrorrhiza*, *Caltha appendiculata* and *Ourisia ruellioides* which was growing out of the rocks, right under the waterfall.



On the drier, rockier land there was growing *Viola copahuensis* & *V. cotyledon*. Along with *Nassauvia revolute*, *N. digitata*, *N. lagascae*, *Arenaria serpens*, *Anarthrophyllum burkartii*, *Adesmia corymbosa*, *Calandrinia colchaguensis*, *Calceolaria borsinii*, *Discaria nana*, *Baccharis magellanica*, *Azorella monantha*, *Erigeron schnackii*, *Valeriana fonckii*, *Gaultheria pumilla*, *Berberis empetrifolia*, *Empetrum rubrum*, *Olsynium junceum* & *Blenchnum microphyllum*.



The second stop of the day was by an old generator site with hills surrounding a large lake. It was extremely windy and cold here. It was a loose scree with dusty soil underneath that was damp about 2 inches down. Very similar plant life as before but also saw *Rhodophiala araucana* and *Calandrinia graminifolia*.

Above – Volcan Copahue overlooking Caviahue.
Wet and snowy scenes.
The old Generator Building.

Sunday 8th December

Today we drove out to Salta del Agrio, a massive waterfall that gets its water from the Rio Agrio from Volcan Copahue. at a height of 1475m. The area is made up of Basalt rock and all around the lake at the bottom is orange in colour where heavy metal had been deposited. The landscape is a dry steppe with lots of grasses and large swathes of *Ephedra chilensis*, *Fabiana imbricata* and *Adesmia boronioides*.



Above - The waterfall and surrounding landscape.

We saw *Viola copahuensis*, *Berberis empetrifolia*, *Quinchamalium chilense*, *Quichamallium procumbens*, *Valeriana clarionifolia*, *Euphorbia collina*, *Arjona patagonica*, *Baccharis magellanica*, *Rhodophiala araucana*, *Discaria chacaye*, *Melosperma andicola*, *Acaena magellanica*, *Acaena splendens*, *Eryngium paniculatum*, *Boopis graminea*, *Oenothera sp.*, *Olsynium junceum*, *Famatina maulensis* & *Solidago chilensis*, but most excitingly we saw *Tropaeolum incisum* in flower.

There was an area of *Nothofagus antarctica* up to 5ft with *Cyttaria darwinii* growing on it. This is a parasitic fungus that grows only on *Nothofagus spp.* It forms clusters of round fruiting bodies from cankers and the fungus grows and encircles the host branch and trunks creating gall-like swellings. It only occurs in South America and was found by Charles Darwin, whom it is named after. It is an edible fungus, often ate by locals.



Above – Fungal Fruiting Bodies

We spent the afternoon at Cascada del Agrio. This is an area behind Caviahue made scenic by waterfalls, monkey puzzles and interesting rock formations. Saw *Araucaria araucana*, *Gunnera magellanica* and *Hypochaeris acaulis*.



Above scenes of Cascada del Agrio

Monday 9th December

Spent the day at Cordon del Cajon Chico on the outskirts of Cavihue. This was a 700m trek to the top reaching a height of 2200m. The weather was warm and clear, but got breezier the higher we climbed.

Started in a low growing grassland area was quite dry and dusty where we saw a lot of *Calceolaria germainii*. There was a stream sided by boggy ground where we saw *Lobelia oligophylla*, *Calceolaria filicaulis*, *Mimulus cupreus*, *Mimulus glabratus*, *Epilobium australe*, *Cardamine cordata*, *Chilotrimum diffusum*, *Chloraea chica*.

Further up was growing masses of *Anarthrophyllum burkartii* and getting the first rocky steppe we saw *Viola copahuensis*, *Viola x blaxlandiae*, *Armeria maritima*, *Glandularia araucana*, *Calceolaria prichardii*, *Acaena splendens*, *Nothofagus antarctica*, *Olsynium junceum*, *Grindellia prunellioides*, *Nassauvia aculeata*, *Gamocarpha alpina*, *Montiopsis gayana*, *Maihuea poeppigii*, *Mulinum leptacanthum*, *Mulinum spinosum*.

Nearer the top there was lots of *Oreopolus glacialis*, *Jaborosa volckmannii*, *Boopis multicaulis* and *Calandrinia acutisepala*.

Heading to the hotel we had a roadside stop to look at *Tropaeolum incisum* in flowering in abundance.



Above -Grassy Slopes



Tuesday 10th December

Headed out from Caviahue today and headed to Chos Malal with plant stops en route.

First stop of the day was to look at the hills above El huecu on RP21. It was a hot day with no wind, and the dry lower, steppe was covered in grasses. We climbed to 1600m where the ground was covered in red volcanic cinder rocks, which gave the landscape quite an odd appearance. Growing in this was an unknown *Viola* species, *Viola tectiflora* and *Pozoa coriacea*, which were so difficult to spot as their leaves were the same colouration as the cinder, well adapted to their environment. Also growing around the rocky cliffs and outcrops we saw *Senecio gillesii*, *Adesmia guttilifera*, *Maihuenia patagonica*, *Mahuenia poeppigii*, *Loasa tricolor*, *Loasa nana*, *Astragalus hickenii*, *Pachylaena atriplicifolia*, *Nassauvia aculeata*, *Eriosyce strausiana*, *Ephedra chilensis*.



Next stop was on RP21 on a dry sunny steppe land. Here growing was a lot more *Mulguraea spathulata*, *Senecio gillselli*, *Sisyrinchium laetum*, *Eriosyce strausiana*, *Tropaeolum incisum*.

The last stop of the day was at a steppe by El Cholar on RP6. We saw more *Argylia bustillosii*, *Arjona patagonica*, *Mimulus glabratus*, *Mutisia retrorsa*, *Mulinum spinosum*, *Perezia recurvata ssp beckii*, *Trevoa patagonica*, *Mulguraea spathulata*.

We arrived at Chos Malal and checked into Hosteria Picun Ruca our new home for the next few days.



Wednesday 11th December

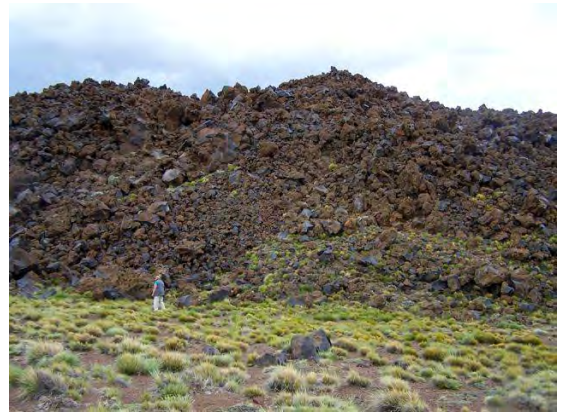
We spent the morning walking round Tromen National Park around and Volcan Tronmen, the second biggest volcano in Argentina. The main environment seen today was dry grassland steppe. We saw *Viola tectiflora* again but also *Viola escondidaensis* found almost in amongst the grasses, it was less

rosette forming, more sparse. Some of the other species seen include *Junellia micrantha*, *Junellia ulcinia*, *Calandrinia affinis*, *Calandrinia cystiflora*, *Olsynium sp. aff. chrysochromum*, *Mulinum spinosum*, *Adesmia gracilis*, *Calceolaria filicaulis*,

Above – The red cinder slopes and views from the top.

Bottom: Walking through Chos Malal centre.

Calceolaria prichardii, *Azorella monantha*,
Rhodophiala montana, *Tarasa humilis*, *Oxalis*
compacta, *Nastanthus scapigerus*, *Pantacantha*
ameghinoi, *Mulinum albovaginatum*, *Nassauvia*
glomerulosa, *Nassauvia lagascae*, *Lobelia oligophila*,
Grindelia prnelloides, *Colobanthus lycopodioides*.
Polygala salasiana, *Nothoscordum bonariense*,
Plantago barbata, *Tarasa humilis*. *Lithodraba*
mendocinensis, *Adesmia villosa*, *Senecio gilliesii*,
Leucheria candidissima, *Philippiella patagonica*,
Fabiana foliosa, *Loasa bergii* & *Austrocactus sp.*



Above -Rocks formed from larvae thousands of year sago

We had a relaxed afternoon around the lake watching wildlife, namely lizards, ruddy ducks, flamingos and lots of other waterfowl.



Above – Nice spot for a bout of bird watching

Thursday 12th December

We went to Tromen National Park again today and climbed up Cerro Wayle up to an altitude of 3296m. A lovely, clear sunny day. It started with a steep uphill climb through masses of *Adesmia pinifolia*. As we got to the top of the slope it was more of a dry, dusty & rocky climb. Also



Above – Looking up to Cerro Wayle

growing was *Phacelia secunda*, *Calceolaria prichardii*, *Sisyrichium laetum*, *Oreopolus glacialis*, *Cerastium arvense*, , *Astragalus vesiculosus*, *Adesmia villosa*, *Oxalis erythrorhiza*, *Lathyrus pastorei*, *Adesmia corymbosa*, *Onuris graminifolia*, *Blumenbachia prietea*, *Calandrinia sistiflora*, *Calandrinia acutisepala*, *Loasa bergii* & *Vicea magellanica*.

We got to a small flat plateau where there was *Viola atropurpurea* growing in abundance. We stopped for photographs and lunch, then headed back down to where it levelled out at the bottom steppe I saw *Junellia micrantha* and *Senecio gilliesii*. There was a stream of running water by which was growing *Rhodophiala montana*.



Above – scenes of Tromen National park

Friday 13th December

We left Chos Malal and headed north to Lagunas Epu Lauquen. This is a vast national park close to the Chilean border. Because of this officials were on the gated entrance checking our paperwork, just incase we were fleeing over the border.

This area has greater rainfall per year so the habitats were quite different to what we'd seen previously further south.

On the way we had a quick roadside stop on a hot, steppe area made up mainly of grasses and spiny shrubs. *Viola rubromarginata* was growing here alongside *Loasa bergii*, *Senna arnottiana* and *Perezia bellidifolia*.

We arrived at the national park confronted by a massive blue lake surrounded by gravel with mountains of Chile as a backdrop. Growing in the gravel was lots of *Discaria chacaya*, *Quinchamalium chilense* and a single *Schizanthus hookeri*.

Slightly above this we walked past a stretch of boggy, wetland and growing here was *Lobelia oligophylla*, *Geum magellanicum*, *Euphrasia chrysantha*, *Gunnera magellanica*, *Vicia nigricans*, *Senecio trifurcata*, *Senecio fistulosus*, *Plagiobothrys corymbosus*.

We then headed up into deciduous woodland made up of three species of *Nothofagus*; *N. antarctica*, *N. obliqua* & *N. pumilio* and *Chusquea coleou*. This cast a dappled shade under the canopy where species such as *Oxalis valdiviensis*, *Calceolaria undulata*, *Baccharis patagonica*, *Ribes magellanicum*, *Perezia prenanthoides*. We came across large rock formations that started in amongst the trees but carried on to sunny scrubland, growing on the more shady rock faces was growing *Blumenbachia prietea*. In the dry and open was *Viola sp. aff congesta*, the last but by far the largest *Viola* seen on the trip, it was well worth scrambling up & over the rocks. Also we saw a huge mat of *Azorella trifurcata* along with *Chloraea viridifolia*, *Oxalis squamata*, *Adesmia corymbosa* and *Montiopsis umbellata*.

Saturday 14th December we drove from Chos Malal to Neuquen for our 19.45 Flight from Neuquen to Buenos Aires. En routé we stopped at an Archaeological museum and saw an Argentinosauros followed by a visit to a massive local shopping centre. That night in Buenos Aires we stayed at Hotel America Towers. On Sunday our flight was at 14.25 from Buenos Aires international airport for arrival at London Heathrow on 06.40 Monday 16th December.



Above – looking across the blue lagoon, *Chusquea* and *Nothofagus* growing, and the massive *Azorella*.

Plant Family Index

Violaceae

Viola are one of the main genus of the trip and a large range of species were seen. I was excited to see *Viola* as they are specific to the areas we've seen them growing in. Some species can look quite similar so ways to identify them are by the location they are found in, looking at the leaf shape and serration as well as the flower's shape and hairiness. Within the species there is variation in flower and leaf colour, and certain species can hybridise, for instance *Viola copahuensis* and *Viola cotyledon* cross to produce *Viola x blaxlandiae*, so they can be tricky to identify. I was surprised by the amount of different species we'd seen and how many individuals of each.

They are not something I have seen before as the rosulate types have not been successfully grown in cultivation in the UK. Seed has been germinated readily enough, but the plants grow tall and leggy exposing the long stem, rather than forming compact, rosettes. In the wild they are in exposed sites so sand is constantly being blown up around the base so this is not something that can be replicated. They are very difficult to get flowering. It may also be that is difficult to replicate the natural conditions in which it grows e.g. enough light intensity and varying temperatures it's exposed to.

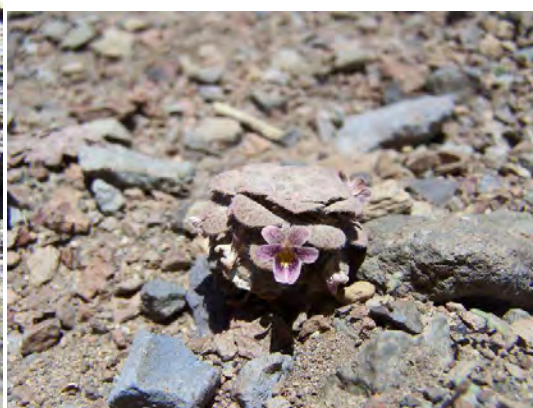
One observation made was that often ants are seen on or around the *Violas*. Maybe they have some kind of inter-species relationship. Also when feeling the leaf surface of some of the *Viola* species, it was noticeably cooler than the surface of the soil, so they may have evolved to reflect heat rays.

Here are photos I have taken of all the species seen:-

Viola coronifera



Viola trochlearis



Viola copahuensis



Viola maculata



Viola cotyledon



Viola reichii



Viola dasyphylla



Viola volcanica



Viola copahuensis



Viola x blaxlandiae



Viola volcanica



Viola tectiflora



Viola escondidaensis



Viola atropurpurea



Viola rubromarginata



Viola sp. aff. congesta

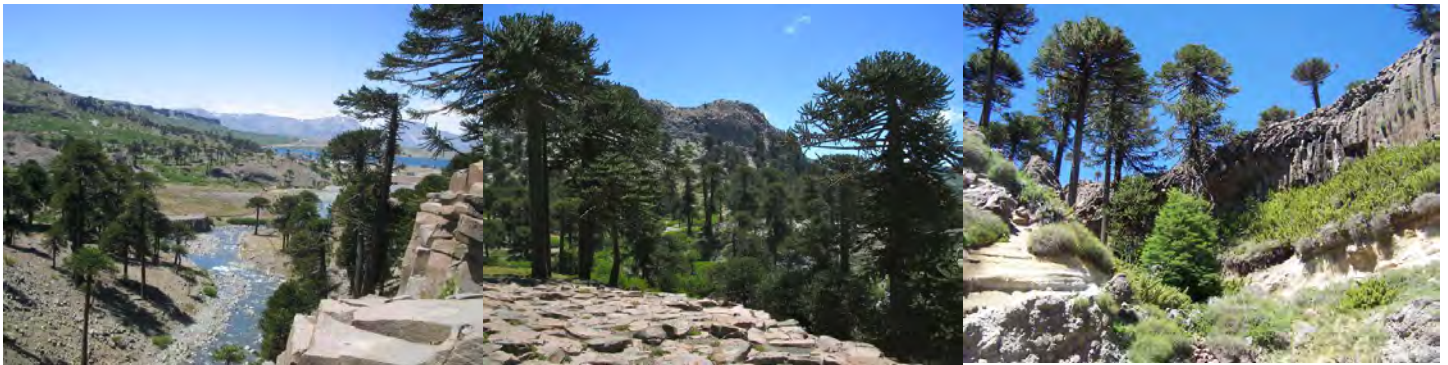


Trees and Shrubs/Sub-Shrubs

Araucariaceae

There were forests of *Araucaria araucana* growing in the more southern regions. It is an evergreen tree growing up that grows up to 40m growing in volcanic soils. A lot of the growth is on the top so they look like umbrellas. They seem to drop their lower branches as they grow, maybe this is so all the energy goes into growing near the light, or perhaps as they are quite often covered in snow in winter, I think the weight may make them drop off. Quite often they were growing perched right on the edge of cliffs, so maybe it is protection against wind. Araucaria are known in cultivation at home as being slow growing trees, but in the natural habitat they grow at an even slower rate as it is a dry, warm environment for most of the year, or under snow, so moisture is only available for a limited time, whereas in the UK it is pretty much around all year. So the mature forests visited were probably around 300-400 years old. A sign of age on many tree was the amount of 'old man's beard' lichen growing from the trunk and branches. One of the sites we went to there were some stumps and logs left from where the monkey puzzles had been felled. These must have been here a while as now they are protected and conserved. A lot of *Pinus* plantations (non-native) have been planted, because grows and can be timbered much quicker. Also I have not seen them producing suckers before here. We also saw fruit on some of the trees.





Fagaceae

Nothofagus is the other genus of native tree seen growing whilst in Patagonia. Both the species seen were deciduous. I saw them growing in various locations, they tended to be lower growing on hillsides, possibly as they are not getting as much water or growth is buffeted by the wind.

Nothofagus antarctica



Nothofagus obliqua



Buddlejaceae

Buddleja araucana only seen at Laguna Blanca growing on the cliff face, about 2m in height and spread.



Rosaceae

Tetraglochin alatum var. *alatum*. A spiny shrub that grows around 1m high, seen with pink to cream coloured winged seed capsules. Seen on rocky, steppes around Laguna Blanca, Caviahue and Chos Malal.



Acaena splendens is a sub shrub that grows to form cushions up to 60cm tall. Found on exposed steppe areas of Zapala, Villa Pehuenia and Caviahue.



Leguminosae

Senna arnottiana is a shrub that grows up to 30cm tall. Seen growing on dry, sandy steppe around Laguna Blanca, Caviahue and Chos Malal.



Adesmia boronoides is a shrub that grows to 2m high seen on steppe areas. Seen in Villa Pehuenia and Caviahue.



Adesmia pinifolia is a shrub that grows to 2m high, found on dry mountainsides. Seen at Cerro Wayle.



Adesmia bridgisi is a shrub that was growing about 1.5m. Has very yellow, sparse stems. Seen on dry scrubland around Caviahue.



Adesmia guttifera is a spiny shrub that can grow to 1.5m tall, found on steppe areas of Caviahue.



Asteraceae

Baccharis magellanica a mat-forming, shrub only growing to 15cm high. Growing on rocky steppes, seen at Villa Pehuenia to Caviahue. Had seed pods on.



Bacchais patagonica grows up to 1m tall on mountain sides at Villa Pehuenia.



Nassauvia glomerulosa can vary in its growth from upright shrub to 80cm tall or a low growing mat. Growing on the dry steppe of Zapala, Laguna Blanca and Chos Malal.



Nassauvia axillaris is a shrub that grows up to 50cm with spiny leaves. Found on dry steppelands around Zapala.



Nardophyllum bryoides is a large shrub, seen growing at about two metres wide and 7cm tall, but not quite in flower. Growing on dry steppe seen at Zapala and Chos Malal.



Grindelia prunelloides is an upright subshrub that can grow to 1m tall. The flower buds produce a sticky white substance before opening to yellow flowers. Seen on dry steppe areas around Laguna Blanca.



Berberidaceae

Berberis empetrifolia is a spiny, evergreen sub-shrub growing to 50cm tall, but can be mat-forming. Seen on rocky mountain slopes and steppes, all the way from Zapala to Salta del Agrio.



Ericaceae

Gaultheria pumila is a prostrate evergreen shrub, which was seen in berry as well as flower. We saw it around Villa Pehuenia on rocky hillsides.



Solanaceae

Fabiana imbricata is an evergreen shrub that grows up to 3m tall. Flowers white to lilac coloured, seen on dry, sandy steppes. Seen from Villa Pehuenia to Chos Malal.



Ephedraceae

Ephedra chilensis is an evergreen shrub growing to 1.5m tall. found on steppes and up to 3000m. Seen at Laguna Blanca, Caviahue and Chos Malal. They are dioecious meaning the male sexual organs are on one plant, the yellow flowers, and female sexual organs on another, the white flowers.



Rhamnaceae

Discaria chacaye is a deciduous shrub that can grow to 8m high, though I only saw it up to 2m. Seen growing on edges of water or transitional zone between steppe and woodland. Seen growing at Villa Pehuenia, Caviahue & Epu Lauquen.



Trevoa patagonica is a spiny shrub, with very few leaves and can grow up to 2m high. Found on dry steppeland seen in Zapala and Chos Malal.



Anacardiaceae

Schinus marchandii is an evergreen shrub with large spines that grows up to 3m tall on dry steppes. Seen in Zapala and Caviahue.



Verbenaceae

Mulguraea ligustrina is a shrub growing to 1.5m grows in dry steppe near to Zapala. The flowers had a nice scent.



Mulguraea cedroides is a spiny shrub that grows up to 1m tall and as wide. Growing on steppes at Laguna Blanca.



Mulguraea spathulata is an erect shrub growing to 70cm high with few leaves. Seen on open steppe at higher altitudes at Chos Malal.



Junellia conatibracteata grows to 60cm tall, and has spiny leaves. Growing on dry steppe land at Laguna Blanca.



Grossulariaceae

Ribes magellanicum is a deciduous shrub growing to 2m high. Seen growing in the dappled shade of the *Nothofagus* woodland at Lagunas Epu Lauquen.



Proteaceae

Embothrium coccineum is an evergreen shrub. Historically this was one of the first flowering plants to evolve, around the same time as *Magnolia*. It is pollinated by hummingbirds. Seen around Villa Pehuenia on hillsides.



Poaceae

Chusquea coleou is an evergreen bamboo growing to 7m high. The most tall I saw it was only 2m, often on hillsides, so I wonder if lack of moisture is stunted growth or by buffeting winds. Seen at Villa Pehuenia, Caviahue. And Lagunas Epu Lauquen.



Verbenaceae

Glandularia araucana a loose, low growing shrub up to 30cm. Grows among rocks around Zapala, Villa Pehuenia and Caviahue.



Cushion or mat-forming

Apiaceae

Azorella monantha is formed of tiny rosettes that make cushions 10cm tall and up to 1m spread. Seen around sandy steppes at Zapala , Caviahue and Chos Malal.



Azorella trifurcata is made up of rosettes to form cushions or mats. Grow about 10cm high and the largest we saw about 2m across. The flowers are tiny and yellow.



Mulinum spinosum forms a spiny shrub up to 1m tall and 3m wide. This was growing abundantly and we saw them everyday, mainly growing on steppe lands.



Mulinum albovaginatum forms dense mats 10cm tall and 15cm across. Found on rocky slopes around Chos Malal.



Verbenaceae

Junellia micrantha is low growing and mat-forming, up to 1m spread. Quite often the flowers seem to be around the edge of the mat. Found on dry steppe areas of Laguna Blanca and in Chos Malal.



Junellia caespitosa forms a tight cushion that's 10cm high and 30cm wide. We saw it growing on a dry, steppe at Zapala.



Junellia patagonica forms dense cushions, that usually flower around the edge. Seen on steppe and rocky mountain slopes. We saw this at Laguna Blanca.



Rhamanaceae

Discaria nana forms spiny cushions from 20cm – 3m across. Found on rocky hillsides. Seen at Villa Pehuenia to Caviahue.



Brassicaceae

Lithodraba mendocinensis a woody cushion growing 5cm high and 20cm across. Seen on rocky scree slopes around Chos Malal.



Rosaceae

Acaena caespitosa is a cushion forming, perennial herb growing to 15cm height and around 30cm spread. Grows on sandy steppes in Zapala.



Caryophyllaceae

Arenaria serpens forms a creeping mat about 1cm tall and 20cm wide, seen on steppe and rocky slopes. Seen a lot from Zapala to Chos Malal.



Leguminosae

Anarthrophyllum strigulipetalum a large cushion growing to 60cm tall and 1m across. Found on dry, rocky steppe at Zapala. The orange flowers and size of the plant was really striking.



Adesmia lanata forms mats up to 30cm across, found growing on dry, sandy steppes at Zapala.



Adesmia parvifolia grows to form mats up to 40cm across, quite variable flowering in yellow, white, blue or pink with violet lines.



Anarthrophyllum burkatii is a small shrub that forms mats or cushions up to 10cm high. Grows on rocky slopes around Caviahue.



Solanaceae

Benthamiella graminifolia forms cushions up to 30cm across and is herbaceous and dies down over winter. Seen on dry, rocky slopes at Chos Malal.



Oxalidaceae

Oxalis erythrorhiza is cushion forming and herbaceous up to 30cm across. Found high on rocky mountains around Chos Malal.



Oxalis adenophylla is again a herbaceous, forming -perennial. Found on steppes, screes and rocky slopes. Seen around Villa Pehuenia.



Oxalis compacta forms small cushions, 1.5cm high and 5 – 10cm wide. They were quite difficult to spot as they were so tiny and quite well camouflaged. Saw some with green leaves and some with red. Seen on dry steppes around Caviahue and Chos Malal.



Rubiaceae

Oreopolus glacialis forms a rosetted mat or cushion. Found on sandy steppe or rocky slopes, seen often at Villa Pehuenia, Caviahue and Chos Malal.



Bignoniaceae

Argylia bustillosii is a mat forming It sub-shrub 40cm tall and up to 2m across. Seen on dry steppe of Caviahue.



Bulbs

Anaryllidaceae

Rhodophiala andicola is a perennial that grows to 25cm high, on arid, sandy screes and rocky slopes around Zapala, Villa Pehuenia and Caviahue. *Rhodophiala sp.* aren't often grown in cultivation as the bulb has to grow for around ten years before flowering.



Rhodophiala araucana grows to 30cm high flowering in yellow to orange. Grows on sandy steppes and rocky slopes around Caviahue.



Rhodophiala montana grows to about 35cm high on rocky hillsides seen in Chos Malal.



Rhodophiala mendocina grows to 30cm high found on steppes around Zapala.



Tristagma nivale v. *nivale* grows to 22cm tall with curled leaves. Seen on dry, rocky slopes around Villa Pehuenia.



Tristagma nahuelhuapinum grows to around 20cm tall with white flowers and long, strap shaped leaves. Found on Found on rocky, montane slopes.



Tristagma atreucoense grows to 6cm tall found on dry, rocky slopes of Chos Malal.



Famatina maulensis grows up to 30cm high. Seen at Caviahue on a rocky slope, which was seasonally, quite damp from the snow melt. The flower was just going over, and some had gone to seed.



Olsynium frigidum grows up to 10cm tall, growing from rhizomes rather than bulbs. Found at sandy and rocky mountain areas around Caviahue.



Olsynium junceum grows from rhizomes, a variable species, flowers can be pink, purple or white. Can grow from steppe to high mountain scree or sandy habitats, seen pretty much all over the areas we visited.



Olsynium sp. aff. chrysochromum grow from rhizomes on sandy areas of mountains, seen at Chos Malal.



Sisyrinchium laetum grows from rhizomes up to 20cm high. Found on steppe areas around Chos Malal.



Solenomelus segethi grows from rhizomes up to 28cm tall. Found on sandy and rocky areas found in Zapala, Caviahue and Lagunas Epu Lauquen.



Orchids

Chlorea is the only species of Orchid seen in the areas of Patagonia we visited. They grow from fleshy tuberous roots, producing a multiflowered spike inflorescence.

Chloraea alpina a terrestrial perennial growing to 40cm tall. Seen growing in shady woodland and dry, open slope areas of Zapala, Villa Pehuenia & Caviahue.



Chloraea cylindrostachya again a terrestrial perennial up to 1m tall. Found in shady *Araucaria* woodland slopes at Villa Pehuenia.



Chloraea chica is a terrestrial perennial growing to 40cm high in marshy and damp meadows, seen at Caviahue.



Chloraea viridiflora a terrestrial perennial growing to 80cm. Grows on dry, rocky scrubland at Laguna Epu Lauquen.



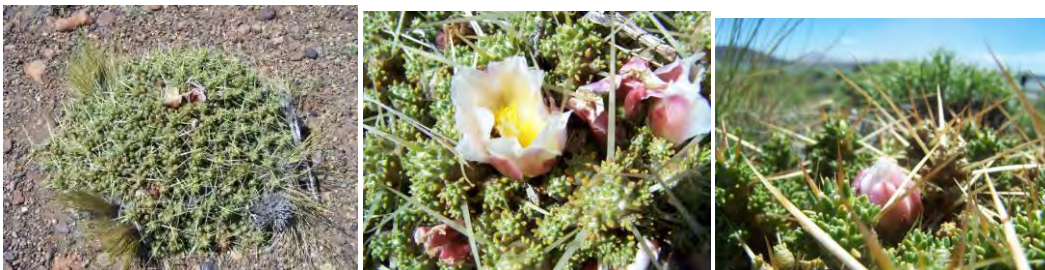
Chloraea magellanica is a terrestrial perennial that grows to 60cm high. Seen growing on dry, sandy steppes of Zapala, Villa Pehuenia and Caviahue.



Cactus

Cactaceae

Maihuenia patagonica is a mat forming succulent growing 25cm high and around 2m wide. It has long thin spines and flowers of pink to white, sometimes yellow. The stems keep leaves. Like dry, exposed steppe areas at Laguna Blanca and Caviahue.



Maihuenia poepigii forms succulent mats or cushions up to 10cm high and 1m spread. Also has spines but with yellow to white flowers on sandy steppe areas around Villa Pehuenia and Caviahue.



Pterocactus araucanus is perennial succulent with round stems with small, dark spines and a single flower. The petals were so delicate, as shiny as silk. The ones not in flower were hard to spot as they blended in with the rocks rather well. Found on dry steppes of Laguna Blanca.



Eriosyce strausiana ssp. *strausiana* is a perennial succulent with short, columnar stems covered in spines. Found in dry, rocky steppe near Caviahue.



Austrocactus sp. found on dry, rocky areas in Laguna Blanca and Tromen national park.



Wetland

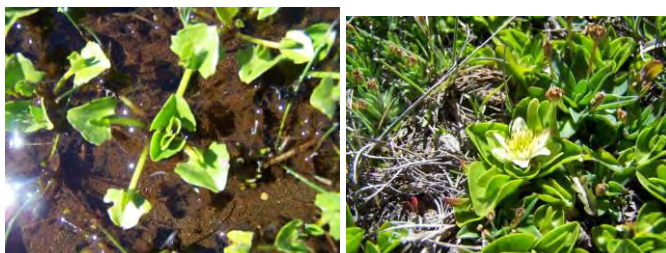
We came across quite a bit of boggy/marshland and saw an array of flora in these areas. It was often by river banks, around lake edges and where snow melt had caused mountain slopes to be moist.

Ranunculaceae

Ranunculus penduncularis is a herbaceous perennial growing to 50cm tall. Found in wet turf and along watercourses. Seen in Caviahue.



Caltha appendiculata is a perennial that grows from rhizomes. The leaves have smaller leaf-like structures piggy backing them. Found growing on bogs, marshes, streams or lake margins around Caviahue.



Calceolariaceae

Calceolaria filicaulis is a perennial growing from rhizomes. The leaves grow as rosettes and together form small mats. Found moist ground by streams and woodland margins. Seen at Laguna Blanca, Zapala, Caviahue, Chos Malal and Lagunas Epu Lauquen.



Calceolaria valdiviana grows from rosettes up to 30cm tall. Each scape has up to 34 flowers on a cyme. Seen at woodland margins and damp areas of Villa Pehuenia and Caviahue.



Phrymaceae

Mimulus glabratus grows up to 40cm high with trailing stems. Found in marshes and stream edges at Laguna Blanca and Caviahue.



Mimulus cupreus grow to 30cm tall and 50cm wide. Found in marshland, streamsides or river gravels in Villa Pehuenia and Caviahue.



Campanulaceae

Lobelia oligophylla had trailing stems growing to 10cm high. Flowers are white, blue or pink. Found on wet turf of mountains and steppe at Laguna Blanca, Caviahue, Lagunas Epu Lauquen.



Solanaceae

Nicotiana acaulis is a tiny, rosetted perennial growing to 15cm. Fleshy, undulate leaves. Lives on seasonally wet habitats that dry out in summer, we saw around the lake edge at Laguna Blanca.



Primulaceae

Primula magellanica is a rosette forming perennial growing up to 40cm. Can flower in white, pink or lilac. Grows in boggy marshes and wet ground by streams.



Montiaceae

Calandrinia colchaguensis is a rosette forming perennial.. Found in seasonally wet, bare soils that dry out in winter.



Calandrinia affinis is a rosette forming perennial, with linear, slightly succulent leaves. Found in seasonally wet depression, we could see at one places where water had previously been running down the mountain with the line of the *C. affinis* growing. Seen in Villa Pehuenia and Caviahue.



Juncaceae

Patosia cladestina is a perennial herb that forms dense cushions, 20cm high and 1m or more across. It's in the rush family, which surprised me due to its growth habit and the leaves are fairly short and sharp. It is dioecious meaning the male and female are on separate plants. The male flowers are long and pale pink. Seen in wet meadows around Caviahue.



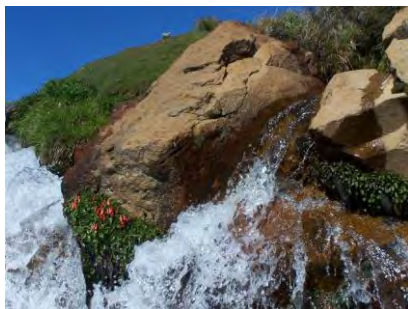
Caprifoliaceae

Valeriana macrorhiza is a rosette forming perennial growing to 20cm tall found on banks of stream sand snowmelt seeps. Seen at Volan Copahue.



Plantaginaceae

Ourisia ruellioides is a perennial that grows from rhizomes up to 20cm tall. I wouldn't have recognised as an *Ourisia* as the flower shape differs from other species of *Ourisia* that I have seen before, they are bright red and pendulous. Grows in mountain stream banks and wet cliffs, we saw it growing vertically from rocks where it was constantly getting splashed by the waterfall. Seen at Volcan Copahue.



Gunneraceae

Gunnera magellanica a perennial that grows to 20cm . Grows by stolons that form mats. Grows on lake or river margins around Caviahue. Much smaller than the *Gunnera* I'm used to seeing at home.



Orobanchaceae

Euphrasia chrysantha is a perennial that grows to 20cm high. Grows on wet areas, often near streams. Seen at Laguna Epu Lauquen.



Boraginaceae

Plagiobothrys corymbosus is an annual that grows 5 – 10cm tall found on Boggy ground around lakes, we saw at Laguna Epu Lauquen.



Asteraceae

Senecio fistulosus is a perennial grows up to 50cm tall with large leaves to 25cm. Found in marshy areas or wet meadows around Lagunas Epu Lauquen.



Perennials

Asteraceae

Leucheria achilleifolia is rosette forming and grows up to 30cm tall. Seen on dry slopes of Laguna Blanca and Villa Pehuenia.



Nassauvia juniperina is a low growing, woody perennial with trailing stems, about 5cm tall. Seen on Steppe and rocky slopes. Seen around Zapala and Laguna Blanca.



Nassauvia lagascae an evergreen perennial, with rounded leaves in columnar growth. Flowers in white or pink. Seen on dry slopes at Villa Pehuenia and Caviahue.



Nassauvia revoluta densely leaved shrub growing to 20cm. Seen on rocky slopes around Villa Pehuenia, and Caviahue.



Nassauvia pygmaea is a small perennial with upright stems growing to 15cm, with white flowers. Seen on rocky slopes around Villa Pehuenia.



Senecio poeppigii is low growing sub-shrub growing to 30cm tall with silver/white leaves. Grows among mountain rocks and sand. Villa Pehuenia.



Senecio subdiscoideus is a perennial growing to 20cm with fleshy, spatulate leaves. Grows in rocky areas of Villa Pehuenia.



Senecio gilliesii is a perennial growing from rhizomes up to 35cm. Spatulate leaves are silvery colour. Grows on high altitude sandy or rocky areas of Chos Malal.



Grindelia prunelloides is a perennial growing to 20cm across. Found on rocky slopes of Zapala and Villa Pehuenia.



Perezia recurvata ssp. beckii is a low growing perennial of steppe and mountain slopes around Caviahue.



Geraniaceae

Geranium sessiliflorum is low growing and has a spread of around 20cm. Flowers are white to pink. Seen on dry and rocky mountain sides and also among pumice at Zapala, Villa Pehuenia, Caviahue and Chos Malal.



Leguminosae

Adesmia corymbosa grows up to 30cm found a lot on steppe and mountain habitats.



Adesmia villosa grows from rhizomes and covered in fine hairs. Seen on rocky slopes and steppe around Chos Malal.



Astragalus cruckshanksii a perennial which can grow to 50cm tall with folded leaves and flowers in violet. Seen on steppe and dry slope areas of Villa Pehuenia.



Astragalus hickenii is a trailing perennial with slightly hairy leaves and large, white seed pods. Seen growing on rocky slopes and screes around Chos Malal.



Astragalus vesiculosus is a perennial growing to 20cm with blue or violet flowers and leaves with white hairs on. Seen on high altitude mountain slopes of Chos Malal.



Calceolariaceae

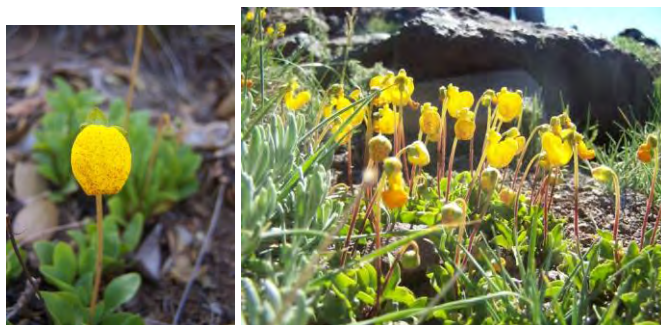
Calceolaria germainii grows to 60cm tall. Has leaves growing all the way up the stems. Inflorescence is many flowered cymes. Grows from rocky cliff faces and grassy steppe areas around Laguna Blanca, Caviahue and Chos Malal.



Calceolaria pennellii is low growing and mat forming up to 40cm across. The single flower is on a leafless scape. Grows on rocky, mountain slopes in pumice or sand. Seen in Villa Pehuenia.



Calceolaria prichardii grows from rosettes up to 25cm tall. The flowers have spotting on. Seen growing in semi-shaded *Araucaria* woodland and mountain slopes at Villa Pehuenia and Caviahue.



Calceolaria borsinii grows from rhizomes to 25cm tall. The leaves are at the base and the a single flower per scape. Seen on mountain sides of Zapala and Caviahue.



Calceolaria undulata grows to 55cm tall with ovate leaves and flower stems with leaves. Seen growing in *Nothofagus* woodland at Laguna Epu Lauquen.



Calceolaria lanceolata grows to 30cm tall. Leaves form rosettes and flower scapes have short hairs on and a single flower. Grows on grassy steppes seen at Laguna Blanca. I quite often saw them growing under shrubs in the bit of shade available.



Montiaceae

Montiopsis gayana is a perennial growing to 12cm, the flowers were tiny, but stood out from the ground as they were bright purple. Found on dry rocky and sandy areas growing around Villa Pehuenia, Caviahue and Chos Malal.



Calandrinia acutisepala is a rosette forming perennial with linear leaves with individual flowers in white or pink on scapes. Grows in sandy areas at Villa Pehuensis, Caviahue and Chos Malal.



Euphorbiaceae

Euphorbia collina a perennial that grows to 40cm tall and is quite variable. Found on sandy or rocky slopes around Caviahue.



Calyceraceae

Nastanthus patagonicus is a rosette-forming perennial that grows up to 20cm. Found on steppe and scree areas of Villa Pehuenia.



Nastanthus scapigerus a perennial that grows to 10cm tall and up to 25cm across. Found in rocky field around Chos Malal.



Boopis glacialis is a perennial up to 30cm tall found on mountain steppe areas. I saw one with maybe fasciation on the flower bud. Seen at Laguna Blanca.



Loasaceae

Loasa tricolor is an upright perennial that grows up to 50cm tall with pendant flowers. Covered in stinging hairs. Grows on scree slopes of Chos Malal.



Loasa bergii is an perennial that grows to 75cm tall , with stems that twine and grow up through shrubs. Grows on steppe areas of Caviahue.



Loasa nana is a perennial that grows to 15cm found on rocky and snady slopes of Villa Pehuenia nd Chos Malal.



Blumenbachia silvestris is a branching perennial herb growing to 1.5m, seen growing down the rock face at Lagunas Epu Lauquen.



Polygalaceae

Polygala stenophylla is a prostrate perennial growing around 25cm spread and height of 5cm. Seen on rocky and sandy areas around Zapala.



Polygala salasiana is a prostrate perennial growing to 22cm long. Grows on dry, rocky steppe at Villa Pehuenia.



Plumbaginaceae

Armeria maritima perennial that forms grass like tufts with pink or white flower heads. Seen on seaside steppe to mountain slopes. Seen around Villa Pehuenia and Caviahue.



Apiaceae

Pozoa coriacea is a rosette forming perennial about 15cm across found in rocky and sandy slopes.



Solanaceae

Jaberosa volkmannii rosette forming perennial growing to 25cm across. The leaves an unusual bronze colour and the flowers are white and really glisten in the sun. Found on sandy slopes around Villa Pehuenia and Caviahue.



Malvaceae

Tarasa humilis is a perennial that grows from rhizomes. Found on rocky steppe areas of Zapala and Chos Malal.



Schoepfiaceae

Quinchamalium chilense is a herbaceous perennial growing to 50cm. Its flowers are condensed, terminal spikes. Grows on steppe, mountain slopes and open woodland around Villa Pehuenia & Caviahue.



Quinchamalium procumbens is a herbaceous perennial growing to 15cm with flowers in loose terminal spikes. Found on dry, rocky slopes of Caviahue.



Arjona tuberosa is an upright perennial, growing to 20cm. With flowers in white to lilac in loose spikes. Found on dry steppe land of Zapala, Villa Pehuenia, Caviahue and Chos Malal.



Calyceraceae

Gamocarpha alpina a rosette forming perennial that grows from a rhizome with fleshy, entire leaves. Grows in sand or pumice around Villa Pehuenia & Caviahue .



Gamocarpha dentata a perennial that grows from a rhizome, forms a loose mat. Leaves are spatulate. Found in sandy or pumice mountain areas. For instance Villa Pehuenia and Caviahue.



Caryophyllaceae

Cerastium arvense a perennial with branching stems to 30cm . Seen everywhere in steppe, grassland, meadow and mountain landscapes in Zapala & Villa Pehuenia .



Plantaginaceae

Ourisia fragrans grows from rhizomes with trailing stems making mass of around 60cm. Flowers white on the front and red/ dark pink on the back. Found growing, often in shade, in cracks and crevices of rocks around Villa Pehuenia.



Rosaceae

Fragaria chiloensis a perennial that grows by stolons growing to 25cm tall seen in woodland margins, open forest and dry slopes of Villa Pehuenia.



Tropaeolaceae

Tropaeolum incisum is a herbaceous perennial up to 75cm. The growth looks quite unusual, the leaves are palmatisect and creep outward. The flowers are yellow and orange. Grows on dry, sandy areas of Caviahue and Villa Pehuenia.



Ranunculaceae

Anemone multifida is a perennial growing to 40cm tall flowering in white, cream or pale yellow. Grows in sandy slopes, meadows or open woodlands around Villa Pehuenia.



Solanaceae

Schizanthus hookeri is an annual that grows to 60cm tall growing in lake margin gravel beds at Laguna Epu Lauquen.



Oxalidaceae

Oxalis valdiviensis is a biennial or short lived perennial that grows to 25cm. Found on sandy ground, lake edges and woodland settings in Laguna Epu Lauquen.



Oxalis squamata is a perennial that is tuft forming up to 20cm tall. Grows on open steppes and screes around Laguna Epu Lauquen.



Conclusion and Acknowledgements

This for me was a first botanical trip away, so was unsure exactly what to expect. I enjoyed travelling with a guided group, it was good to be with people that all have similar interests to learn and experience Patagonia together.

I was familiar with a lot of the Genus from cultivation in the UK but a majority of the species were brand new to me. One thing that struck me was how perfect the plants were. I'm used to seeing alpiners growing as individuals in clay pots; so it was seeing incredible seeing the species in large communities, for instance the hillsides covered in *Calceolaria prichardii* and the Valley of *Viola cotyledon*.

I have worked on Wisley's alpine department and, even with the staff's expertise and knowledge, it is always a constant battle with the elements. It is challenging to reproduce the environmental conditions of the Patagonian climate in cultivation. For me it was great to see varying alpine habitats first hand so I can really appreciate what we're trying to achieve back home, for instance with light levels, wind exposure, temperatures etc. Also they are more susceptible to pest and disease attack, in the wild I didn't notice any plants suffering from disease issues and also I didn't see signs of insect damage, nor many insects, so something to do with the environment isn't one pests can thrive in. I felt I made some interesting observations whilst in situ which will hopefully help me in the future when growing these kind of species in England.

I had a brilliant time experiencing Patagonia's mountains and I wanted to Thank the Merlin Trust and Alpine Garden Society for the Fantastic opportunity to see a segment of Patagonia's alpiners, and sincerest thanks to Martin Shearer, Tour leader, for organising a super trip which included such an abundance and diversity of flora, and also for writing *Flowers of the Patagonian Mountains* which has been infinitely helpful in writing this report. Writing this has really helped me to continue learning once back home and also got me eager to undertake further botanical expeditions.

