

International Rock Gardener

ISSN 2053-7557



---International Rock Gardener---

March 2019



This month we are happy to provide two articles on the fascinating floral regions of South America. John Watson describes an annual *Cistanthe* species from the family Montiaceae, with his usual joie de vivre. Martin Sheader, a good friend and co-author of some new species with the Watsons, writes about an exploration of the mountains of Central Patagonia in 2017.

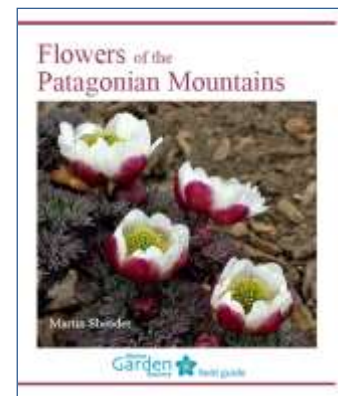
It is always a pleasure to welcome new authors to the IRG and this month we have two. Dr Martin Sheader, a marine biologist from Southampton, is known with his wife Anna-Liisa for their great interest in all plants, particularly those from South America, as well as for their writing, talks and show exhibits. Our second new author is Allan Robinson from Sutton Bridge in the Fenlands of England. His family were nurserymen in the past and he has a great

interest in the geraniums and their relatives as can be seen from his copious contributions to the website of the [Gerianaceae Group](#).

Cover photo IRG111: *Alstroemeria leporina* F.&W.11995, photo J. M. Watson.



This plant is named for Allan Robinson - photo courtesy of Donn Reiners from this [Californian website](#).



Above right: The cover image of [Flowers of the Patagonian Mountains](#) – published by the Alpine Garden Society. Co-authors Peter Erskine, Chris Brickell, Hilary Little, Austin Little, Anna-Liisa Sheader. The book features more than 900 images and descriptions of Patagonian plants in the wild.



Martin Sheader in characteristic pose with his camera.

SRGC Honorary Treasurer (also IRG proof-reader and occasional author) Richard Green was also on the 2017 trip with Martin and [his report can be found here](#) in the SRGC Forum.

---International Rock Gardener---

---Species Description---

Flores means Flowers ... of course! A new *Cistanthe* species (Montiaceae) from Chile's springtime north John Watson

Casilla 161, Los Andes, Aconcagua Provincia, Valparaiso Región, Chile.

Email: john.anita.watson@gmail.com

Published in IRG 111, March 2019. Pages 3 to 43.

How things began

First off, a bit of family history. Never mind fairy tales about me: anyone feeling in a masochistic enough mood of curiosity who doesn't know my background already and wants to find the answer, look up Elvebakk (2018) or Ward (2004). But what of my devoted working and life-partner, Anita [Fig.30], who - for reasons which will become apparent - can't be my co-author this time?



Fig.1: Colouring the Flowering Desert. F.& W. 12054 *Cistanthe longiscapa*, the genus of the new species featured here. Carrizal Bajo, Huasco Province, Atacama Region. (11 Oct 2010. JMW)

Her late father [Fig.64] worked in the Chilean copper mining industry, which involved him and the family leading a partially nomadic life, usually far from any crowded urban scene. Often they had access to areas of countryside, especially in sectors with a mediterranean-type climate. These can produce prolific and often spectacular flowering during the early part of seasons experiencing sufficient winter rainfall [Fig.1]. This stimulated a persisting interest in her parents, and her mother [Fig.30] often took the children out on rambles.

---International Rock Gardener---



Fig.2: The high altiplano of northern Chile at 3000-4000 m, where Anita first saw the light of day. (6 Jan 2006. ARF)

As for Anita herself, she was the first of four, with two younger brothers and a sister. She was born way up north and high, on the Altiplano [Fig.2] not far from the border with Bolivia, and enjoys telling people in jest that a bit more to the east and she would indeed have been a Bolivian! Their circumstances at the time made it difficult for her parents to look after a small child. Consequently, unlike her following siblings she didn't live with them, but was put in the care of an aunt at Santiago, visiting and staying with her parents periodically until she too eventually joined them on a more permanent basis. The aunt was a professional cook who worked for various embassies, becoming familiar with a range of exotic cuisines. This aroused Anita's enthusiasm, which explains her knowledge and ability in this sphere (to my great good fortune!), and she always says that if not biology leading to botany, this would have been her chosen alternative profession [Fig.3]. But her times in the country with her parents were at least sufficient to put her potentially on track for natural history too, although only her younger brother of the other three shares the interest to that degree, and then as an amateur.

During the latter half of 1971, when a student on the verge of adulthood, Anita returned during the holidays to spend some time with her parents, then in La Serena, Coquimbo Region. It chanced to be an outstanding year for floration there due to an intense and prolonged El Niño climatic phenomenon, as happens after variable drought intervals of several years (Couper-Johnston 2000, Watson & Flores 2017, Knowles 2018), and her father invited her to accompany him around the local countryside to see how many different species they could find. The result was impressive. They returned laden with picked samples. He had noticed in the newspaper *El Mercurio* that an exhibition was being arranged in the next day or so by the botany department of the Natural History Museum at Santiago, some 470 kilometres to the south. It therefore occurred to him to phone the organizer, from

---International Rock Gardener---

out of the blue, to ask whether he might be interested in including at least some of the plants they'd gathered. The person in question was the former head of the botany department, Carlos Muñoz Pizarro [Fig.4]. His response couldn't have been more enthusiastic. Muñoz had a distinguished career in botany and wrote several key books, both scientific and popular. In fact one of his greatest achievements is being the first to bring awareness of their wonderful wildflowers to the Chilean general public, as exemplified by this exhibition. Having been born and grown up in the Coquimbo Region, he was naturally dedicated to its flora. Not only was the event a huge success, but one or two of the plants Anita and her father had found were previously considered by Carlos to be possibly extinct, in Coquimbo Region at least [Fig.5]. As a result Muñoz became close friends with them, and casually asked Anita if she'd ever thought of taking up botany as a career, and if not - might she be interested, as he could help her. The rest, as they say, is history.

Fig.3: Anita's enthusiastic cookery prowess is here displayed in some Chilean Christmas cakes she made at home for sale, using walnuts from our own trees - delicious! (6 Dec 2011. JMW)



Fig.4: A great mutual friend of us both, the renowned Carlos Muñoz Pizarro (1913-1976), former curator of the botany department of the Santiago Natural History Museum and notable author.

But there's also a curious final twist in the tail (tale). 1971, as from mid-September, also happened to be the year that Ken Beckett, Martyn Cheese and I came to Chile, being the first plant hunting visit to South America by any of us. Due to an unfortunate bureaucratic nonsense of the Salvador Allende government, then in its eleventh month of office, I was obliged to stay behind for a fortnight to sort the mess out with the Chilean Embassy in London. Beckett and Cheese, who had flown out ahead on our original scheduled date, had me drooling with envy by sending news that they were being taken around this quite spectacular Flowering Desert phenomenon by 'a top Chilean botanist in the know'. The latter happened to be Carlos Muñoz, no less, with whom they'd been put in contact by the British Embassy! Meanwhile, Anita's father learned that he, their new botanist friend, was driving around near them, and invited him to stay at

their house. "I'm sorry," Carlos replied, "I'm afraid I can't. I'm driving two gringos about and showing

---International Rock Gardener---

them the plants." He became our dear friend too during that six month period of Andean plant exploration and ultimately disastrous political mismanagement. But it would take another 17 years before Anita and I met face-to-face. She was by then a fully-fledged, employed university botanist, a stable career that went by the board when I lured her away!



Fig.5: F.& W.12247 *Mutisia cana*, rare if widespread. Feared by Muñoz to be locally extinct until found by Anita and her father in 1971. Vicuña to Hurtado, Coquimbo Region. (28 Nov 2010. JMW)

---International Rock Gardener---

Gems of the scrublands

The Cuesta Pajonales road pass [Fig.6] in extreme southern Atacama Region, with its crown at 1302 m, marks the transitional zone between the mediterranean near north of Chile and the extensive desert beyond. Its southern base crosses the border with Coquimbo Region. The name translates as 'the climb over the scrublands', the climb being that of the main Pan-American Highway. Anyone travelling further north or coming south by road must inevitably cross over the low west end of the transversal range on it, since no alternative route for vehicles exists [Fig.47]. We've done so on countless occasions for as long as we can remember.



Fig.6: The road leading up from the south base of the Pajonales Pass, Vallenar community, Huasco Province, Atacama Region. (9 Oct 2010. JMW)

Much of the time its landscape is dry and arid, the only evident vegetation being dispersed, aestivating and desiccated-looking shrubs. But when the north reawakens in early spring after sufficient rain, or explodes into flower during an El Niño, Pajonales is a minor part of the show. Not that there's anything much to tempt the average traveller to stop there unless they're attracted to nature, above all plants.

Anita and I began to take an interest in it early on when we noticed stands of *Alstroemeria leporina* [Fig.7] not far from the roadside on its gentle lower southern slopes. We camped there several times, and on one occasion fed a friendly and confiding little grey South American fox (*Lycalopex griseus*, the 'chilla') [Fig.8] with tit-bits from our al fresco meal. Among other plants near the alstroemerias was a small, prostrate annual *Solanum* species we collected there many years ago, which we subsequently identified as new to science. The colony was minimal, with only a very few individuals. Unfortunately, when we took it and a number of our other important specimens to check at Concepción University herbarium in 2005, overnight the case containing them all was stolen from out of our jeep.

---International Rock Gardener---



Fig.7: F.& W.11995 *Alstroemeria leporina*. The specific epithet refers to the hare - from the likeness of the long upper-inner tepals to that animal's ears. Pajonales Pass. (9 Oct 2010. JMW) [also cover image]



Above, right Fig.8: The little grey fox ('chilla'), *Lycalopex griseus*, one of which dined on scraps of our meal while we camped on the Pajonales Pass. (Photo - [Caminantes del Desierto](#))



Fig.9: A less than spectacular species of the Montiaceae family, F.& W.13077 *Philippiamra calycina*. Pajonales Pass. (21 Aug 2017. JMW)

---International Rock Gardener---

Returning from our trip to the latest flowering desert (Flores & Watson 2017), we stopped and looked punctiliously around the site in hope, but alas, not a sign of it among the other flowers, which included the first example of the family to which our new species herein corresponds. Like better-known *Lewisia* and *Calandrinia* they belong in the Montiaceae, which has recently usurped the Portulacaceae as their correct family. The succulent little annual here, *Philippiamra calycina* [Fig.9], is far removed from the received perception of these often showy plants, whether dwarf or tall, with their large, brightly coloured flowers. Its clustered head of insignificant little corollas would undoubtedly escape the notice of most. Certainly it seems to bear no close relation whatever to the new species and others of its genus covered here, although the North American pussypaws are the closest in appearance. Nothing could have been more contrasting than the lone flowering specimen of common *Nolana acuminata* [Fig.10] among them, which drew us from afar. Despite the similarity the flowers of various species such as this bear to those of bindweeds and morning glories, *Nolana* has been placed back in the Solanaceae after a spell in a family of its own, Nolanaceae. Our friend and colleague [Michael Dillon](#) is the expert on these (Dillon *et al.* 2009). As if there just to demonstrate the resemblance, spidery-prostrate *Convolvulus chilensis* [Fig.11] with its sparse, reduced foliage grew nearby. But the rich compensation and surprise crowning joy of our failed attempt to find the 'lost' *Solanum* was to see and capture successfully on camera at last a small flock of burrowing parrots, *Cyanoliseus patagonicus* [Figs.12, 13], as already covered in our earlier account of the visit (Watson & Flores 2017). Several times previously at different locations we'd been frustrated by their suddenly taking flight and wheeling away while we were attempting this.



Fig.10: F.& W.13113 *Nolana acuminata*, a rare - therefore especially welcome - touch of blue on the Chilean floral landscape. Near La Serena, Coquimbo Region. (22 Aug 2018. JMW)



Fig.11: Not all *Convolvulus* are rampantly weedy. Some make choice cushions, while others like the endemic *Convolvulus chilensis* here are elegant, restrained sprawlers. (Artist - Andrés Jullian)

---International Rock Gardener---



Fig.12: *Cyanoliseus patagonicus*, the colourful and gregarious 'trichahue' or burrowing parrot, on the Pajonales Pass. It nests in holes it excavates in cliffs and banks. (21 Aug 2017. JMW)



Fig.13: Two *Cyanoliseus* parrots caught in flight overhead. Pajonales Pass. (21 Aug 2017. JMW)

Continuing up the pass from the south, the gradually steepening right-hand side of the waterless valley is decorated in season by a long, scattered run of attractive *Cordia decandra* shrubs with their clusters of impressively large white corollas [Figs.14, 15]. It comes as a surprise to discover this woody genus with a solitary representative in Chile belongs in the forget-me-not family, believe it or not. But perhaps no less so is the revelation that the species total perhaps amounts to around 300, often individually colourful and showy, which are spread around the continents in warmer parts of the world. So far as I can discover not one is listed as in cultivation for the U.K., although Chiltern Seeds does offer one species. All my information originates from Wikipedia, Google and Google Images. *C. decandra* is called 'carbón' or 'carboncillo' (charcoal) in Chile, due to its widespread use as a valuable fuel. Formerly it was cut as such for the copper industry.

---International Rock Gardener---

Nowadays it's reduced to charcoal to be sold for barbecues. A local inhabitant on the pass confirmed that the practice is common there. As a result, the distribution of the species throughout its range has become much reduced and fragmented over time, and a Chilean Ministry of the Environment conservation document (Muñoz & Serra undated) proposes it be classified as on the verge of at risk, i.e. Near Threatened (NT). That report also notes another hazard the species faces, which is the effect of increasing drought due to climate change.



Fig.14: F.& W.12781 *Cordia decandra* shrubs in a xeric near-northern Chilean mediterranean landscape beyond Illapel towards Salamanca, Illapel Province, S Coquimbo Region.(28 Sep 2014. JMW)

Fig.15: F.& W.12084 *Cordia decandra*. It's hard to believe the genus belongs with the forget-me-nots (Boraginaceae)! Yervas Buenas, Copiapó Province, Atacama Region. (12 Oct 2010. JMW)



---International Rock Gardener---



The final plant to catch the attention on the way up, before reaching the site of the new species not far below the crown of the pass, is another *Alstroemeria* of the same colour as *A. leporina*; this one, *Alstroemeria crispata* [Figs.16, 17], smaller and squatter flowered, but none the less attractive for that.

Fig.16: F.& W.11989 *Alstroemeria crispata*, another most attractive and desirable species of the genus seen on the Pajonales pass. (9 Oct 2010. JMW)

Fig.17, below: F.& W.11989 *Alstroemeria crispata*. The neat beauty of the flower-head can be appreciated in close-up. Pajonales Pass. (9 Oct 2010. JMW)



---International Rock Gardener---

Fig.18: F.& W.11994 *Nolana filifolia* at the Pajonales Pass. The genus is variable. Instead of splendid flowers as here, some have diminutive pale or white corollas. (9 Oct 2010. JMW)

As the crow flies (or would if that bird existed in Chile) the location of the novelty is two kilometres from the top, as opposed to twelve from the base of the pass. But if approached while returning from the north in leisurely mood, as we do sometimes, an interesting flora is still to be seen, particularly on that higher stretch (which is actually exactly twice as long, four kilometres, by road down the snaking bends of the upper section). However, even the northern base has bright spots for those on the lookout. Prime among these is *Nolana filifolia* [Fig.18], its flowers unmistakably another 'pea in the genus pod' to those of *N. acuminata* on the other side of the pass. Both are succulent to a degree too. There the likeness ends, because the latter is an annual with pointed lanceolate leaves, whereas *N. filifolia* is a spreading, more or less prostrate perennial shrublet, its branches densely clad in narrow, terete foliage. By no means are all *Nolana* species large and colourful though, as witness the prostrate coastal rock-dweller and vigorous carpenter *N. crassulifolia* [Fig. 19].



Fig.19: ... And here as an aside is F.& W.13107 *Nolana crassulifolia* to prove the point. Laguna Conchalí Nature Reserve, Los Vilos, Choapa Province, Coquimbo Region. (27 Jan 2018. JMW)

One of the first in season, if not the first, to attract attention as one begins the descent down the south exposure is *Balbisia peduncularis* [Figs.20, 21], a conspicuous shrub of Chile's mediterranean north. The flowers are reminiscent in colour, shape and texture to an oversized yellow flax. It too was once assigned to a large, cosmopolitan family, the Geraniaceae, but has since been transferred to a small regional one of three or four genera, each with a solitary or few species. We featured it in our earlier account (Watson & Flores 2017) along with *Schizanthus alpestris* [Figs.22-24], which flowers densely en masse at this point of the pass as we've never seen it anywhere before. After finding a safe place to park by the road we walked back to photograph its lilac clumps. This led to discovery of a few individuals of *Oxalis laxa* [Figs.25, 26] we

---International Rock Gardener---

would never otherwise have noticed. As can be seen from the photo, the flowers here are presented as an appealing whirligig. Where we passed on foot shortly further down the road a colony of several *Malesherbia paniculata* [Figs.27, 28] had somehow managed to establish itself in narrow chinks between a vertical rockface and the kerb. In contrast to most of its genus, it's a vigorous, erect species, closely allied to similar and more familiar violet-flowered *M. linearifolia* found further south down as far as the Santiago Andes, where relatively common.



Fig.20: F.& W.13073 *Balbisia peduncularis* at its best on the Pajonales Pass. It can be rather scruffy at times. (21 Aug 2017. JMW)



Fig.21: A close shot of F.& W.12977 *Balbisia peduncularis* showing how attractive the flowers are. Domeyko to Sarco, Huasco Province, Atacama Region. (16 Aug 2017. JMW)

---International Rock Gardener---



Fig.22, above left: F.& W.13074 *Schizanthus alpestris*, an unusually prolific colony on the upper Pajonales Pass, showing to its best advantage in isolation. (21 Aug 2017. JMW)

Fig.23, above right: As can be seen from F.& W.13074 *Schizanthus alpestris* here, the species lacks the conspicuous character of others in its genus. Pajonales Pass. (21 Aug 2017. JMW)



Fig.24: F.& W.13074 *Schizanthus alpestris* in close-up, where its delicate and subtle beauty can best be appreciated. Pajonales Pass. (21 Aug 2017. ARF)

---International Rock Gardener---



Fig.25: F.& W.13075 *Oxalis laxa*, a perfect lone specimen that could hardly be improved. Pajonales Pass. (21 Aug 2017. JMW)



Fig.26: F.& W.13075 *Oxalis laxa* in close-up, its genus instantly recognizable. Pajonales Pass. (21 Aug 2017. ARF)



Fig.27: F.& W.11996 *Malesherbia paniculata*, an interesting tall perennial. Pajonales Pass. (9 Oct 2010. JMW)

Fig.28: A flower of F.& W.11996 *Malesherbia paniculata* full-face on. The genus has been found to belong in the Passifloraceae. It's not that hard to see why. Pajonales Pass. (9 Oct 2010. JMW)





Fig.29: F.& W.12994 *Cruckshanksia pumila* with its gold coin-like bracts. Quebrada del Potrero, Caldera Province, Atacama Region. (17 Oct 2017. ARF)

---International Rock Gardener---

No less an eye-catching treasure-trove than a scrubland gem, *Cruckshanksia pumila* [Fig.29] with its golden, coin-like floral bracts was seen for the very first time by myself, Beckett and Cheese when we crossed over the Pajonales Pass in October 1971. It has since become a familiar part of the flowering desert scene for us all. Being as we were in a former Spanish possession, and close to areas which Francis Drake had raided - he's regarded here as a pirate, we found the appearance of the bracts as equivalent to a pile of gold doubloons an irresistible comparison! On that occasion we were in terra incognita for us, heading as far north as we could during the tail-end period of the Flowering Desert phenomenon (we actually managed another 240 kilometres or so, to just beyond Caldera, where the floral interest finally petered out).

Way back then the Pan-American was narrow, just an ordinary road with a single lane either side, where one was frequently trapped for long stretches behind crawling lorries. The journey that we can now do comfortably in a couple of days took us a week. Mind you, it must be admitted though that unlike now, flowers grew right beside the road all the way, stopping was not forbidden anywhere, it was easy to drive off and park at regular intervals, and therefore a significant chunk of that time was spent botanizing.



Fig.30: Two of the Flores flowers, my mum-in-law (discoverer of the new species), and wife, Anita, during her al fresco birthday party at home in our garden. (October 2015. Photo - anon)

---International Rock Gardener---

In loco parentis

Now we pick up the thread of those opening paragraphs of family history again. Something over two decades ago Anita's father [Fig.64] and mother [Fig.30] drove from a little further up the extensive Elqui River course than La Serena, where they then lived, on a relaxed springtime jaunt into the countryside. It was another outstanding El Niño-plus Flowering Desert year, and they wanted to explore a little further afield than usual. This urge took them up the Pajonales Pass, no less, where they noticed a small, dry valley leading off to the left shortly below the crown and decided to stop, rest, eat and look around there. Now superficially, the entrance to this valley [Fig.31] is not exactly enticing for those hunting for plants. But a small path leads gently upwards along its flattish floor, and where the sides close in just out of sight of the road it becomes much more rewarding in terms of its floral community, as they, and later we, discovered. For they brought back a plant to show us that her mother found there, and it was immediately apparent we had to return to the exact spot some time ourselves to collect and photograph it, come what may, although years would pass before we were able to realise that ambition.

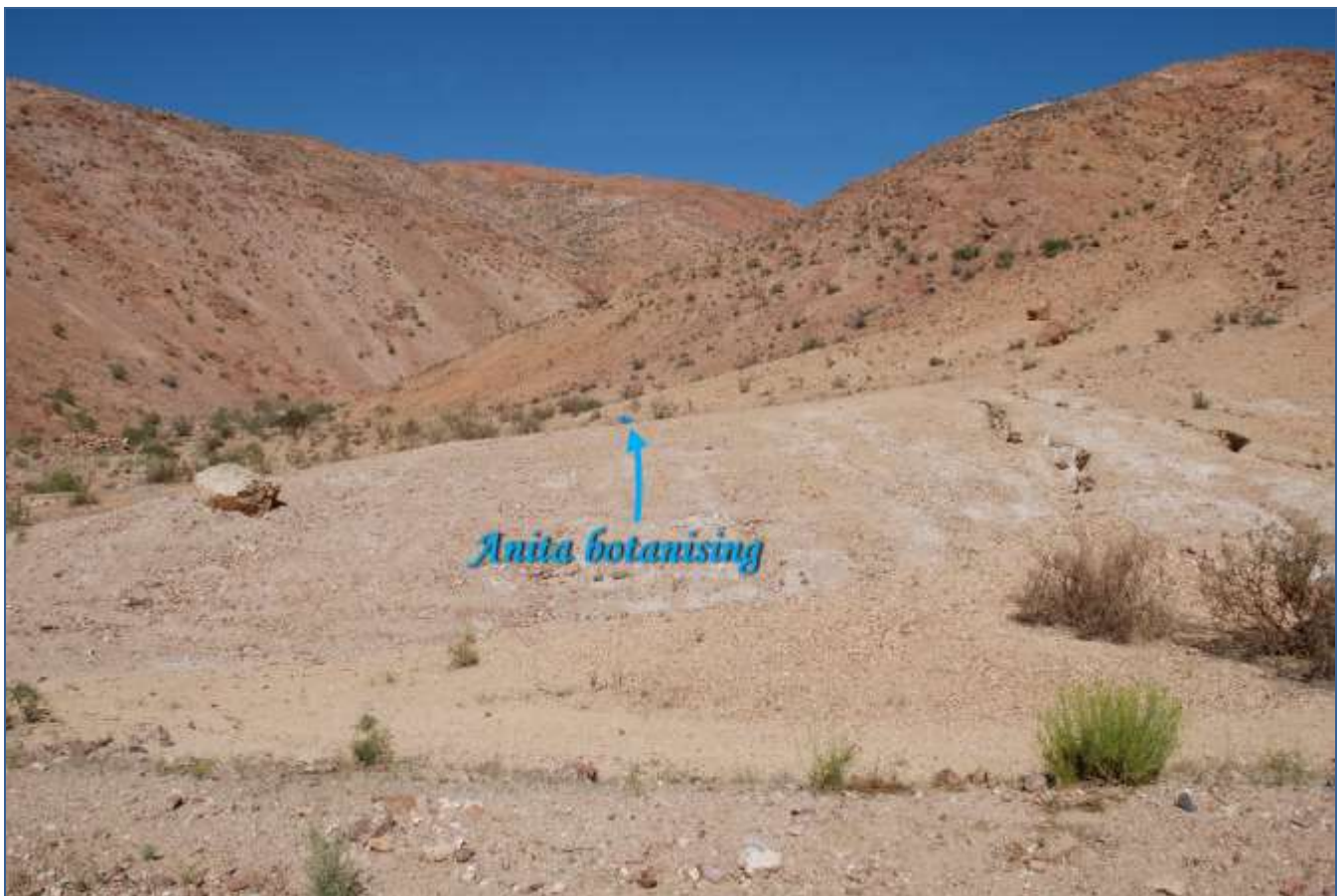


Fig.31: A view from the Pajonales Pass roadside of the unpromising-looking entrance to the dry upper valley where Anita's parents found the new species. (19 Oct 2008. JMW)

When we eventually did, one of the first of those in the little valley to be encountered among the xerophytic scrub was the herb *Stachys grandidentata* [Fig.32], a quietly subtle plant that doesn't call immediate attention to itself. But as we started to move further up we had the good fortune to notice something distinctly more exotic from our point of view. It didn't belong to the vegetable kingdom at all either, but to that of the animals. We're indebted to a number of books on our shelves which, in conjunction with the Internet, help us to identify certain elements of the Chilean fauna: birds, butterflies, small mammals, a selection of insects, amphibians, and ... reptiles. But the first step was to somehow photograph the delightful little lizard we'd spotted sunning itself by the pathside without alarming it by our presence so that it scuttled off. Softly softly catchy whiptail - on camera!

---International Rock Gardener---

Its distinctive orangey underside reminded me of the newts I used to catch as a youngster to put in our English suburban garden fishpond. The colour plates in Donoso-Barros (1966) easily enabled me to distinguish it from the 56 other taxa of the genus *Liolaemus* he'd included, and the geographical specific epithet confirmed it: a female of *L. atacamensis* [Fig.33]. By a happy chance we also managed to capture a portrait of the larger, differently-coloured male exactly two years later at the bottom of this same Pajonales Pass, on the northern side [Fig.34]. In fact Donoso-Barros listed it as a subspecies of *L. nigromaculatus*, another name well indicated, this one by the black patch behind the neck of the male, but while checking on the Internet in the course of writing this account I discovered it has since been elevated to full species (Tronco-Palacios & Garin 2013).



Fig.32: F.& W.11746 *Stachys grandidentata* is among the few perennial herbs found on the Pajonales Pass. (19 Oct 2008. JMW)



Fig.33: A wary female *Liolaemus atacamensis* posing for her photo portrait as we moved along the upper valley. Pajonales Pass. (19 Oct 2008. JMW)



Fig.34: A no less handsome male *Liolaemus atacamensis* from lower down the Pajonales Pass shows the species' sexual dimorphism with its larger size and distinct pattern. (13 Oct 2010. JMW)



Fig.35: A striking deep violet form of the potato flower lookalike shrub - F.& W.11749 *Solanum remyanum*. Pajonales Pass. (19 Oct 2008. JMW)

Picking up the flora theme again, one of the variety of small bushes scattered along the way was dotted with flowers that anyone who knows their potato and tomato plants would immediately have no trouble in identifying as a *Solanum*. It is in fact a particularly deep violet form of *Solanum remyanum* [Fig.35].

---International Rock Gardener---



Fig.36: F.& W.11747 *Calceolaria glandulosa*, showing the subequal-sized corolla pouches and horizontal, unfurled cymes behind. Pajonales Pass. (19 Oct 2008. JMW)

The next to hove into our view, *Calceolaria glandulosa* [Fig.36] was a contrast in every respect except height. The upright flowering stems are spaced and sparsely-foliolate, with long inflorescence cymes and dumpy bright yellow flowers, the top 'bag' of their corolla almost as large as the lower one, and doubled-up against it. As a result, when the cymes open, unfurl and elongate more or less horizontally, it can sometimes fancifully almost look as though rows of fat, squatting canaries are perched on branches.



Fig.37: F.& W.11750 *Cistanthe floresiorum*, the type and only population. Pajonales Pass, Comuna de Vallenar, Husco Province, S Atacama Region. (19 Oct 2008. JMW)

Then at last we saw the first lone specimen of what had drawn us here and we'd been so eagerly and impatiently looking forward to: our new *Cistanthe* species. In fact it's decidedly infrequent, sometimes as a very few clustered together [Fig.40], at others as individuals [Fig.37], even completely isolated from all other vegetation, sparse though that admittedly is anyway. The formal details follow.

Taxonomy

Cistanthe floresiorum J.M. Watson, sp. nov. [Figs.37-46]

Type: CHILE. Atacama Region, Huasco Province, Comuna de Vallenar, on S exposure of Cuesta Pajonales shortly below top of pass, 29°08'30"S 70°59'33"W, 1120-1125 m, 19 Oct 2008, leg. A.R. Flores & J.M. Watson, F.& W. 11750! (holotype SGO; isotypes, CONC, herb. Flores & Watson).

Diagnosis: The new species is clearly distinct. It differs principally from other taller, erect to ascending taxa of *Cistanthe* Spach with foliate flowering stems by a combination of its annual life-form, acute to prolonged, acuminate sepals, subequalling to exceeding the fully-extended petals, its erect mature fruit-bearing pedicels, and glabrous seeds. In addition the sepals are unmarked or, more rarely, weakly black-striated in the basal area only.

Description: *Life form:* succulent, glabrous, glaucous, erect to ascending annual. *Rootstock* axial, ca. 6-10 cm or more in length x ca. 1.5-6 mm dia., solitary above for 3-8 cm, with numerous short filiform feeder roots below. *Stem* 10-25 cm, solitary, or solitary from rootstock and few-branching near base. *Leaves* alternate, at 1-3 cm intervals; *lamina* ca. 3-6 x 1-3 cm, usually with larger examples towards upper stem and sometimes with small rudimentary leaves at base, entire, obovate, cuneate, apex acute; base of stout central vein decurrent, adjoined blade base somewhat amplexicaul; face plane, pale glaucous green; undersurface with weakly elevated venation, pale glaucous greyish, more or less heavily patterned with open network of purplish pink fine to blurred lines. *Inflorescence* to 5 terminal and occasional lateral solitary to few-branched congested cymes of up to 15 flowers each. *Bracts* 3-4 mm long, entire, broadly ovate-canaliculate, truncated at base where joined to stem, acuminate, thin-textured, glaucous green more or less tinged pink and marked or unmarked in accordance with sepals of same plant. *Pedicels* ca. 5-15 mm including fruiting examples, pendent in bud, becoming patent to ascending in flower and vertical in ripe fruit. *Flowers* actinomorphic, perfect. *Sepals* to 12 mm long x 5 mm deep (unflattened), 2, free, persistent after anthesis, ovate-canaliculate, acuminate, subsucculent, glaucous green more or less tinged pink and unmarked or weakly black-striated in basal sector. *Petals* 8-10 x 6-10 mm, 5, free, patent, subcordate, apex distinctly obtuse and weakly retuse, white. *Stamens* 3-5 mm, free, 18-28; filaments and anthers yellow, anthers dorsifixed. *Pistil* subequalling stamens. *Ovary* subequalling style, hypogynous, oval, green. *Style* solitary, slender, green. *Stigma* 3-lobed with narrow, hyaline margin; lobes orbicular, somewhat domed. *Fruit* 10 x 5-6 mm, 3-valved capsule opening longitudinally, placentation central. *Seeds* ca. 0.6-0.75 mm dia., subglobose, strophiolate, black, glabrous, lustrous.

Field note: The habitat is an open V-shaped valley with a narrow, dry floor, gently sloping and exposed to the southeast. The vegetation type has been classified as 'Desierto Florido de las Serranías' (Flowering Desert of the high-hill sector) (Gajardo 1993). It is characterised by well-scattered xerophytic matorral bushes dotted about over rocky and stony terrain, but with a greater concentration at the base of the valley where seasonal moisture accumulates and a regional ground flora of several resistant perennial herbs and ephemeral annuals is also established. These include *C. floresiorum*, which is confined as a number of separate individuals and small colonies spread along a limited compass of a few hundred metres.

Distribution: *Cistanthe floresiorum* is a single-site endemic of Atacama Region, only known from its type locality as detailed in the formal presentation above. [Figs.47-49]

Phenology: The species has been observed coming into flower at the beginning of October [Figs.38, 39]. It was seen in full flower ten days later [Figs.37, 41-43], and also at the end of the flowering period during the last week of that month, including with mature fruit at the septicidal stage revealing seeds or open, voided capsules [Figs.40, 44, 45]. However, based on climatic knowledge of

---International Rock Gardener---

the zone, it is highly probable that the widely diverse months and amounts of rainfall from one favourable season to another also lead to an equivalently variable temporal response of germination, flowering and seeding.

Etymology: The intention to indicate by its formal scientific name that the species is owed directly to Anita's parents, Juan and Mercedes, left no doubt that the ideal specific epithet for it would be *floresiorum* = of the Flores family. But that does not in fact refer solely to those two. It's particularly pertinent for my intention to celebrate as well the involvement and interest in wild plants of Anita and other members of their ménage (this being the reason for having to exclude her as co-author). Not least, that includes her younger brother Miguel, who has often shown us local orchids and other interesting plants growing close to where he lives in the south. As a happy double meaning, although the actual Latin for 'of the flowers' is *florum*, *floresiorum* undoubtedly conveys that relevant sense too.

Proposed conservation status:

Cistanthe floresiorum is known as no more than one small, tight-knit population very close to the Pan-American Highway (RN 5N) at a level, open sector where it is very simple to drive off and stop. In addition, there is access via a footpath along the valley where it grows, and a certain amount of human activity on the pass. These factors indicate without doubt that it is under the potential threat of extinction and so should be classified as Critically Endangered (CR).

Fig.38: A well-grown specimen of F.& W.11997 *Cistanthe floresiorum* recorded at a later visit to the type site. Pajonales Pass. (9 Oct 2010. JMW)





Fig.39: F.& W.11997 *Cistanthe floresiorum*. An atypical individual with ascending branches. Pajonales Pass. (9 Oct 2010. JMW)



Fig.40: A colony of M.R.7024 *Cistanthe floresiorum* - indicating the notable size range of flowering individuals. Pajonales Pass. (27 Oct 2010. Photo - Marcelo Rosas)



Fig.41: F.& W. 11750 *Cistanthe floresiorum*, illustrating the cymose presentation. Pajonales Pass. (19 Oct 2008. JMW)



Fig.42: Frontal view of an inflorescence of an F.& W.11750 *Cistanthe floresiorum* individual, including an erect, open capsule. Pajonales Pass. (19 Oct 2008. JMW)

Fig.43: F.& W.11750 *Cistanthe floresiorum*, a close-up of the flowers. Pajonales Pass. (19 Oct 2008. JMW)



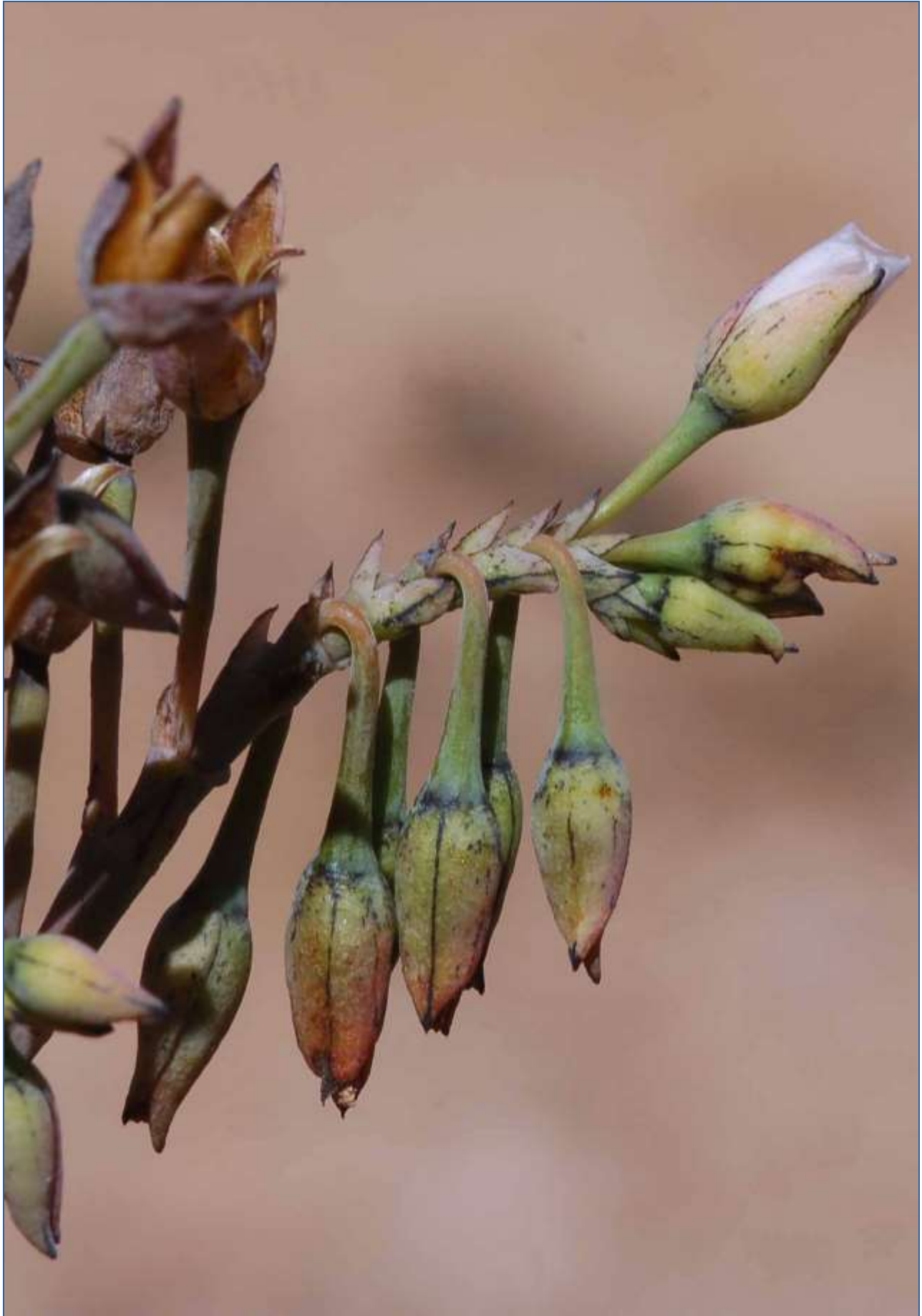


Fig.44: A cyme of M.R. 7024 *Cistanthe floresiorum* with stages from bud to ripe, dry, erect capsules. Pajonales Pass. (27 Oct 2010. Photo - Marcelo Rosas)

---International Rock Gardener---



Fig.45, above left: M.R. 7024 *Cistanthe floresiorum*. Inflorescences with mature, open capsules, some with seeds, some void. Pajonales Pass. (27 Oct 2010. Photo - Marcelo Rosas)

Fig.46, above right: Botanical illustration of *Cistanthe floresiorum*. (Courtesy of Andrés Jullian, the artist, and Adriana Hoffmann)



Fig.47, left: The whereabouts of *Cistanthe floresiorum* in South America.



Fig.48, right: The Chilean region, Atacama (bordered in green), in which *Cistanthe floresiorum* (shown by red arrow to pink dot) is endemic.

---International Rock Gardener---



Fig.49: Paso Pajonales, Vallenar Community, Huasco Province, Atacama Region, the type and only location of *Cistanthe floresiorum* as an arrowed, blue-centred pink circle.



Fig.50: F.& W.12053 *Cistanthe grandiflora*, the type species of the genus. Carrizal Bajo, Huasco Province, Atacama Region. (11 Oct 2010. JMW)

The infrageneric placement of *Cistanthe floresiorum*

Anyone who knows a bit about the science of systematics and taxonomy will be aware that some groups of allied plants contain nothing but very distinctive members, while other more complex ones have been studied intensively, employing the most up-to-date technological methods, and that both of these are considered to be well understood. By contrast, other groups are still a mess for some reason or other, or have been long neglected, as were the Andean violas, our main focus of study. So given appreciation of that situation, the following frank quotes from two recent papers by the present foremost authority of the family and genus to which the new species belongs come as no surprise:

The genus: type species - *Cistanthe grandiflora* (Lindl.) Schldl. [Fig. 50]

"Taxonomy of the Chilean species ... is problematic. The most recent ... treatment is Reiche (1898), which is more than 120 years old. It was based substantially on work of Philippi.

"Reiche ... clearly was frustrated by this genus, combining diverse related forms as polymorphic species and manifesting uncertainty regarding the status of others. Also, numerous species have been described since Reiche's ... treatment." (Hershkovitz 2018a)

The section of the genus to which *C. floresiorum* appears most likely to belong

"Taxonomy of *Cistanthe*, especially of *C. sect. Rosulatae*, species is woefully inadequate and the most unsatisfactory and neglected of that of any Portulacineae genus ..." (Hershkovitz 2018a) erroneous conclusion has influenced floristic and taxonomic works up to the present day" (Hershkovitz 2018b).

---International Rock Gardener---

The other section of the genus with which *C. floresiorum* shares important features

"Historically the taxonomy of the Chilean species [of *Cistanthe* sect. *Cistanthe*] has been exceptionally inadequate. The plants never have been monographed, and the most recent revision of the Chilean species is Reiche (1898). [He] formally recognised only a single species ... [His] erroneous conclusion has influenced floristic and taxonomic works up to the present day" (Hershkovitz 2018b).

"The taxonomic difficulty is understandable. The plants are succulent, and unless prepared properly make poor specimens. Another problem is that most described species are endemic to the arid zone of Chile, especially between Regions II-IV [Antofagasta to Coquimbo]. Because of the ENSO effect [El Niño Southern Oscillation (Couper Johnston 2000)], seasonal periodicity of rains ranges from about 10 years [it can in fact be distinctly more frequent, especially in the southern sector - J.W.] to literally forever [i.e. during the temporal extent of a specific current geoclimatic zone as based on records and research - J.W.]. This renders difficult plant exploration across this 1000 km tract." (Hershkovitz 2018a).

Futher background

In the first definitive modern catalogue of the Chilean flora (Marticorena and Quezada 1985) a total of 70 taxa of *Calandrinia* were listed under the Portulacaceae. They included what are now designated *Cistanthe*. Although first established in 1836, that genus was not yet recognised in 1985 as distinct from *Calandrinia* and expanded. This did not become generally accepted until 21 years later following investigation which terminated in a conclusive publication (Hershkovitz 2006), being based on earlier proposals (Carolin 1987, 1993).

Analysing comparatively those 70 listed as calandrinias by Marticorena and Quezada, there are now perhaps 17 species of actual *Calandrinia* known for Chile, and approximately 27 of *Cistanthe* are recognised for the country (Hershkovitz 2018a, Hershkovitz 2018b). It should be noted that three of that total have been published since 1985 (Peralta 1995, Watson *et al.* 2015, Hershkovitz 2018b), while two were considered to be synonyms, and so not listed by Marticorena and Quezada. Yet another which had already been described from Argentina was not recorded for the flora of Chile until later.

In addition several evident *Cistanthe* spp. (pers. obs.) have not yet been transferred to that genus and can still be seen in some reference lists under their *Calandrinia* basionym (e.g. The Plant List 2013). Taken in the current context, the remaining 36-odd as listed in Marticorena and Quezada can presumably be placed in one or other of the following categories: synonyms, insufficiently known still to assess, or dubious.

The new species

Considering the above, the following provisional attempt to place *C. floresiorum* in a systematic context is bound to be speculative and subject to possible future modification, above all given that further molecular analysis of the genus will surely be undertaken at some time. It's highly improbable though that such a distinctive species would not have become familiar to a significant degree and be classified, had it in fact been described previously.

Cistanthe consists of two sections, one divided into a pair of subsections (Hershkovitz 2018a). The present obligation therefore is to try to resolve to which of these our species belongs.

Section *Rosulatae* subsect. *Thyrsoideae* consists of short annual herbs with small, densely arranged flowers. Collectively, in no way do they correspond with the new species presented here.

---International Rock Gardener---

Superficially at least, *C. floresiorum* has most in common with sect. *Rosulatae* subsect. *Rosulatae*, where all taxa are equivalently annual, and at least one species, *Cistanthe cymosa* (Phil.) Hershk., shares with the new species the important morphology of a glabrous seed surface. Otherwise, subsect. *Rosulatae* taxa differ from *C. floresiorum* to a greater or lesser extent in a number of morphological aspects which often tie in with their ecology. Vigorous, erect species of the subsection, such as widespread and prodigiously abundant *Cistanthe longiscapa* (Barnéoud) Carolin ex Hershk. (Figs.1, 51, 52), comparable in that respect, possess basal rosettes. Another such is the similar plant illustrated here [Figs.53, 54]. It may perhaps be a form of *C. longiscapa*, or if not, a closely allied species. Hitherto, foliate stems appear to be an exclusive property of smaller, often prostrate species of the subsection, such as *Cistanthe arenaria* (Cham.) Carolin ex Hershk., *Cistanthe frigida* (Barnéoud) Peralta and *Cistanthe picta* (Gillies ex Arn.) Carolin ex Hershk.

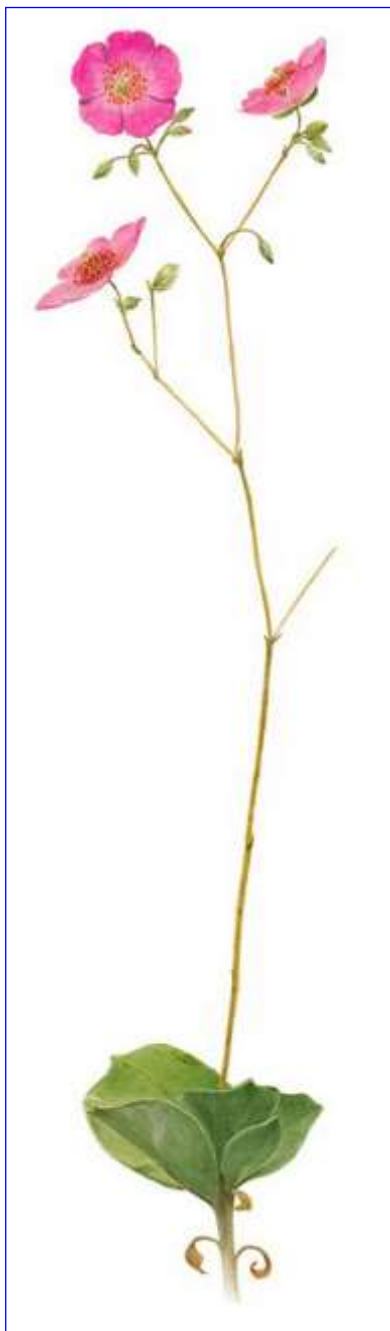


Fig.51: Botanical illustration of *Cistanthe longiscapa*. (Courtesy of Andrés Jullian, the artist, and Adriana Hoffmann)



Fig. 52 above right: *Cistanthe longiscapa*. This superabundant magenta species can paint the Flowering Desert as far as the eye can see. NE of Vallenar, Huasco Province, Coquimbo Region. (20 Aug 2017. ARF)

---International Rock Gardener---

The only alternative possibility is the essentially perennial sect. *Cistanthe*, 13 of which occur in Chile (Herskovitz 2018a, 2018b). These lack flattened rosettes and instead possess more or less leafy stems, at least basally. Despite its annual lifestyle, the foliate stem of the new species might be an indication that it belongs in this group. To support this conclusion, another annual, *Cistanthe philhershkovitziana*, has recently been described for that section (Herskovitz 2018b). Some of the erect perennials also occasionally occur as white-flowered forms like those of *C. floresiorum*, but are not otherwise closely similar to it. *C. crassifolia* (Phil.) Carolin ex Hershk. [Figs.55, 56] has quite narrowly lanceolate leaves, thickly succulent and triquetrous (triangular in cross-section), which are clustered near the base. *C. cachinalensis* [Figs.57, 58] and *C. grandiflora* [Figs.50, 59-61] are both significantly taller, the latter being an exceptionally vigorous plant as well. Furthermore, the corollas of all three are much larger. But the following features militate most strongly against *C. floresiorum* belonging in sect. *Cistanthe*. All that section's taxa have seeds covered by indumentum as opposed to being glabrous; most or perhaps all display strongly deflexed pedicels in fruit; and none possess obligatory white corollas, either as species or populations, whereas several in subsect. *Rosulatae* do.

Conclusion: if correct, that reasoning indicates that *C. floresiorum* most probably belongs in *Cistanthe* sect. *Rosulatae* subsect. *Rosulatae*, but is quite distinct, both from all others there and in the genus as a whole. As a necessary caveat, however, it must be allowed that the new species also does also possess a number of significant features in common with certain taxa of sect. *Cistanthe*. As an aside, considering the impoverished state of knowledge respecting sect. *Rosulatae* coupled with its extreme variability, it may perhaps require further infrasectional division yet.



Fig.53: Botanical illustration of *Cistanthe* aff. *longiscapa*. (Courtesy of Andrés Jullian, the artist, and Adriana Hoffmann)



Fig.54: F.& W.12054 *Cistanthe* aff. *longiscapa* with its smaller, white-centred corollas. Carrizal Bajo, Huasco Province, Atacama Region. (11 Oct 2010. JMW)



Fig.55, above left: Botanical illustration of *Cistanthe crassifolia*, white form, showing narrow, succulent, triquetrous basal leaves. (Andrés Jullian, the artist, and Adriana Hoffmann)

Fig.56, above right: Another, closer, botanical illustration of *Cistanthe crassifolia*, white form, with a face-on flower. (Andrés Jullian, the artist, and Adriana Hoffmann)



Fig.57: *Cistanthe cachinalensis*. A typical perennial of section *Cistanthe*. Note the strongly deflexed pedicels of the fruit heads. Antofagasta Region. (28 Oct 2012. Felipe Orrego)



Fig.58: *Cistanthe cachinalensis*. An uncommon white form, also showing deflexed pedicels. Antofagasta Region. (Photo – Caminantes del Desierto)



Fig.59, above right: As opposed to *Cistanthe floresiorum*, F.& W.12013 *C. grandiflora* is a vigorous, large-flowered perennial. Carrizal Bajo, Huasco Province, Atacama Region. (9 Oct 2010. JMW)



Fig.60: F.& W.12782 *Cistanthe grandiflora*. The species is another with deflexed pedicels in fruit. Beyond Illapel towards Salamanca, Illapel Province, S Coquimbo Region. (28 Sep 2014. JMW)

---International Rock Gardener---



Fig.61: *Cistanthe grandiflora*, white form. Cuesta Zapata, Valparaiso Region. (15 October 2008. Michail Belov)

As a final *bonne bouche* for future investigation we include photos of another *Cistanthe* species [Figs.62, 63] sent to us by our Chilean botanical colleague Marcelo Rosas, who photographed it on the Pajonales Pass just over a decade ago. We don't have a precise location and have been unable to identify it from what clues we've been able to find. If it does turn out to be undescribed, and somebody reading this should happen to be inspired to collect and publish it, we request that Marcelo be acknowledged - that's all.



Fig. 62, below: Just to show the game's not over, here's M.R. 5768 *Cistanthe* sp., another from the Cuesta Pajonales. We can't identify it, so it could perhaps also be new. (18 Oct 2008. Marcelo Rosas)



Fig.63: A closer view, showing the inflorescence of the unidentified M.R.5768 *Cistanthe* sp. on the Cuesta Pajonales, Atacama Region. (18 Oct 2008. Marcelo Rosas)

---International Rock Gardener---

Acknowledgements

My grateful thanks are due primarily to my wife Anita, who, except for her named contributions of several photos, is in fact a major anonymous 'ghost contributor' to this work, having helped with various aspects of the text and illustrations, as well as being my devoted companion on all the journeys when we encountered the new plant. But had her parents not discovered and brought it to our attention, you wouldn't be reading this now, which speaks for itself of their indispensable key role! And how could I possibly omit here Adriana Hoffmann and the artist Andrés Jullian for the opportunity to include his superb botanical illustrations. Last, but certainly not least, comes our friend Marcelo Rosas, who has so often cooperated with us, for his supporting photographs and important additional information.

Fig.64: Juan Flores, Anita's father, encouraging an appreciation of wildflowers by one of his grandchildren.

Bibliography

Carolin, R.C. (1987) A review of the family Portulacaceae. [Austral J. Bot. 35: 383-412.](#)

Carolin, R.C. (1993) Portulacaceae. In: Kubitzki, K., Bittrich, V. & Rohwer, J. (eds.). The families and genera of vascular plants, vol. 2: 544-555. Springer Verlag, Berlin, Heidelberg & New York.

Couper-Johnston, R. (2000) El Niño: the weather phenomenon that changed the world. Hodder & Stoughton, London. 354 pp.

Dillon, M.O., Tu, T., Xie, L., Quipuscoa Silvestre, E. & Wen, J. (2009) Biogeographic diversification in *Nolana* (Solanaceae) a ubiquitous member of the Peruvian and Atacama Deserts along the western coast of South America. [J. Syst. Evol. 47\(5\): 457-476.](#)

Donoso-Barros, R. (1966) Reptiles de Chile: 252-255, Lam. xvi. Ediciones de la Universidad de Chile, Santiago.

Elvebakk, A. (2018) John M. Watson - a tribute. The Rock Garden: J. Scot. Rock Gard. Club: 66-78.

Ford-Werntz, D. & Peralta, I.E. (2002) *Cistanthe*. In: Eggl, U. (ed) Illustrated handbook of succulent plants: dicotyledons, vol. 2: 380-386. Springer Verlag, Berlin, Heidelberg & New York.



---International Rock Gardener---

- Gajardo, R. (1993) La vegetación natural de Chile. Clasificación y distribución geográfica. Editorial Universitaria, Santiago de Chile. 165 pp.
- Hershkovitz, M.A. (2006) Ribosomal and chloroplast DNA evidence for diversification of western American Portulacaceae in the Andean region. [Gayana Bot. 63\(1\): 13-74.](#)
- Hershkovitz, M.A. (2018a) Synopsis of a new taxonomic synthesis of Montiaceae (Portulacinae) based on rational metadata analysis, with critical new insights on historically poorly understood taxa, and a reevaluation of historical biogeography. Preprints 29 pps.
<https://www.preprints.org/manuscript/201808.0496/v1>
- Hershkovitz, M.A. (2018b) *Cistanthe philhershkovitziana* (Montiaceae), a remarkable annual species of *Cistanthe* sect. *Cistanthe* from Chile. [Phytologia 100: 208-221](#)
- Knowles, L. (2018) Floral treasures in an El Niño year. The Alpine Gardener: J. Alp. Gard. Soc.: 374-401.
- Muñoz, M. & Serra, M.T. (undated) Ficha de especie clasificada, *Cordia decandra*. Ministerio del Medio Ambiente, Santiago de Chile. 6 pp.
- Marticorena, C. & Quezada, M. (1985) *Calandrinia*. In: Catálogo de la flora vascular de Chile. Gayana Bot. 42: 63.
- Peralta, I.E. (1995) A new species of the genus *Cistanthe* Spach (Portulacaceae) *Cistanthe arancioana*. Gayana Bot. 52: 45-47.
- Reiche, K. (1898) Portulacaceae. In: Flora de Chile, vol. 2: 323-361. Imprenta Cervantes, Santiago de Chile.
- Spach, É. (1836) *Cistanthe*. In: Histoire Naturelle des Végétaux. Phanerogames 5: 229.
- The Plant List (2013) Version 1.1. Published on the Internet; <http://www.theplantlist.org> (accessed 20 February 2019).
- Tronco-Palacios, J. & Garin, C.F. (2013) On the identity of *Liolaemus nigromaculatus* Wiegmann, 1834 (Iguania, Liolaemidae) and correction of its type locality. Zookeys 294: 37-56.
<http://europemc.org/articles/PMC3677321>
- Ward, B.J. (2004) [The plant hunter's garden: the new explorers and their discoveries](#) 120-133. Timber Press, Portland, Oregon & Cambridge, U.K.
- Watson, J.M. & Flores, A.R. (2017) The Chilean Flowering Desert. IRG 94: 2-27.
<http://www.srgc.org.uk/logs/logdir/2017Oct261509039468IRG94.pdf>
- Watson, J.M., Elvebakk, A. & Flores, A.R. (2015) *Calandrinia ranunculina*. In: Elvebakk, A., Flores, A.R. & Watson, J.M. Revisions in the South American *Calandrinia caespitosa* complex (Montiaceae). Phytotaxa 203(1): 11-12.



---International Rock Gardener---

---Travels in South America---

EXPLORING THE MOUNTAINS OF CENTRAL PATAGONIA – Martin Shearer

In 2017 I put together a tour (led by Harry Jans) to explore the central region of Argentine Patagonia – the provinces of Chubut, Río Negro and southern Neuquén. My three aims for the trip were to photograph the elusive, genuine *Viola columnaris* in flower, to explore selected central Patagonian mountains and to update some of my plant images from areas I had last visited pre-2006, when I was yet to convert to digital photography. We arrived in Patagonia on 29th November, gradually travelling north, leaving Patagonia on 16th December. We visited a range of habitats from dry steppe to mountain slopes and summits, nothofagus woodland and temperate rain forest, but in this article I want to focus on one high steppe site (Lago Vinnter) in Chubut province and six mountains, paying particular attention to habitats above the treeline. These are, moving north, La Hoya (Esquel, Chubut); Cerro Catedral and Mirador de Nirihuau (Río Negro); Cerro Chapelco, Cerro Colorado and Cerro Colu Huincul (Neuquén).

The timing of spring can be critical in determining which species are in flower, and I was somewhat apprehensive when Argentinian friends informed me that spring was later than usual, with snow still on some of the mountains that we hoped to visit. As it turned out, despite drifts of snow remaining, we had access to all of the mountains, and were able to find and photograph some beautiful early spring flowers.

Lago Vinnter – Chubut Province (43°54´S, altitude 935 m)



Fig.1 – Lago Vinnter. *Viola columnaris* grows on the bank above the strandline.

---International Rock Gardener---

Lago Vinter [Fig.1] sits on the Argentine-Chilean border, becoming Lago Palena on the Chilean side. It drains eastward via Río Corcovada, which loops north then west, eventually making its way to the Pacific. The northern and western shores are clothed in dense nothofagus woodland, but the drier eastern shore supports an elevated steppe community.

The botanist Carl Skottsberg described *Viola columnaris* [Figs 2 and 3] from the Chile, about 40 km southwest of Lago Vinter, and he documented the species as also occurring here. We had visited the lake in previous years in early December, but, although we found viola rosettes, on each occasion plants were in seed. This year, with a late spring, we were able to photograph the viola for the first time in flower. It matched Skottsberg's description perfectly, and we could confirm that it was markedly different to other more northerly-distributed related species with which it had been previously confused, notably *V. petraea* and *V. pachysoma*; we were able to publish these results earlier this year (*Watson *et al.* 2018).



Fig.2 – *Viola columnaris*. Rosettes can be green or brown.

The flowering plants of *V. columnaris* were growing in sandy-gravelly soil on a low bank just above the strand line. Interestingly we also found a few post-flowering *Viola sacculus* and *Barneoudia major* (Ranunculaceae), both high mountain species that we have previously seen on the high bare peaks above the lake.



Other plants of interest in the area were *Oreopolus glacialis*, *Anemone multifida*, *Adesmia parvifolia*, *Discaria chacaye*, *Calceolaria biflora* and the orchids *Chloraea magellanica*, *C. alpina* and hybrids between the two, *Correorchis cylindrostachya* and *Gavilea odoratissima*. There are quite a few species that can be found in a wide range of habitats ranging from dry steppe to mountain slopes and summits.

Fig.3 – Close-up of *Viola columnaris* flowers.

---International Rock Gardener---

Oreopolus glacialis (Rubiaceae) [Fig.4] and *Anemone multifida* (Ranunculaceae) [Fig.5] are two such species, the latter being relatively easy in cultivation the former quite difficult.



Fig.4 – *Oreopolus glacialis* growing in sandy steppe.



Fig.5 – *Anemone multifida* on the shore of Lago Vinnter. When growing high in the mountains the plants can be very compact.



Fig.6 – La Hoya with its steep scree slopes.

La Hoya – Chubut Province (42°48`S, walking to an altitude of 1955 m)

La Hoya [Fig.6] is a small ski resort above the town of Esquel. It is a steep-sided valley, with rocky outcrops and spectacular scree. Since our previous visits, a herd of guanacos [Fig.7] had become established in the valley and we saw evidence of puma here. Snow remains in the upper valley until late spring, and plants are growing in fairly wet conditions as water drains through scree. In the bottom of the valley wet organic soils form areas of bog.



Fig.7 – Guanaco, *Lama guanicoe*.



Fig.8 – *Callianthemoides semiverticillata*, a most extraordinary buttercup.



Fig.9 – Large cushions of *Azorella madreporica* among rocks, here with *Empetrum rubrum*.

---International Rock Gardener---

Scree specialists we found here included the buttercup *Callianthemoides semiverticillata* [Fig.8], *Tristagma circinatum* and *Menonvillea nordenskjoeldii*, all adapted to live in a deep mobile habitat where they are able to push and grow through the coarse substrate.

Among the more stable rocky areas we found cushion, mat-forming and rosetted species including *Azorella madreporica* [Fig.9], *A. lycopodioides*, *Oxalis erythrorhiza*, *Empetrum rubrum*, *Nassauvia pygmaea*, *Hamadryas kingii* and *Viola sacculus*.



Fig.10 – *Oxalis erythrorhiza* forms tight cushions among rocks. It is barely in grown; in cultivation cushions tend to be more lax and flowering not quite as prolific.

The population of *V. sacculus* [Fig.11] here has pristine white flowers with a small yellow throat, occasionally appearing very pale blue as the flowers begin to go over and the blue petal reverse shows through. In the south of its range flowers are much more variable in colour.



Fig.11 – *Viola sacculus* on the upper mountain slopes.



Fig.12 – The dioecious buttercup *Hamadryas kingii* (male plant).

The unusual dioecious buttercup species, *Hamadryas kingii* [Fig.12] is at its northern limit here and the plants look quite different to more southern populations, sufficiently so for them perhaps be considered distinct. Flowers here are always yellow and are held well above the foliage. Plants are rhizomatous and can form multi-rosetted clumps. Further south plants are usually one-to-two rosetted, with short flower stalk and with flowers varying from deep brown to yellow.



In the bogs of the valley floor we recorded a wide range of species including *Caltha sagittata*, *C. appendiculata* [Fig.13], *Nassauvia pygmaea*, *Nassauvia argyrophylla* and *Empetrum rubrum*, with the red-flowered *Ourisia ruellioides* carpeting the banks of a small snowmelt stream lower down the valley.

Fig.13 – *Caltha appendiculata*, showing the characteristic lobes on either side of the leaf midrib.



Fig.14 – The snowy peak and rocky outcrops of Cerro Catedral.

Cerro Catedral - (41° 10'S, walking to an altitude of 2100 m)

The Cerro Catedral massif [Fig.14] lies to the west of the popular tourist resort of San Carlos de Bariloche and reaches an altitude of 2405 m. It claims to be the largest ski resort in South America, and we were fortunate enough to be able to use the chairlifts to access the higher slopes, which consisted of steep scree slopes with rocky outcrops. As the spring was later than usual, large areas of snow made access to some areas difficult, but there were sufficient early flowering plants in pristine condition to make the climb worthwhile.

On the screes where snow had recently melted we found substantial colonies of *Callianthemoides semiverticillata* [Fig.15]. To my mind this is the world's most spectacular buttercup, even though it has been edged out of its original genus *Ranunculus*.

Fig.15 – *Callianthemoides semiverticillata* pushing through immediately after snowmelt.



---International Rock Gardener---



Fig.16 – *Oxalis adenophylla* in full bloom.



Fig.17 - *Viola sacculus*.

On the exposed screes and rocks many species were flowering, including *Oxalis adenophylla* [Fig.16], *Nassauvia pygmaea*, *Nassauvia pulcherrima*, *Huanaca andina*, *Menonvillea nordenskjoldii*, *Ourisia fragrans*, *Onuris graminifolia*, *Gaultheria pumila*, *Valeriana macrorhiza*, *Combera paradoxa*, *Adesmia glomerula* and, once again, *Viola sacculus* [Fig.17].

---International Rock Gardener---



Fig.18 – *Menonvillea nordenskjöldii*, a denizen of high mountain screes.



Fig.19 – *Onuris graminifolia*, flowering to perfection.

Menonvillea [Fig.18] and *Onuris* [Fig.19] are *Draba* relatives, both of which would be worth bringing into cultivation.

---International Rock Gardener---

In the shelter of rock outcrops, usually in shady crevices, we found *Ourisia fragrans*, [Fig.20] with flowers in shades of white, through pink to lilac. I always think of primulas when I see this species.



Fig.20 – *Ourisia fragrans*, as the name suggests, is strongly perfumed.

Lower down the mountain, around 1800 m, *Viola petraea* grew, quite variable in flower colour from white through to lavender-blue. This species has been confused in the past with *V. columnaris* and *V. cotyledon*. Both *V. petraea* and *V. cotyledon* are unusual in having nyctinastic (night-closing) flowers, so they are usually at their best for photography during late morning and afternoon, preferably in sunshine. [Figs.21 & 22]



Fig.21 – Flower colour in *Viola petraea* is quite variable.



Fig.22 – A white-flowered form of *Viola petraea*.



Fig.23 – Rocky outcrops along the ridgeline at Mirador de Nirihuau.

---International Rock Gardener---

Mirador de Nirihuau - Río Negro Province (41° 16'S, up to an altitude of 1500 m)

Mirador de Nirihuau [Fig.23] is a bare ridge just above the tree line above the Valle de Chahuaca, and sits on the edge of a group of mountains to the south of Bariloche and separated from the Cerro Catedral massif by a glacial lake, Lago Gutierrez. After driving to a convenient car park at 1325 m, an easy walk through nothofagus woodland brought us to the treeline, then a steppe dominated hillside and to an exposed gravelly/sandy ridge with rocky outcrops. We found many interesting plants in flower including *Viola petraea*, *Viola maculata*, *Tristagma circinatum*, *Olsynium junceum*, *Oxalis adenophylla*, *Oreopolus glacialis*, *Mulinum hallei*, *Nassauvia lagascae*, *Nastanthus scapigerus*, *Valeriana moyanoi*, *Calceolaria prichardii* and *Astragalus nivicola*.



There were some excellent colour forms of *Viola petraea* here [Fig.24], with variable amounts of "beard" on the flower. The commonest non-rosulate viola, found on steppe and mountain habitats, is *V. maculata* [Figure 25], one of the three yellow-flowered Patagonian species.

Fig.24 – A strikingly-coloured *V. petraea*.



Fig.25 – *Viola maculata* grows in dry steppe and mountain slopes.

---International Rock Gardener---



Fig.26 – The monocarpic valerian, *Valeriana moyanoi*.

Valeriana moyanoi [Fig. 26] is a monocarpic biennial species, flowering over several weeks and producing quite large seeds. We have flowered this in cultivation, so is well worth trying if seed ever becomes available.



Fig.27 – *Astragalus nivicola* growing with a pale-flowered form of *Oreopolus glacialis*.

Astragalus nivicola [Fig.27] is an attractive ground-hugging mountain species of this worldwide genus. As with many *Astragalus* species, the swollen seed pods provide additional interest later in the season.

---International Rock Gardener---

In Patagonia we find a range of small rosetted species of calceolaria related to, and often confused with, the south Patagonian species *C. polyrhiza*. Here the dominant species was *C. prichardii* [Fig.28].



Fig.28 – One of the small southern calceolarias, *C. prichardii*.



On a steep west-facing scree on the side of the ridge we made a couple of excellent finds. Although the *Oxalis adenophylla* [Fig.29] along the ridge line had flowers in the usual various shades of pink, on the scree slope were a number of pure white flowered plants.

Fig.29 – A rare white form of *Oxalis adenophylla*.

---International Rock Gardener---

On the same scree we found a really attractive form of *Olsynium junceum* [Fig.30]. This species is extremely variable in flower colour, but I have rarely seen plants as spectacular as this. *O. junceum* performs well in cultivation, either in containers in the alpine house, or outside in a raised bed.



Fig.30 – An unusual colour form of *Olsynium junceum*.



Fig.31 – The upper slopes of Cerro Chapelco.

---International Rock Gardener---

Cerro Chapelco – Neuquén Province (40°13', climb 1700 m to 1980m)

The Cerro Chapelco [Fig.31] massif is another ski resort where we were able to make use chair lifts to get above the treeline. Like Cerro Catedral, this is an area of steep scree slopes with rocky outcrops and the two mountains share many species.

There were numerous plants in flower here including *Viola dasyphylla*, *Tristagma nivale*, *Azorella lycopodioides*, *Oxalis adenophylla*, *Callianthemoides semiverticillata*, *Adesmia parvifolia*, *Calandrinia colchaguensis* and *Tristagma nahuelhuapinum*.

Fig.32 – *Viola dasyphylla* in full flower.



Below: Fig.33 – A cream-flowered form of *Viola dasyphylla*.





Fig.34 – Close-up of flowers of *V. dasyphylla* with well-marked petals.

Viola dasyphylla [Fig.32, 33 & 34] was at its best and most variable on this mountain. The flower background colour is usually white, but occasionally creamy-yellow, and the petals are marked with violet lines. The calyx is almost black, rarely pale yellow-green, and sticky. We often see ants associated with this species.



Calandrinia colchaguensis [Fig.35] is one of the most attractive members of the genus. It had dark green, broad, glossy leaves, with candy pink, or occasionally white, flowers. In habitat, it usually grows in areas that are wet in spring, drying as the summer progresses, when it becomes dormant. We grew this for a few years, and even though it flowered and formed fruit, germination of the resulting seed was non-existent or very poor. The easiest way to propagate this species, and many others in this genus, is by root cuttings.

Fig.35 – One of the most attractive calandrinias, *C. colchaguensis*.

---International Rock Gardener---

Tristagma nahuelhuapinum [Fig.36] was described by Ravenna but, in the latest edition of Flora Argentina, it is listed as a synonym of *Tristagma patagonicum*. We consider the species to be distinct and have retained the name pending a more thorough investigation of the genus. *T. nahuelhuapinum* is barely in cultivation.



Fig.36 – The white starry flowers of *Tristagma nahuelhuapinum*.



Fig.37 – The sandy-gravelly ridge at Cerro Colorado.

Cerro Colorado – Neuquén Province (40° 07'S, 987 m to 1760 m)

We had visited this mountain later in the season some years ago. There is a well-marked path through nothofagus woodland. The route is steep, climbing 773 m in 5 km, eventually breaking through the treeline to a landscape of red and black scoria (volcanic cinder). It then continues as a sandy-gravelly ridge with rocky outcrops. [Fig.37]

The early spring flora was in full bloom, with many species including *Viola dasyphylla*, *Calceolaria borsinii*, *Rhodophiala andicola*, *Ourisia fragrans*, *Oreopolus glacialis*, *Oxalis adenophylla*, *Tristagma nahuelhuapinum*, *Valeriana moyanoi*, *Calandrinia skottsbergii*, *Nassauvia lagascae*, *Gaultheria pumila*, *Azorella madreporica*, *Berberis empetrifolia* and *Valeriana boelckii*.



There were huge cushions of *Viola dasyphylla* [Fig.38] growing on the scoria (vesicular volcanic rock), some with cream flowers and others white, marked with violet-blue lines. White-flowered *Ourisia fragrans* formed large mats in the shade of rocky outcrops.

Fig.38 – An eye-catching form of *Viola dasyphylla*.

---International Rock Gardener---



Fig.39 – *Rhodophiala andicola* coming into bloom.



Fig.40 – Another small, but this time perennial valerian, *Valeriana boelckii*.

Growing through sand further along the ridgeline, *Rhodophiala andicola* [Fig.39] was just coming into bloom. Flowers are almost always deep pink with a dark throat, though very rarely we have found plants with white flowers. *Valeriana boelckii* [Fig. 40] is one of several small valerians native to Patagonia. As far as I know this is not in cultivation – but it certainly should be.

Fig.41 – The exposed and cold, windy ridge of Cerro Colu Huincul.

**Cerro Colu Huincul –
Neuquén Province (39°
56´S, 1800 m)**

Our final mountain, Cerro Colu Huincul [Fig.41], lies within Lanín National Park. In plant hunting expeditions in the mid 1920s, English plant collector Harold Comber explored this area and found one of the most distinctive and beautiful rosulate violas here, *Viola coronifera*. It flowers in early spring so we were concerned that we might be too late.

We climbed the scrubby lower slopes on a well-marked path. These lower mountain slopes were rich with orchids, rhodophialas and supported many herbaceous and shrubby species, but our aim was to climb steadily to reach the bare exposed ridgeline where *V. coronifera* [Fig.42] grows.

Once we reached the ridgeline we began our search for the viola as the weather changed for the worse, with wind and low cloud. Many of the plants here we had seen elsewhere on the trip. We found *V. coronifera* towards the end of the ridge growing in crevices among granitic rocks together with *V. dasyphylla*, a wonderful combination. [Fig.43]

This was a very successful trip. For rosulate violas it is important to visit central Patagonia in early spring, but wait until January and another suite of species comes into flower, including many Asteraceae, so well worth another visit in January-February!

* Watson J.M., Flores A.R., Sheader M. & Sheader A.-L. 2018. *Phytotaxa*.382(1): 113-124.





Fig.42 – The exquisite *Viola coronifera* growing through granitic rocks.



Fig.43 – We rarely find rosulate violas growing together. Here *Viola coronifera* and *V. dasyphylla* compete for space.

M.S

---International Rock Gardener---

--- A Plant History---

THE HISTORY OF *ERODIUM* x *VARIABLE* by Allan Robinson

In the limestone cliffs and outcrops of Northern Mallorca (Cap Formentor) grows a very attractive little erodium that has become a firm favourite of rock garden enthusiasts around the world. When you thumb through nursery catalogues, nowadays normally online, a great many varying descriptions can be found for *Erodium reichardii*. Not only does it vary in size and colour, but its name will vary tremendously too!

For many years in the mid 20th century it was more often than not listed as *Erodium chamaedryoides* (L'Héritier) but as time went on and the rules of nomenclature were applied, its specific epithet was corrected to *Erodium reichardii* (Murray). It would appear that this erodium commemorates Johann Jakob Reichard (1743-1782).

Johan Andreas Murray (1740-1791) described the species in 1780 and named it originally as *Geranium reichardii*. In 1824 the species was moved from Geranium to Erodium by A.P. De Candolle, so the correct citation should now read: ***Erodium reichardii* (Murray) DC.** L'Héritier's later name of *Erodium chamaedryoides* must now be regarded purely as a synonym.

Murray was born in Stockholm, Sweden and as a student he was taught by Linnaeus at Uppsala. He later took up a position at the Botanic Garden in Göttingen, Lower Saxony, Germany, where he was eventually promoted to Director in 1769.

Reichard, born in Frankfurt, studied at the Göttingen Botanic Garden as a student and later during his lifetime, wrote some treatises and named a number of plants himself. The two were contemporaries at Göttingen and travelled together to the Harz Mountains in Lower Saxony, to botanise the area. Reichard suffered from Pulmonary Tuberculosis and died a year or two after the erodium was described. I can find no explanation as to why Murray named the plant for him; it may have simply been to commemorate a friend and colleague who was very ill.



These two photographs show the colour range of wild *Erodium reichardii*. Photographs by David Green.

During the last eighty years at least, a pink flowered "*reichardii*" has been listed for sale in nursery catalogues. This was referred to either as *Erodium reichardii* 'Roseum' or *E. chamaedryoides* 'Roseum', even dropping the cultivar name at times. One of its characteristics was that it could, under beneficial growing conditions, make a fair sized clump between two rocks or in a pan for the alpine house.

---International Rock Gardener---

Almost all of the information given in catalogues regarding this tiny “Heron’s Bill”, is incorrect or misleading. When a colony of plants were found in Mallorca (Majorca) some years ago, the flower colour ranged from either pure white to mainly white with reddish veining. The intensity of the veining varied tremendously from plant to plant. There were NO pink forms although some may appear to be pink due to the intensity of the veining. Another characteristic is that wild Mallorcan plants seem to be far more compact in growth than their namesakes in cultivation. These points tend to make one realise that the old *Erodium reichardii* 'Roseum' is a hybrid that appeared somehow, many years ago.

Erodium reichardii growing wild in the north of Mallorca. This species tends to prefer moist or shaded sites in the Balearic Islands but does well in full sun in the U.K.

Photo courtesy of Jeroen Willemsen of

www.botanicaljourneys.com



The RHS Lindley Library in London has kindly discovered a few interesting facts amongst old nursery catalogues. The true *Erodium reichardii* first appears in the 1867 Backhouse of York catalogue and then several more times prior to 1900. I have traced the cultivar ‘Roseum’ to the 1937 catalogue of “Robinsons of Eltham”, my family’s nursery. In his book “The Present Day Rock Garden”, (also published in 1937), Sampson Clay actually refers to “*Erodium Hybridum Roseum*” and states it is a hybrid between *Erodium corsicum* and *Erodium reichardii*.

(The words “Hybrida , Hybridum or Hybridus” were commonly used during this early period whenever a plant was thought to be a hybrid. This format could become very confusing when a Genus had several different hybrids attributed to it, all bearing the same name. There have been at least three different Erodiums referred to as “hybridum” in the past).

The Lindley Library went even further back and found an early entry in *Clarence Elliott’s 1924 catalogue which is most informative: - ***Erodium Hybridum Roseum*** “ *this plant has been published as chamaedrioides roseum which is a false quantity. Roughly it is a larger chamaedrioides with much larger rosy flowers. New*”. So in 1924 this *Erodium* had already been described in a book or catalogue for Clarence to be able to realise there was a problem. It would be nearing the end of the twentieth century before the mystery was solved.

* Clarence Elliott ran the famous Six Hills Nursery at Stevenage, trained at the Backhouse Nursery of York, popularised sink and trough gardens, collected plants from around the world and even brought back a few of the unknown blue- egg laying Araucana chickens from South America, amongst other things.

---International Rock Gardener---

Later in Harrogate, Yorkshire, William "Bill" Bishop introduced a larger growing plant altogether, with deeper pink flowers. This plant was first available, as far as I know, from Hollett's Alpine Nursery, Sedbergh, Cumbria, listed as *Erodium chamaedryoides* 'Bishop's Form'. Mr Hollett closed the nursery many years ago, but his catalogues from the 1970s remain and refer to the cultivar as "NEW". He describes it as a "greatly improved *Erodium chamaedrioides roseum* with very large deep reddish-pink flowers all summer". His larger growing form with deeper flowers was the ancestor of today's range of colourful *Erodium x variable*. Bill's son Nigel informs me that his Father was Director of Harrogate Parks from 1945 to 1971 and had always maintained a lifelong interest in Rock Garden and Alpine plants. Bill and his staff produced many tens of thousands of plants each year at their Harrogate Parks nursery.



Far left: William "Bill" Bishop is seen here taking a break from gardening at his home in Yorkshire, England.

Left: Bill Bishop is awarded his first A.G.S. Farrer Medal in 1954 for a pan of a rare primula raised from Nepalese seed.

When my Grandfather retired from our family nursery during the 1960s, he set up a small mail order business selling rooted cuttings and seedlings. After a lifetime as a nurseryman he just couldn't stop propagating, his garden was a mass of plants used for stock plus frames for producing cuttings etc.. He ploughed most of the money earned into new introductions and many keen gardeners were pleased to be able to purchase interesting material at a low price and grow them on themselves.

Hollett discovered my Grandfather prior to opening his nursery and ordered cuttings in large numbers. In addition, he sent stock of various plants to my Grandfather with instructions of how many rooted cuttings he would like to receive in the near future. One of these plants was *Erodium* "Bishop's Form". Our nursery was sent a few rooted pieces quite early on, as my Grandfather thought it interesting and fairly unique. Although the time line on this is a little fuzzy (late '60s to the early '70s), the facts are correct.

So undoubtedly, Bill Bishop knew C.G.Hollett of Greenbank Nursery in Sedbergh, Yorkshire (now Cumbria). Hollett was building up stocks prior to the early seventies, in preparation for the opening of his new Alpine Plant Nursery. Bill was relatively close and would have been an excellent source of plant material for Hollett. At some point, the larger growing pink erodium was passed over from Bill Bishop to Hollett, we just do not know exactly when this took place. When Hollett listed the erodium in his catalogue, he referred to it as "Bishop's Form" which gives me the impression that there is an air of familiarity in the name. It shows he knew Bill Bishop well enough to use this term and assumed others would too, otherwise a vaguer or more formal name would probably have been used.

Not long after the introduction of "Bishop's Form" by Hollett, Joe Elliott (son of Clarence) at his also famous Broadwell Nursery at Moreton-in-the-Marsh, Gloucestershire, introduced a white, red veined counterpart to William Bishop's plant. Both cultivars displayed larger flowers and growth than the old 'Roseum'. Gradually, a few other similar forms appeared in various nurseries, more often than not bearing brighter or deeper flowers than the original.

---International Rock Gardener---

Some years later at the RHS Garden, Wisley, Surrey, England, Dr. Alan Leslie also concluded that the pink or larger growing forms were hybrids. Initially, in 1980, he described the cross between *Erodium corsicum* and *Erodium reichardii*, naming it *Erodium x variable*. Unfortunately not everyone was convinced that these two species had hybridised. In order to remove any doubt, two decades later a project was announced. The Royal Horticultural Society working with the University of Reading, embarked on the genetic testing of the two species and their hybrids and cultivars. DNA evidence showed that plants such as 'Album', 'Bishop's Form', 'Derek', 'Red Rock' and the old *Erodium reichardii* (*chamaedryoides*) 'Roseum' itself, were actually hybrids between *Erodium corsicum* and *E. reichardii*.



Erodium corsicum photographed growing wild in Corsica. Photo courtesy of Jeroen Willemsen.

This meant that Clarence Elliott knew what he was talking about in 1924 and three quarters of a century later he was proved to be correct. The original larger growing form from Hollett's Nursery should now be referred to as *Erodium x variable* 'William Bishop' as "Bishop's Form" is not accepted under the today's rules of nomenclature.

In the 1990s I took the very rare opportunity to listen to France's *Erodium* expert, Professor Guy-Georges Guittonneau, who was giving a lecture on the Genus *Erodium* while on a trip to England. During the talk he casually mentioned that he had tried un-successfully to hybridise *Erodium corsicum* with *Erodium reichardii* for a period of more than twenty years. He seemed quite sure these two species would not cross.

Bearing this in mind, some years later I decided to plant some of the true wild forms of *Erodium reichardii* alongside a few *Erodium corsicum*, the standard mauve-pink form. These were planted near each other in a raised Tufa bed under glass, where they flowered for a long period during the summer. The following spring many seedlings erupted in the area of the two species, most were *Erodium reichardii*, some others were *Erodium corsicum*. Distributed amongst these seedlings were a very small number of an erodium I had never seen before and as they matured I realised the two species had crossed. I supposed this had to be the hybrid "*x variable*" but it did not look anything like 'William Bishop' or the other forms in commerce. These plants had slightly greyish foliage and pale apple blossom pink flowers that were more deeply veined. The habit was closer to *E. reichardii* than *E. corsicum* and this probably meant that the former was the seed parent. I then realised the reverse cross would more than likely give us the characteristics of the old 'Roseum' and its larger growing cousins. (The joint statement by the University of Reading and the Royal Horticultural Society does in fact state that the seed parent is *Erodium corsicum*).

I have contacted Dr Alan Leslie regarding the status of my hybrids and he assures me that regardless of which of the two species is the seed / pollen parent, all the progeny must be regarded as Erodium x variable. So it seems that this group of erodiums could become even more complicated, should the reverse cross be marketed.

Professor Guittonneau was quite sure it was impossible to hybridise these two *Erodium* species. John Anton-Smith during his many years of hybridising erodiums, made a discovery that explained Professor Guittonneau's failure. John realised that for the stigma and pollen to ripen, a suitable temperature had to be reached. John did all his work in a polytunnel open at both ends but it raised

---International Rock Gardener---

the temperature enough for stigma and pollen to ripen. Professor Guittonneau had shown photos of his erodiums lined out in the open ground at Orleans University, this had not given the correct conditions for pollination to take place in many cases.

Erodium corsicum seen here growing wild in Sardinia. Photo courtesy of Giuliano of www.atlantides.it



Little is known how the original cross came about, seemingly appearing a few years after WW1. What was known as *Erodium reichardii* 'Roseum' and is now correctly *Erodium x variabile* 'Roseum' after DNA confirmation, was not described in any publication when raised early in the 1900s, as far as we know.

Heinrich Moritz Willkomm was born 43 years earlier than Franz Sündermann and by the time Franz was operating his Botanic Nursery at Lindau by Lake Constance in Southern Germany, Heinrich had accumulated many plants from the Iberian Peninsula. He had organised two trips to Spain and Portugal in the mid-1800s and both expeditions were financed by selling subscriptions for the seed etc. that he would later collect there. Then in the 1870s, Willkomm made a trip to the Balearic Islands, no doubt bringing back stock of *Erodium reichardii*.

I'm sure that this connection was the source of Franz Sündermann's stock of Spanish erodiums. Willkomm's two collecting trips to Spain were made prior to Sündermann's birth and his Balearic Island visit was during Franz's early childhood.

Franz later honoured Willkomm with *Erodium x willkommianum* in 1906, (sometimes listed as *E. willkommii*), an interspecific hybrid between *E. cheilanthifolium* and *E. glandulosum*. Another hybrid introduced at the same time was *Erodium x kolbianum*, named for his friend, Garden Architect Max Kolb. This time Franz used *Erodium rupestre* as the seed parent crossed with *E. glandulosum*, (Knuth's published description of 1912 does not match the plant in circulation today, the true *E. x kolbianum* appears to be lost). As these hybrid Erodiums were introduced in 1906, it would point to Willkomm as the source of Erodiums in his collection prior to his own expeditions.

As Franz Sündermann was producing Erodium hybrids in the early 1900s and as we know he had accumulated species from Southern Europe, I feel it is highly likely that he was the person responsible for creating *Erodium x variabile* 'Roseum'.

In addition to Willkomm's journeys, Franz organised his own collecting trips from 1908 to 1912, visiting various countries in Europe. I have extensively searched German records on the Internet regarding the travels of Franz Sündermann, between 1908 and 1912. Finally I found a list of countries where Franz had collected plant material and it verified he had visited both the Balearic Islands and Corsica. It seems Franz could have quite easily hybridised *Erodium x variabile* from material he had personally collected on both islands. If he started hybridising his own material in 1913, this would mean he would have been working well into WW1.

With the arrival of the Erodium in the U.K. during the 1920s, this would also add a little credence to it emanating from Germany at some point shortly after WW1. It may be that lack of manpower due to the massive mobilisation needed for the war effort caused description and publication to be shelved and forgotten.

---International Rock Gardener---

When Clarence Elliott's *Erodium Hybridum Roseum* was actually realised to be the original *E. x variabile* another mystery was revealed. All the modern forms similar to and including 'William Bishop' are larger in stature than the original. Professor Guittonneau in a 1986 paper declares they are tetraploid forms, the chromosomes having doubled. Plants such as 'William Bishop' seem to measure about twice the size of the old 'Roseum'.

How these Tetraploid forms came about is a mystery but we do have a few documented events that are similar. In the U.S. years ago, a strong herbicide was used which killed most of an Ajuga but what survived mutated into a Tetraploid entity, now known as 'Catlin's Giant'. *Erodium x variabile* 'William Bishop' appeared during a period when little or no guidelines existed for weedkiller use, so spray drift could have resulted in the larger format. At the time, the chemical 2-4-5-T was used extensively as a "Brushwood Killer" and was also employed by U.S. Forces during the Vietnam War as an ingredient of "Agent Orange". Side effects of 2-4-5-T "weed killer" can be found online.

Returning to the cultivar 'Album' introduced by Joe Elliott of Broadwell Nursery, there is an unresolved problem concerning the name. Joe never mentioned if he raised the plant himself or whether he was given it to introduce via his catalogue. Latinised cultivar names are not allowed after 1959 and the *Erodium* Registrar did not know the date of introduction.

I purchased three plants from Joe Elliott the first time he listed the plant in the early 1970s. On arrival I noted the larger format growth similar to 'William Bishop' and I assumed it was derived from Bishop's original tetraploid as seedlings do appear regularly around plants that are warm enough. 'Joe's 'Album' is not pure white but has dark red veining, there are several poor clones being sold under this name that have small flowers, no veining or both.

To overcome the problem regarding the unacceptable Latinised cultivar name and the fact Joe's plant isn't an albino; I have suggested a new cultivar name of '**Joe Elliott**'. (Joe had originally listed the plant as *Erodium chamaedryoides* 'Album' but it is most definitely not a form of the species from Mallorca). The last I heard from David Victor, the then *Erodium* Registrar, was that he accepted the facts and was changing the cultivar name to 'Joe Elliott'. There is nothing to commemorate Joe Elliott apart from a rare *Campanula* bearing his name. This choice hybrid alpine "Bell Flower" is usually grown as a pan specimen for exhibition, unfortunately it is caviar to slugs and snails and thus its existence is precarious. I can't think of a better name for Joe's *erodium* introduction as it remembers a famous nurseryman and plantsman, now sadly missed.

My original three plants were propagated regularly and many years later some were used in the DNA work conducted by Reading University. The plants given to Reading University were direct descendants of the originals from Broadwell Nursery by vegetative propagation.

(Joe ran his interesting nursery for many years and it incorporated his Father's famous "Six Hills Nursery". Clarence Elliott's Six Hills Nursery was the home to several well-known Plantsmen prior to WW2. When I asked my Father why it was called Six Hills, he said that when he visited prior to 1939, the name was immediately obvious. Six very large mounds of soil had been placed on the side of the Great North Road, between the nursery and the highway. These artificial "hills" were planted with rock garden and alpine plants and were tended by the staff; it must have been quite an advertising gimmick at the time).

So, when perusing nursery lists and you come across an *Erodium reichardii*, you will more than likely be looking at a form of *Erodium x variabile*. The true *Erodium reichardii* is very compact and makes an excellent pan for the Alpine House; it will flower from spring to autumn if kept damp. You will find seedlings appearing in the pan or the sand plunge if one is used, each individual plant will differ from the next.

Forms of *Erodium x variabile* need to be grown from cuttings to enable the variety to be kept true to name, root cuttings will also give you good plants. Double flowered forms cannot be grown from root cuttings; this characteristic is not passed on through the root and will only be transferred via top cuttings. This is the same principle as some variegated plants losing the variegation when

---International Rock Gardener---

propagated by root cuttings. It is well worth potting on any *Erodium x variabile* seedling that appears, it may prove to be a winner.



Two photos of a modern day *Erodium x variabile* hybrid showing the intense colour now being achieved. Photos courtesy of David Green.

Whilst compiling this article, several people have freely given information and/or photographs to assist with the understanding of this group of erodiums. I wish to thank Annie Ward, Dr. Alan Leslie, Mike Grant, Nigel Bishop, Jeroen Willemsen of www.botanicaljourneys.com, Giuliano of www.atlantides.it and the late David Green.

A. R.

Photos of *Erodium* 'William Bishop' from the SRGC Forum: These two photos are from Matt Topsfield, who gardens in the Outer Hebrides of Scotland.



In the journal of the SRGC ['The Rock Garden' 110 of January 2003](#), there is an article that may be of interest to readers here.... it is by Peter Smith and is titled "Erodium for the Rock Garden."