# International Rock Gardener

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---International Rock Gardener---

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We have good news on the health of loyal contributors recently troubled by ill-health – Martin Sheader is continuing to recover from his Covid-19 experience and returns to the pages of the IRG with a report on South American *Adesmia* species. John and Anita Watson, who were also struck down by this frightening virus, with John being in hospital in a bad way, have happily been reunited at their home and we hope they will soon be able to contribute once more to our pages. It is when this pandemic affects those known to us that it becomes clearer that it will be haunting all our lives for some time to come. Less welcome news is that of the death of former SRGC President Glassford Sprunt who for many years was proofreader and indexer of the IRG and was a supporter of SRGC for decades. Our condolences go to his loving family – he will be much missed.

In this IRG we also take a look back through history to remember the original collectors of a well-known American plant, *Calochortus lyallii* – brought to us by Arthur MacKinnon of Washington State. Zdeněk Zvolánek and Franz (František) Paznocht combine to introduce a saxifrage cultivar which they hope will become more widely grown.

Cover photo: Autumn colour in Highland Perthshire, photo Julia Corden

In the northern hemisphere the fall, or autumn colouring is showing well in the trees. Our thanks to SRGC President Julia Corden for these charming photos of scenes in Highland Perthshire.

Loch Dunmore near Pitlochry

# ---International Rock Gardener---

## ---Overview of a South American Genus---

It is a real delight, after his recent, very serious illness, to have Martin Sheader rejoin the IRG with this photo-essay on *Adesmia*.

## Patagonian Peas by Martin Sheader

We made our first trip to Patagonia in 1997 and from that point we were hooked, visiting the area 15 times to date, always in the austral spring and early summer (November to January) when many species are in flower. Some of the trips were AGS tours, but most were small group trips with fellow enthusiasts Peter Erskine, Chris Brickell, Hilary and Austin Little, David Haselgrove and my late wife Anna-Liisa. On some of our visits we were accompanied by Argentinian botanist Marcela Ferreyra.

Over the years we amassed thousands of images and spent many enjoyable (if sometimes frustrating) hours perusing the sparse and confusing taxonomic literature to identify the many species that we had photographed. After putting in so much effort we thought a field guide to the area was needed and produced what is arguably the best photo guide to plants of the mountains and steppe (Sheader M. *et al.* 2013. *Flowers of the Patagonian Mountains.* AGS publication).

One of the plant families to which we devoted much effort was the Leguminosae (Fabaceae), and in particular the genus *Adesmia,* of which about 50 species are recorded as occurring in Patagonia. They occupy a wide range of habitats from dry open desert or steppe to rocky mountain slopes and bare exposed mountain ridges. Species can be organised into two subgenera, *Adesmia* which lacks spines, and *Acanthadesmia* with well-developed spines, the latter mainly associated with steppe habitats. In this article, apart from a single *Acanthadesmia* species, I am including only members of subgenus *Adesmia*, those species which would be wonderful in cultivation should seed ever become available. I am featuring the species in no particular order, other than grouping together those that are clearly related. All photographs have been taken between November and January.

*Adesmia karraikensis* habitat - here growing on hills north of the Santa Cruz valley.

***Adesmia karraikensis*** Spegazzini
This is a member of the subgenus *Acanthadesmia*, but its spines are small, simple and barely visible (though easy to feel if you place your hand on the mat!). The flowers are an intense orange-yellow, 8-12mm, and the leaves slightly succulent, the plants forming mats to about 40cm across. The species has a limited distribution in southwestern Santa Cruz, Argentina's southernmost mainland province, where it grows on exposed ridge tops at about 900m.

*Adesmia karraikensis*

*Adesmia karraikensis*

***Adesmia ameghinoi*** and ***A. aueri*** are often confused. Both have up to 3 pairs of leaflets per leaf and both have a pair of prominent terminal appendages on the stipules. *A. aueri* has markedly pubescent leaves and usually forms a mat, whereas *A. ameghinoi* has greener less-pubescent leaves and usually forms a cushion.

***Adesmia ameghinoi***
Spegazzini
This widespread steppe species is found in stony and sandy habitats up to about 800m, and occurs in the two southernmost Argentine mainland provinces. The plants form dense leafy cushions or mats to about 40cm across and can become almost completely covered in flowers in spring. Flowers 10-15mm; leaves have 3 pairs of leaflets.

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*Adesmia ameghinoi*

*Adesmia aueri* habitat

***Adesmia aueri*** Burkart

This arid steppe species occurs in suitable habitats throughout Argentine Patagonia. Mats are up to 30cm across. Flowers (13-18mm) are solitary and project just above the foliage. Leaves are digitate with 1-3 pairs of leaflets.

*Adesmia aueri* – habit and habitat

*Adesmia aueri* showing leaves and the stipules on the main stem with 2 long projecting appendages, a character it shares with *A. ameghinoi.*

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***Adesmia suffocata*** Hooker
A remarkable arid steppe species occurring in sandy soils at 650-750m in Chubut and Santa Cruz (Argentina). It forms a tight silvery cushions up to 40cm across. Wind-blown sand is trapped between the rosettes giving rise to domed cushions. The orange-yellow flowers (6-7mm) are in clusters of 1-3, and the silvery leaves have 2-4 leaflets.

*Adesmia suffocata*

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*Adesmia suffocata*

*Adesmia pumila*

***Adesmia pumila*** Hooker
This southern species occurs on pastures, sometimes on lake margins or on rocky slopes with seepage at altitudes up to about 600m.It can be found in southern Santa Cruz province (Argentina), Magellanes (Chile) and Tierra del Fuego. The species is rhizomatous forming compact mats. The flowers (10-12mm) are solitary and are held just above the foliage. There are 3-5 leaflets per leaf, usually with glandular pubescence.

***Adesmia corymbosa*** and ***A. papposa*** are easily confused. Both have flowers in terminal racemes and both have up to 10 pairs of leaflets per leaf.

***Adesmia corymbosa*** Clos
This widespread species occurs in steppe and mountain habitats throughout Patagonia. Its growth is lax or erect with flowering stems to 20-30cm. The inflorescence is a many-flowered raceme. Flowers are small (7-10mm) and leaves have 6-10 pairs of sericeo-pubescent leaflets.

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***Adesmia papposa*** (Lagasca) De Candolle
This species occurs on rocky mountain slopes of northern Patagonia. Plants are up to 25cm across with flowers (6-8mm) in terminal racemes. Leaves have 5-10 pairs of leaflets with black glands along the margins.

*Adesmia papposa* habitat

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*Adesmia papposa*

***Adesmia arachnipes*** Clos
A Chilean endemic from northern Patagonia inhabiting mountain screes. Leaves with 4-6 pairs of folded, slightly hairy leaflets. Flowers in lax racemes of 4-6 flowers.

*Adesmia tehuelcha*

***Adesmia tehuelcha*** Spegazzini
A low branching herb growing to about 15cm high from southern Patagonia, this grows on sandy hillsides and steppe. Leaves have 3-4 pairs of pilose leaflets. Flowers in many flowered racemes.

*Adesmia tehuelcha*

*Adesmia tehuelcha* habitat - Lago Cardiel

***Adesmia dubia*** Correa Another northern species (Neuquén, Argentina), growing in sand and among rocks in the steppe and lower mountain slopes, 1,475-1,600m. The spreading growth reaches about 15cm high. Leaves have 6-8 pairs of folded leaflets. The flowers (7-8mm) are in terminal racemes.

***Adesmia retusa*** Grisebach
A small mat-forming species found in sparse woodland and on mountain slopes. Leaves have 5-12 pairs of retuse (blunt and with a slightly notched apex) leaflets and the flowers (10-15mm) are in few-flowered racemes.

***Adesmia villosa*** and ***Adesmia ruiz-lealii*** are closely related with the former growing in the steppe and the lower slopes of mountains, and the latter restricted to high montane habitats. Both have long silky hairs and relatively large flowers.

*Adesmia villosa*

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*Adesmia villosa*

***Adesmia villosa*** Hooker
A rhizomatous perennial herb to 12cm high. This species occurs in sandy steppe habitats, dry hillsides and lower mountain slopes throughout Patagonia. The foliage is covered in long silky hairs with about 6 pairs of leaflets per leaf. Flowers are large (11-20mm) and solitary, with calyx lobes much longer than the calyx tube.

*Adesmia villosa*

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Grey shoots of *Adesmia ruiz-lealii* growing through *Oreopolis glacialis* and *Junellia congesta.*

*Adesmia ruiz-lealii*

*Adesmia ruiz-lealii* shoots growing through a cushion of *Benthamiella azorella.*

***Adesmia ruiz-lealii*** Burkart

A small rhizomatous species, often growing through the cushions of other mountain species. In *Flora Patagonica* it is recorded from a single site in northern Santa Cruz (Argentina), but we have recorded it on mountains from Neuquén south to Santa Cruz. The small leaves (about 1cm long) are reflexed, with 4-5 pairs of silvery leaflets. Flowers are relatively large (10mm).

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*Adesmia ruiz-lealii :* To the left, grey shoots are growing through an *Oreopolis glacialis* mat. Also present are *Viola auricolor* and *Oxalis laciniata* var. *pubescens.*

***Adesmia lotoides*** Hooker This is a small rhizomatous mat-forming herb to about 20cm across, found in dry steppe habitats throughout Patagonia. It is easily distinguishable from other species in having a single pair of leaflets per leaf. The relatively large flowers (9-12mm) are solitary and held just above the leaves.

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*Adesmia lotoides*

*Adesmia lotoides*

***Adesmia longipes***
R.A. Philippi
A rhizomatous low-growing species, up to 10cm high growing among rocks and screes in northern Patagonia. Leaves have 7-10 pairs of glabrous folded leaflets. The flowers (8-9mm) are in short corymbs up to 8 in number.

***Adesmia quadripinnata*** Hicken (Burkart)
This is a small annual herb found in sandy steppe and among scoria in northern Patagonia. Leaves have 3-5 pairs of folded pubescent leaflets and the tiny solitary flowers (6-8mm) are white with violet / maroon lines.

***Adesmia aphananantha***, ***A. parvifolia***, ***A. burkartii*** and ***A. lanata*** are a group of closely related and often confused species. The taxonomy of this group of species requires further study.

*Adesmia aphanantha*

***Adesmia aphanantha*** Spegazzini
This is a mat-forming species occurring in dry steppe and often by disturbed road margins from Río Negro to Santa Cruz (Argentina). The tiny flowers (4-5mm) are white / cream with violet lines and the leaves have 3-7 pairs of pubescent leaflets.

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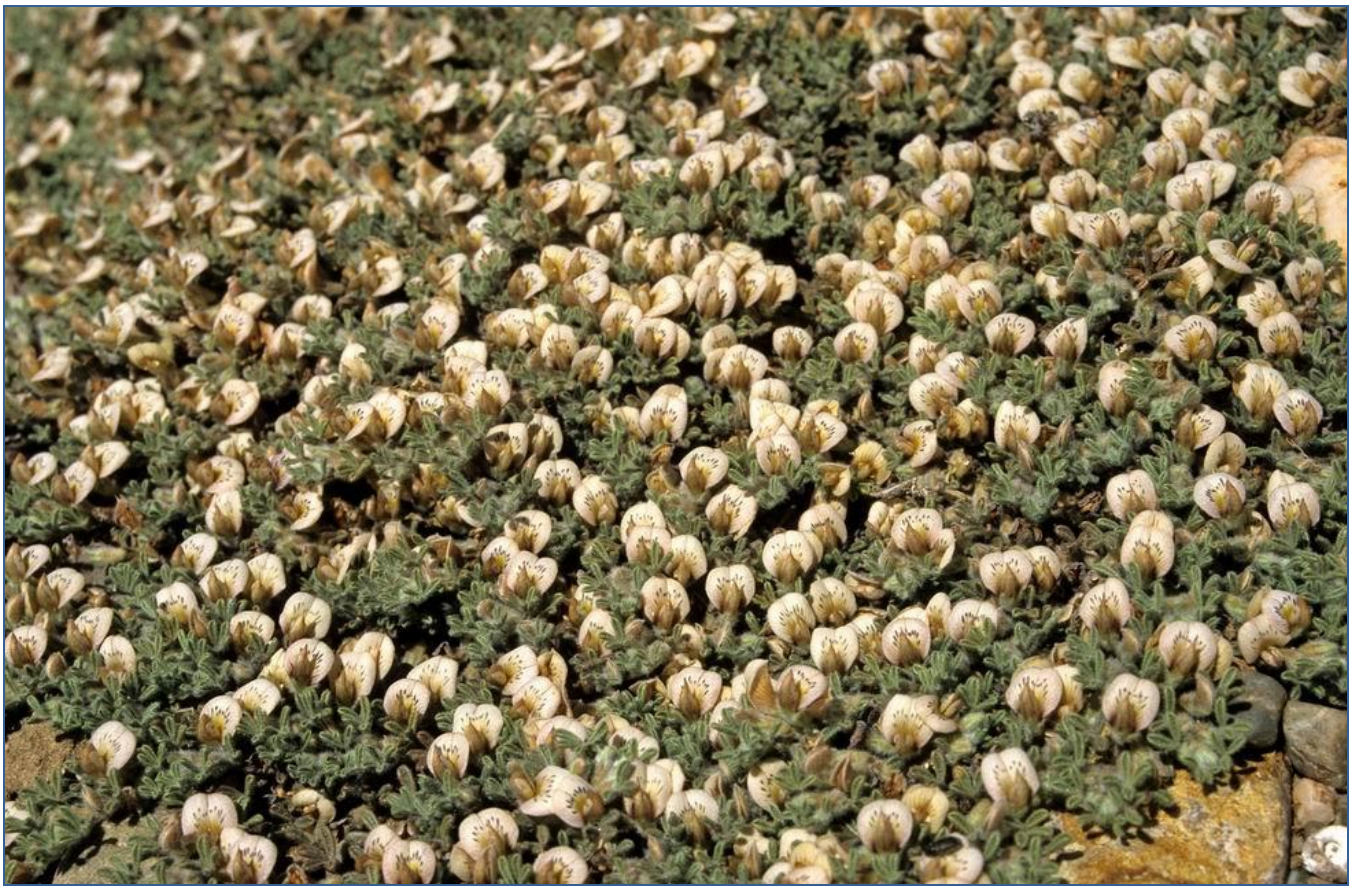

*Adesmia aphanantha*

***Adesmia parvifolia*** R.A. Philippi
This is an extremely variable species (or species complex) forming mats to about 40cm across in suitable steppe and mountain slope habitats throughout Patagonia. Leaves have 3-4 leaflets which may be pubescent or glabrous. Flowers are small (9-15mm) and vary in colour – white, yellow, pink or blue. Individual populations have flowers of a single colour.

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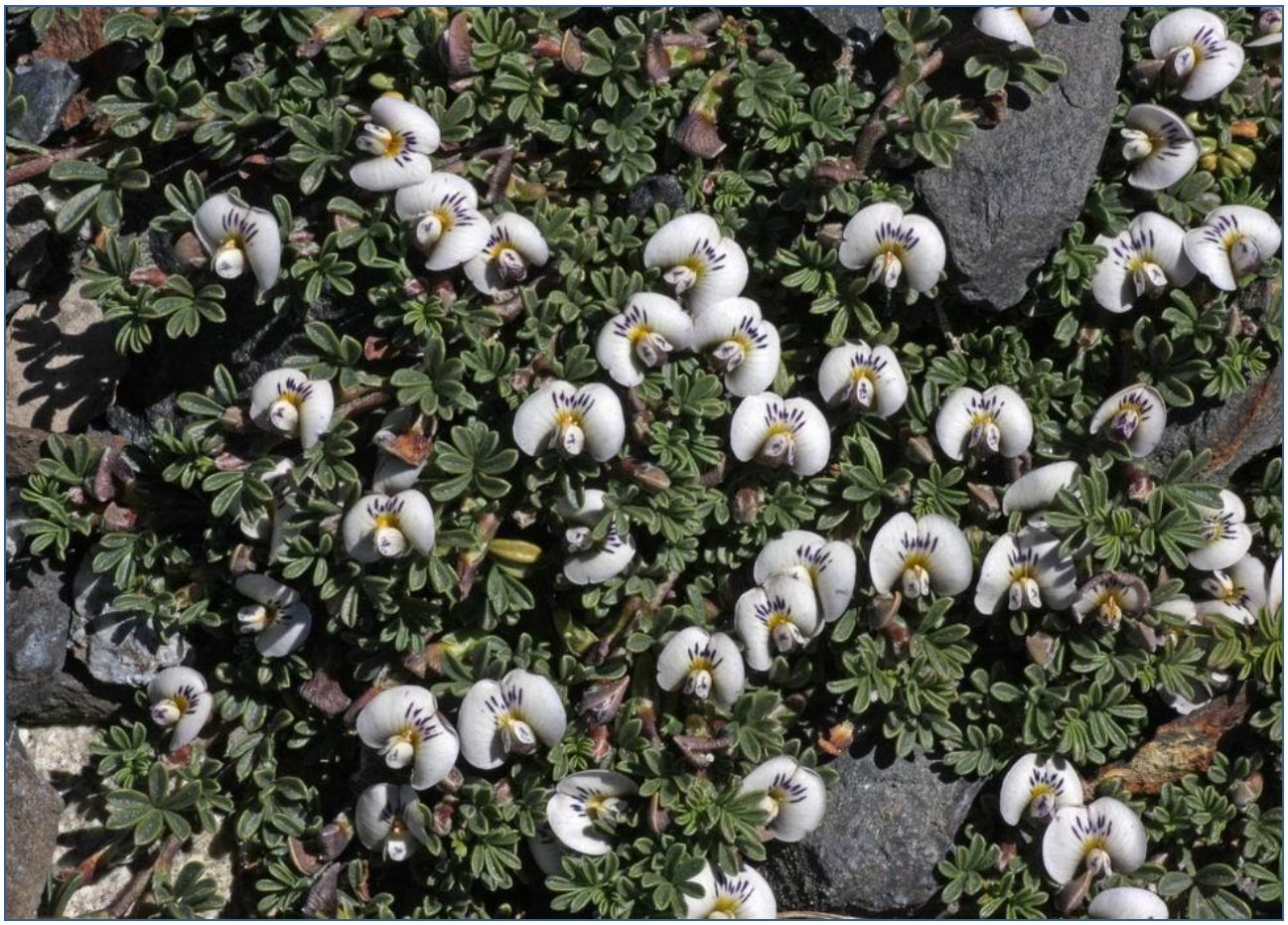
*Adesmia parvifolia*

*Adesmia parvifolia*



*Adesmia parvifolia*

***Adesmia burkartii*** Burkart ex Correa
This species has a limited distribution, recorded from Meseta del Lago Buenos Aires in northern Santa Cruz where it grows among rocks on mountain slopes. Flowers are small (5-mm) and vary in colour from almost white to blue. Leaves have 3 pairs of slightly succulent glabrous leaflets.

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*Adesmia burkartii*

*Adesmia burkartii*

*Adesmia burkartii*

*Adesmia lanata*

***Adesmia lanata*** Hooker
Although recorded throughout Argentine Patagonia, we have only found this in the north, where it grows in sandy steppe up to about 1,500m.The flowers are pale to dark violet with a dark blotch in the throat and are held just above the foliage on short stems. There are 3-5 pairs of pubescent leaflets per leaf.

*Adesmia lanata*

***Adesmia salicornioides*** Spegazzini
A mat-forming species from southern Patagonia and Tierra del Fuego, found among rocks on mountainsides and exposed ridges, 900-1,700m. Leaves have 3 small, fleshy glabrous leaflets. Flowers (8-11mm) are solitary and are held just above the foliage.

*Adesmia salicornioides* Santa Cruz Valley, Santa Cruz, Argentina

*Adesmia salicornioides* at Pliegue Tumbado, El Chalten, Santa Cruz, Argentina

*Adesmia salicornioides* at Ea Los Cumbres, bordering Torres del Paine, Chile

*Adesmia salicornioides* at Ea Los Cumbres, bordering Torres del Paine, Chile

***Adesmia glomerula*** and ***A. capitellata*** are two superficially similar adesmias but differ in habitat and leaf structure.

***Adesmia glomerula*** Clos.
This is a mat-forming species, occurring on mountain slopes and screes in northern Patagonia at elevations of 1,750-3,550m.The leaves have 3-5 pairs of silky pubescent leaflets and the solitary flowers are partly hidden in the foliage.

*Adesmia glomerula*

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***Adesmia capitellata*** Burkart ex Correa [Photo courtesy of Marcela Ferreyra]
A north Patagonian adesmia occurring on dry gravelly steppe and mountain slopes. Leaves have 5 pubescent leaflets and the solitary flowers are often part hidden in the foliage.

***Adesmia trifoliolata*** Hooker & Arnott [Photo courtesy of Alejandra Parada]
A species occurring in north Patagonia, in dry steppe or monte (dry thorn scrub) ecoregions. Plants are characterised by 3 relatively large leaflets per leaf. Flowers (7-10mm) are in terminal racemes.

Without close examination ***Adesmia boronioides*** and ***A. emarginata*** can easily be confused, but species are easily distinguished by differences in leaf and flower morphology.

*Adesmia boronioides* in habitat

***Adesmia boronioides*** Hooker
This is a large shrub which can be over a metre high, and grows on the steppe and lower mountain slopes. It is widespread, occurring in suitable habitats throughout Patagonia. The leaves have 10-20 pairs of small resinous leaflets. Flowers (7-10mm) are in dense elongate racemes and are strongly scented.

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***Adesmia emarginata*** Clos
A shrub growing to about 60cm high, on rocky or sandy mountain slopes. It occurs in northern Patagonia. Leaves have 10-14 pairs of fleshy dentate leaflets. Flowers (7-8mm) are in loose racemes held above the leaves.

*Bufonactis sp.*

Ed.: Though his trips are mostly about the plants, Martin also enjoys photographing wildlife, such as this flightless grasshopper!

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## Ninety Mules. Thirty Horses: Arthur MacKinnon

*Calochortus lyallii*

The British Foreign Office correspondence is very clear: the purpose of the expedition is for magnetism and zoology. Planning and provisioning was directed from Esquimalt, Vancouver Island. Early in 1860, the paddle steamship "Otter" departed from Esquimalt with the expedition's leaders and sailed through the Strait of Juan de Fuca to the Pacific Ocean where it turned south and followed the coast until reaching the mouth of the Columbia River. Heading west, crossing the Columbia Bar, the Otter continued its sail to Fort Vancouver for the team's final provisioning and orders. After a few days stay, the team continued upriver to the jump-off point - Dalles City. There they met the contractor who had tended ninety mules, thirty horses and twelve head of cattle from northern California for the expedition. The area was rapidly changing due to the in-flux of American settlers. Oregon had attained statehood in the prior year and the expanse on the opposite shore was soon to become Washington Territory, no longer under British authority. They were charged with heading north to Fort Simcoe and then connecting to the Columbia River on its west bank and conducting collections and surveys until reaching Fort Colville. Formally, they were known as members of the International Boundary Commission and their work would become the initial and official markers of the 49th parallel - separating Canada and the United States. A member of the group was a Scotsman performing two functions: physician and naturalist. His name was Dr. David Lyall. The area was a significant change-of-scenery from his prior postings and surveys in New Zealand, Antarctica, the Arctic and Vancouver Island. A knowledgeable botanist, he had already been honored by Joseph

Hooker with the naming of an entire genus of plants, the Lyallia, after him. In the area of land separating the Yakima and Columbia Rivers, he spotted and collected a unique plant specimen which is also here in Washington State.


*Calochortus lyallii* - Kew Herbarium sheet.

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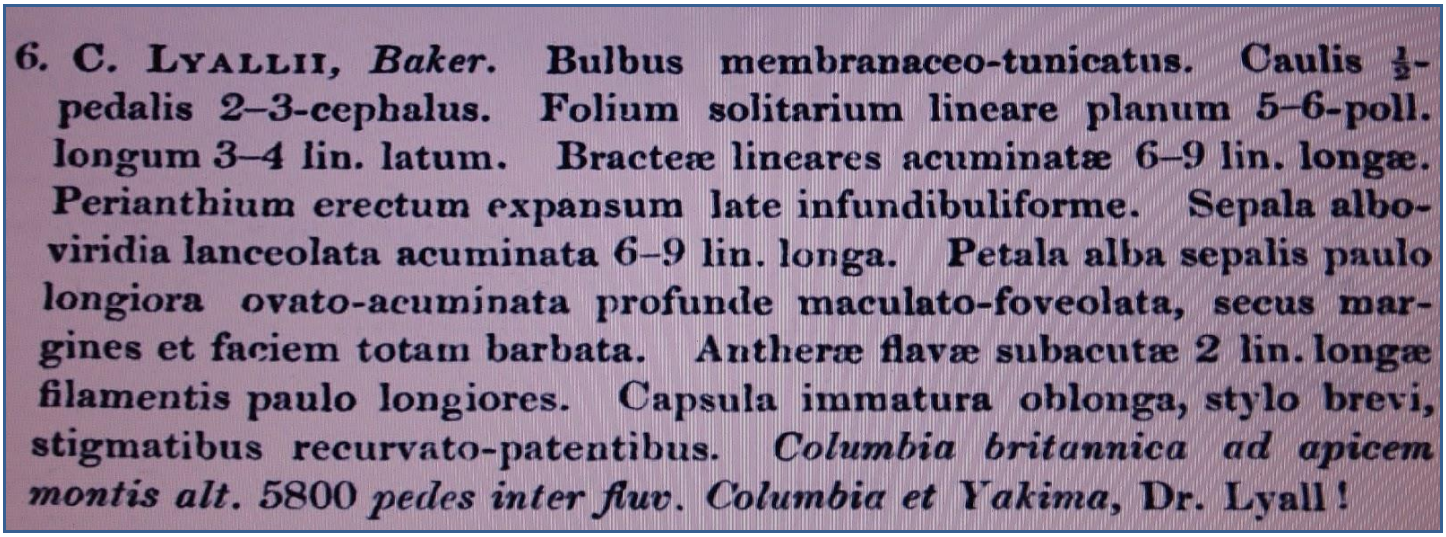
What Lyall collected and what is seen in the image is known as a Lyall's Mariposa Lily (*Calochortus lyallii)*. When the first specimen was obtained, field notes recorded and then pressed for collection and shipment to Kew Royal Botanic Garden, it was mistakenly field-identified as a variant of the Elegant Mariposa Lily (*Calochortus elegans*)*.* Lyall's specimen and field notes remain in Kew's specimen archive, here. You can view the specimen, his identification notes along with his location description on the herbarium sheet, and it is shown on the previous page.

When field specimens arrive at institutions such as Kew, a long process ensues which entails rigorous taxonomic examination before the plant can be permanently retained and become part of the historical record. This particular plant was examined by another Kew botanist of note, John Gilbert Baker. Baker noted subtle differences from the *Calochortus elegans* type-specimen being used as a reference for the identification. As the observed variance continued, it became evident that a new species of *Calochortus* was in collection. Baker formalized his examination and submitted the work and recommendation to the The Linnean Society Journal in 1875. The new species would henceforth be labeled as *Calochortus lyallii* and in Volume XIV, page 305, it reads:



6. C. LYALLII, *Baker.* Bulbus membranaceo-tunicatus. Caulis ½-pedalis 2–3-cephalus. Folium solitarium lineare planum 5–6-poll. longum 3–4 lin. latum. Bracteæ lineares acuminatæ 6–9 lin. longæ. Perianthium erectum expansum late infundibuliforme. Sepala albo-viridia lanceolata acuminata 6–9 lin. longa. Petala alba sepalis paulo longiora ovato-acuminata profunde maculato-foveolata, secus margines et faciem totam barbata. Antheræ flavæ subacutæ 2 lin. longæ filamentis paulo longiores. Capsula immatura oblonga, stylo brevi, stigmatibus recurvato-patentibus. *Columbia britannica ad apicem montis alt.* 5800 *pedes inter fluv. Columbia et Yakima*, Dr. Lyall!

Linnean description

Mariposa Lillies, described botanically as the *Calochortus* genus, are a group of plants which are geographically confined to Central and North America. They each have a very unique reproductive strategy which is a function of the type of serpentine soil they reside upon. A comprehensive molecular phylogeny study of *Calochortus* was published several years ago by Thomas Patterson and Thomas Givnish. For us at Five Acre Geographic, Lyall's Mariposa Lily is a member of the Pacific Northwest *Calochortus* clade. Its distribution is limited to the eastern slopes of the Cascade Mountains within Washington and British Columbia. Within British Columbia, Lyall's Mariposa Lily is listed as a "Blue Species" - i.e. a species whose populations have declined to threshold criteria necessitating their categorization as "special concern". For Washington, large numbers do not occur at any site and existing populations are not considered to be in any danger. On a broad evolutionary scale, Mariposa Lillies diverged approximately 35 million years ago from a very familiar ornamental garden plant: tulips.

David Lyall did not characterize his life with a large number of scientific articles accompanying his exploration efforts. He was known as a rather taciturn man who would surprise everyone with a rare and highly entertaining anecdote. Upon completion of his International Boundary Commission assignment and return to Great Britain, he left the world of exploration and practiced medicine full-time. His induction, membership and contribution to The Linnean Society is comprehensively documented.

Dr. David Lyall

The adage is that "every picture tells a story". When you combine an image of David Lyall with what he discovered that day in the vicinity of the Boylston Mountains, indeed it does.

This article was first published by Arthur MacKinnon in his Five Acre Geographic Blogspot in 2012.

Quite a number of Scottish botanists have been involved in plant-hunting in America, finding some interesting plants, like this one featured today by Five Acre Geographic on social media: Occurring only in the Wenatchee Mountains in Washington is *Geum rossii* (Ross's Avens). The Scottish botanist, Robert Brown (of Brownian Motion notoriety...) initially identified it as "Sieversia rossii". Endangered status and difficult to access. Type sheet is again at Kew.

*Geum rossii* seedhead, photo A. MacKinnon


*Geum rossii* - Kew Herbarium Sheet.

## --- Recent Saxifraga Cultivar ---

**The transformation of a fairy-tale creature:** text Zdeněk Zvolánek, photos: Franz Paznocht.

Saxifraga experts Radvan Horný and Mirko Webr described a nice viable cultivar as a fairy-tale creature named Drakula, while the Romanian peasant Drakula was a model for the toothy vampire of the same name. It is unusual to name innocent rock flowers as a haunting fairy-tale creature, but the authors of the name were probably inspired the sharp leaves of half-open rosettes resembling narrow toothed fangs ready in action for bloodshed.

*Saxifraga* 'Drakula' - at right.

Mother of 'Drakula' was ***Saxifraga ferdinandi-coburgi* var. *radoslavoffii*** (syn. *S. ferdinandi-coburgi* var. *rhodopea*) from the firm of F. Sundermann (probably from the Ali Botush mountain range, today the Bulgarian Slavjanka). This plant of Karel Stivín in Černolice near Dobřichovice was isolated from unwanted pollination and in 1960 the sharp 'Drakula' was selected from its seedlings.
Our story of the transformation of a fairy-tale ghost into a fairy-tale princess begins in 1992 when 'Drakula´ was bought by the Moravian František Paznocht from saxifrage specialist František Holenka in Prague district of Hostivař.
After being immediately planted on a rock in Bavaria, sowing of seed took place in 1994. The plant did not need to be isolated; it was the only yellow saxifrage blooming in the rock in April. František (or Franz in Bavarian) obtained 27 not very different seedlings, from which he selected in 1997 three pretty numbered sisters with new traits and long viability.

It would be unwise not to name or propagate a perfect plant. František suggested that sister number 3 be named *Saxifraga* ‘Darina’ and we publish her likeness, stating that we must describe her characters. We use our description published in the Saxifraga Society journal by Adrian Young in 2017.

Raiser: František Paznocht, Bavaria, Germany, 1998
Seed parent: *Saxifraga ferdinandi coburgi* var. *rhodopea* ‘Drakula’
Pollen parent: Probably self-pollination
Name: a pretty Bavarian village girl
Selection: 27 seedlings originated from S. ‘Drakula’ seed; 24 seedlings had typical *Saxifraga ferdinandi-coburgi* morphological characters, 3 seedlings were different, one of them was selected (no 3) and planted in tufa outdoors.
The plant (from seedling no 3), which is described here as the cv. *S*. ‘Darina’**,** is about 7 years old, shown below.

*Saxifraga* ‘Darina’ at seven years of age.

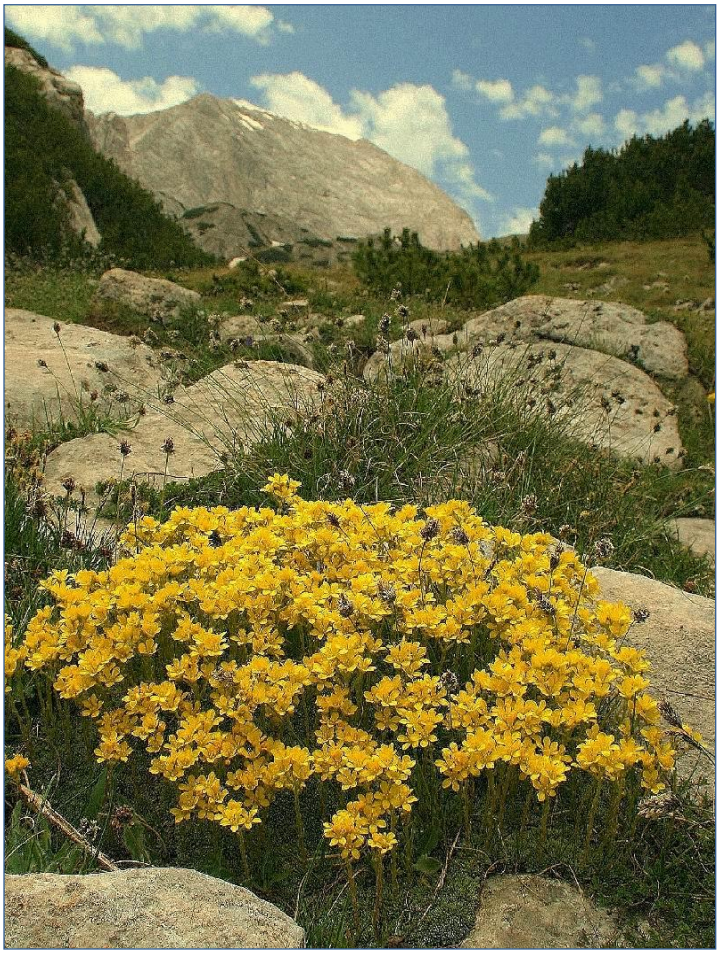
*Saxifraga* ‘Darina’ - Flowers: corolla 22-14 mm in diameter, shallow funnel shaped, good yellow, 5 flowers in a compact inflorescence; petals very round in shape and overlapping. Pollen filaments are short and not exceeding the funnel of flower.
Sepals: broadly lanceolate dark brown red
Flower stems: short 4 cm long with cilia, straight, maroon red, bottom half of stem leaves are brown red with cilia. Leaves: grey-blue linear acute, forming open rosettes. Plants in tufa have slow compact growth forming flat caespitose buns.
This new cultivar is an easy plant for growing in the garden in eastern crevices without any protection.

*Saxifraga* ‘Darina’ - at ten years old.

‘Darina’ photographed in the tufa stone is now ten years old, continues to grow well and patterns the planet's warming well. Because it is the true alpine plant, we must, in the lowlands, keep it not too dry and without scorching (only with morning sunlight).

During the Czech breeding of Kabschia Saxifrages, there was and is a tendency to create beautiful plants and cross natural species with each other. Targeting cultivars resisting the hot and dry summers here is just an amateur's dream.
South Balkan ***Saxifraga ferdinandi-coburgi*** **var.** ***rhodopea*** and **var.** ***radoslavoffii*** from the Bulgarian Slavjanka and the Greek mountains of Falakro are more adaptable to summer heat than **var.** ***ferdinandi-coburgi*** from North Pirin. ***Saxifraga*** **‘Darina’** is therefore well genetically equipped for degraded growing conditions on rock gardens in the wider world.

‘Darlina’, left, and her unnamed sister, right. We can see that the unnamed sister of ‘Darina’ is less attractively defined.



*Saxifraga ferdinandi-coburgi* var. *ferdinandi-coburgi*

The better known ***Saxifraga ferdinandi-coburgi* var. *ferdinandi-coburgi***, while happy in nature in Northern Pirin Mts. under the marble massif of Mt. Vichren, is too large for small troughs. Its flowers are smaller than those of **var. *rhodopaea*** or **var. *radoslavoffii.***

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