

International Rock Gardener

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Halfway through 2021 already – in spite of crazy weather and the corona virus pandemic, time seems to be passing as speedily as ever. This month's offerings in IRG are a review of the striking rockwork in the Czech garden of Martin Brejník, with comments by J. Ian Young, who has had the pleasure of seeing the garden in person on two visits and with photos by Jiří Papoušek, another of the superlative garden makers and growers of Czechia. Both Ian and Jiří agree that Martin

deserves the title “rock Master”!

Martin's many skills are available to others in his country, too, via his [website](#) where he lauds “...working with natural stone – the construction of rocks, dry wallsto discover possibilities that this timeless material offers in combination with plants.

Also from Czechia this month (with contributions from other places too - many thanks to those kindly sharing their photographs!) is a memory of a stunning plant, *Potentilla lignosa*, which sadly seems not to be much in cultivation these days. Probably those visiting its native haunts stand the best chance of admiring it there in future. I hope for more probing cameras in that case!

Our final submission for this issue is an article on *Oxalis ranchillos*, a new species from Chile, officially described here by John M. Watson and Anita F. Watson. This species is also briefly introduced to readers in the print journal of SRGC, “The Rock Garden”, issue 147, July 2021.

I, and my colleagues in the IRG Team, never cease to be grateful to all those contributors who so generously share their work with our readership, in the spirit of open communication and the furtherance of interest in the plants of the world and the fascinating places where they grow in nature, or in cultivation. Warm thanks to you all – and it is very cheering to hear the feedback from readers who are enjoying the IRG content.

Please remember that we are always happy to hear from you if you feel you too have an idea or article that deserves a wider audience. Text and photo submissions welcome by email to [the Editor, IRG](#), please!



Cover image: *Oxalis ranchillos* F.& W. 13412, photo 8 Dec 2020. JMW.

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--- In a Czech Garden ---

Many visitors to the extremely successful Czech International Rock Garden conferences have been lucky enough to visit the garden of Martin Brejník. Martin has constructed this whole garden to his own design and by his own muscles! Ian has been to visit on a couple of occasions and comments here on Jiří 's photos of the garden, made recently and showing just how much Martin has achieved already.

A Rock Master: Martin Brejník – text, J.Ian Young, most photos by Jiří Papoušek



Walking to the right as you enter Martin Brejník's garden you find a layout that should be familiar to most rock gardeners, consisting of low walls forming slightly raised beds that are planted up with small plants and alpines.

Steps lead down to a lower level against the house where carefully constructed walls and narrow beds offer more planting spaces.

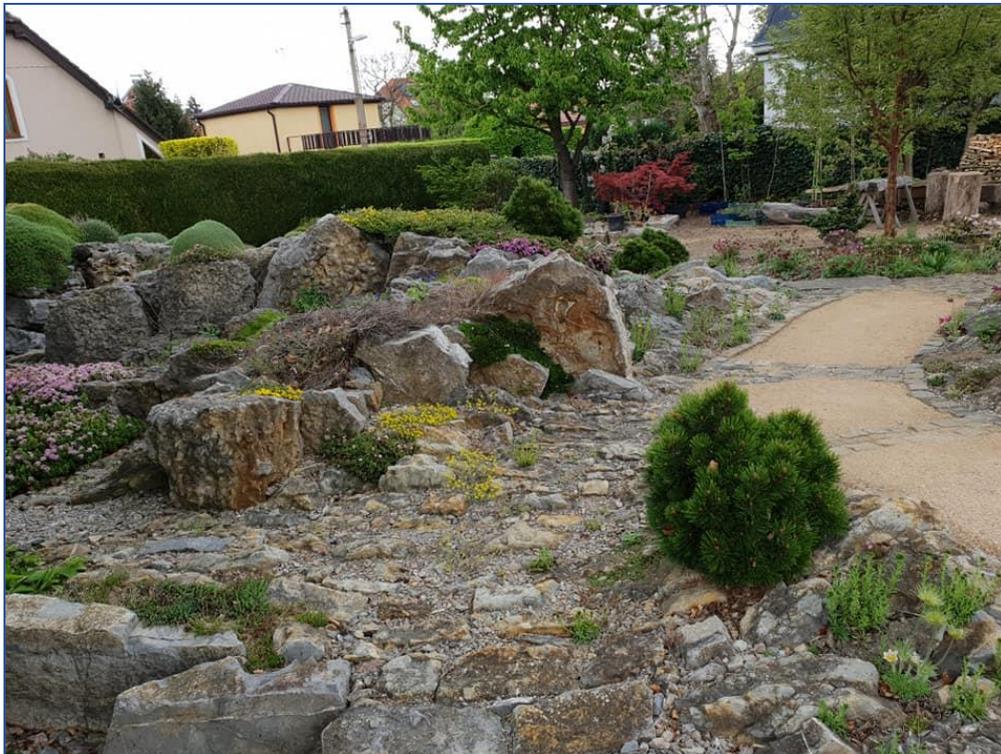


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Following the wall of the house you are introduced to a crevice style rock garden where many rocks are placed closely together on their edge and so they dominate this small bed leading up a slope to the side of the house.

Turning and looking in the opposite direction you are faced with a rock garden created from a monumental amount of rock.



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This type of crevice rock garden serves multiple purposes: firstly, the visual impact is impressive, mimicking scenes that you may come across in the mountains. More importantly the shaping of the ground and placement of the rock creates a range of habitats that can accommodate a wider range of plants than a simple flat area could.



Most gardeners are familiar with making raised beds by mounding up the soil but few dig a deep pit such as seen here.



Photo JIY 2017 – this shows just how deep the channel is!

Digging down serves multiple purposes most obviously it supplies the soil to build the mounds shaping what was a flat area into something much more interesting. Immediately it will be warmer and drier on the high points while the shaded lowest points of the pit will be cooler and moister.

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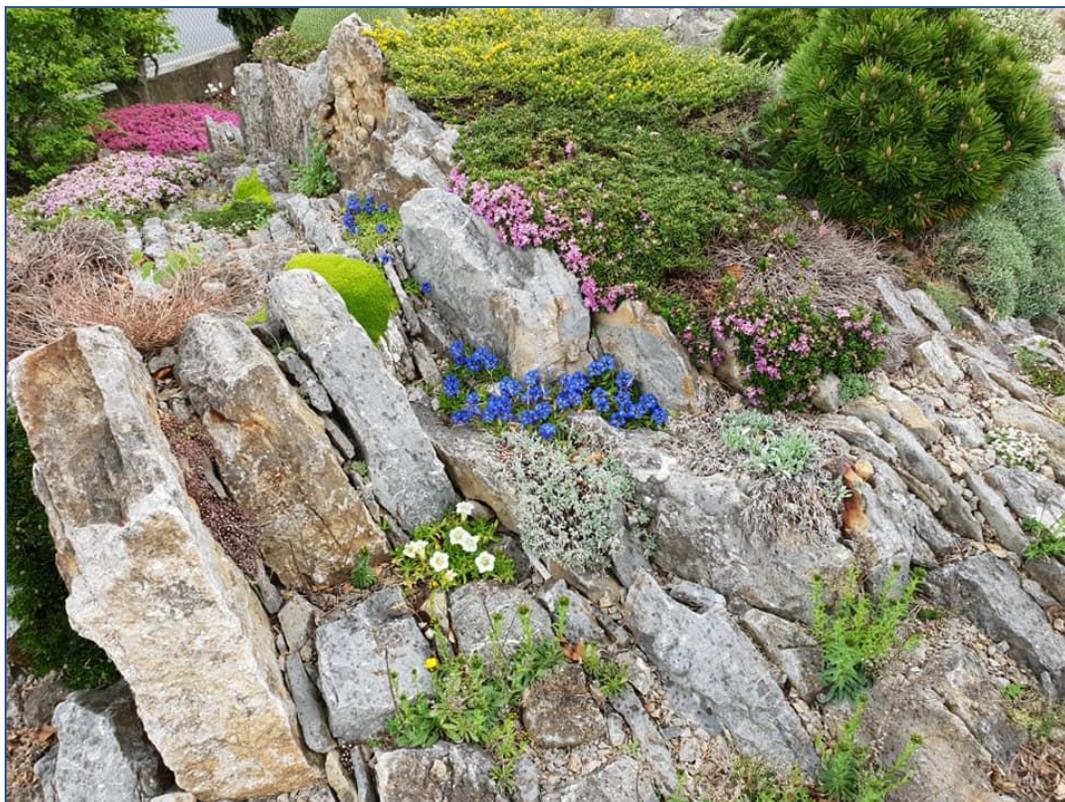


The placing of a single large rock provides different aspects offering varying degrees of shade at different times of the day from the full exposure to the sun on the south side to more shade on the north.



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With narrow crevices between the rocks, it could appear like there are fewer planting opportunities, however the complete opposite is the case. These alpines and rock garden plants much prefer to grow in narrow gaps where their roots are encouraged to plunge deep down to the cooler soils below while at the same time their growth can spread out over the rocks and ripen in the heat of the sun in the way they would in their natural mountain habitats. Plants that are not such sun worshippers can be planted in the shaded gaps to the north side of a rock.



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The different angles between parts of the construction give the impression the rocks are flowing like waves, opening up all sorts of creative possibilities.



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Mat-forming plants spread out across a flat pavement imitating a dry riverbed while others flow down the crevices spilling into the flatter areas. The best plants are often those that choose where to grow by self-seeding into the cracks and crevices.



Over time some plants will spread eventually covering some of the rocks completely then the gardener has to decide whether to cut them back or remove them to restore some balance between the rocks and plants.

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Photo JIY 2017

It is interesting to compare the picture above taken in 2017 with the one below from 2020 where the rocks have weathered and the plants are settling in.



While this is a monumental construction you can create this type of garden on any scale even in troughs and containers.

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Rock Master, Martin Brejník in his garden.



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Plants thriving in Martin's garden. Cushions of *Ptilotrichum spinosum* have been planted for all season effect.



A tiny trough by Martin's front door.

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Not everyone can produce work on the scale that Martin has, but the technique can be just as successful in small containers.

When someone with as beautiful a garden as Jiří Papoušek calls Martin Brejník “a Rock Master” – you know there’s a special talent at work to make a wonderful home for plants!

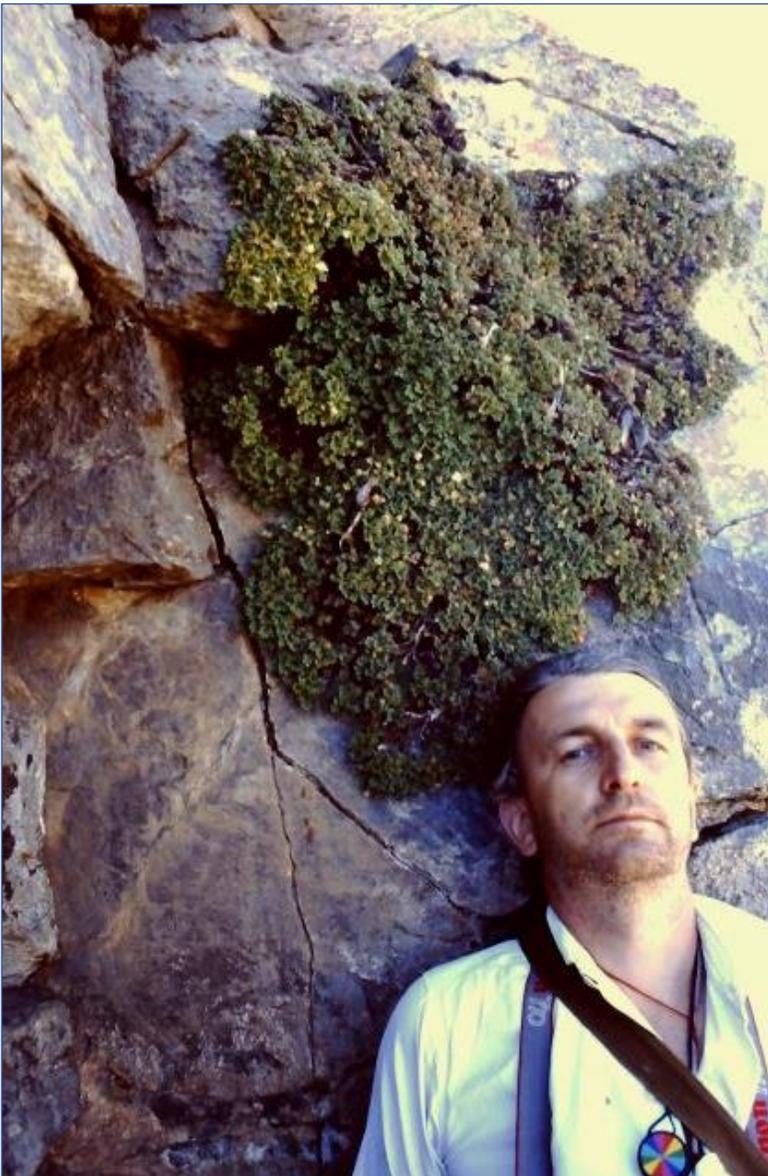
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--- Plant Portrait ---

An ancient subshrub: by Zdenek Zvolanek

The Genus *Potentilla* from the Rosaceae Family is huge. There are many shrubs included in the family but only a few in the Genus *Potentilla* and existence of a subshrub there is very rare. One, which is very desirable for rock gardeners, was described 200 years ago as *Potentilla lignosa* Willd. It so botanically distinct that many authors described it with different names of the genus: *Tylosperma lignosa* (Willd.) Botsch. and *Argentina lignosa* (D.F.K. Schltl.) Soják are two of them.

The late Dr. Jiří Soják was a Czech expert for *Potentillas* and his opinion to add this lovely small woodie into strange genus *Argentina* surely had a smart reason. He correctly described the places of their natural habitat as Turkey, Iran, Tajikistan, and Uzbekistan. Recently it was found in the Qandil Mts. in Northern Iraq (close to boundary with Turkey). The scientific description of this plant's appearance is of a perennial dwarf suffruticose with thick woody branches.



My first meeting with this woody *Potentilla* (*Tylosperma* or *Argentina*) was in Kavushahap Mts. in Eastern Anatolia in 1987. Here at 3000 metres elevation above popular bulb collector's Karabet pass were dolomitic limestone cliffs with northern exposure decorated with very old specimens of this ancient plant. I believe this species is remnant of the age before last glacier period. My partner Rudi Weiss from Waiblingen, Germany, photographed me under one bonsai-like semi-tree 150 cm across (hundreds years old) appressed to the sheer rock.

ZZ and *Potentilla lignosa*, 1987, scanned photo by Rudi Weiss.

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Rudi Weiss supplied scans of his 1987 photos, as mentioned by ZZ and writes: " I still think with great pleasure about the nice time we enjoyed in the exciting region where we found this plant. It is a pity that this fine *Potentilla* is not available anymore, but I am glad, that I saw it in its wild home."



Kavushahap Mts., Eastern Anatolia, and *P. lignosa*, below - scanned photos from 1987 by Rudi Weiss.

Seven years later in September I was among Czech-Canadian party with Josef Jurasek, Vojtech Holubec and Joyce Carruthers exploring in one day the slopes and cliffs under the Karabet pass (hidden from the police and army).



This *Potentilla lignosa* was in seed but I was absolutely confused collecting fluffy centurms of flowers and not to see a seed. Now I know that the dry hairy fruit is called an achene (only about size of 2 mm) pilose-pubescent and the seed jailed inside is miniature, just 1 mm across. In the end I threw it away as chaff. The achenes probably need to be sown nearly without covering to get a light for germination. The third visited habitat was a cool narrow limestone canyon (1700 metres above sea level) which was under 3 km high massif called Artos Dag. It is close to the Lake Van and here is the locality where Czech prospector Mojmír Pavelka took its spring portrait.



Potentilla lignosa, Artos Dag, Turkey - photo by [Mojmír Pavelka](#)

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I must stress the fact that the grey-green palmately compound leaves short petiolate with 5 leaflets (both basal and the cauline ones) are deciduous and only 5 -15 mm in size.

White flowers decorated with reddish style and yellow anthers are terminal and usually solitary, 10 mm in diameter.

I suppose that for happy cultivation the best are seasonally moist crevices or holes in tufa at the places shaded in hot summer days. Z.Z.

References to the plant are as rare on the internet as the plant is in nature: [this link](#) from the site of Dr. Peter Llewellyn about seeing it by the Karabet pass, Eastern Turkey in 2019 is one of the few.

[A New Record of *Potentilla lignosa* Willd. \(Rosaceae\) in Iraq-Short Communication](#): Abdullah Sardar, Jordan Journal of Biological Science (JJBS) Vol. 10, No. 1, March 2017 ISSN 1995-6673



A photo of *Potentilla lignosa*, in the wild near Lake Van, from © Başak Gardner.

This close-up of *Potentilla lignosa* is also by Başak Gardner and taken on an earlier [Greentours](#) trip.

[Authors](#) Başak and her husband Chris Gardner have run [Viranatura](#) holidays and photographic tours for many years.



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Ed.: An accompanying article to this tale is told in the July 2021 issue of "The Rock Garden", printed journal of SRGC where John and Anita speak of their late friend the naturalist, Carlos Celedón and the help he gave them in their plant hunting forays in the area called Los Ranchillos. Various other mentions have been made of Carlos, and the plants he assisted in bringing to our attention, in previous issues of IRG and we present here the more technical part of the *Oxalis ranchillos* story.

--- Species Description ---

Meanwhile, back at the ranch ... *Oxalis ranchillos*: a new Species from Central Chile

(*Oxalis ranchillos* (Oxalidaceae, *Oxalis* L., sect. *Alpinae* Reiche), a new rare local endemic species from central Chile.)

John and Anita (Ana Rosa Flores) Watson

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It's all down to our man - Discovery of this Chilean novelty is owed to an amateur naturalist, the late Carlos Celedón of Los Andes (who was introduced to IRG readers in such as IRG 102, IRG 103 & IRG 132).

The area Carlos took us to us to where *Viola chamaedrys* was rediscovered (The Rock Garden 133: 97-101) is Los Ranchillos, which has proved fruitful in the search for new plants such as *Alstroemeria piperata* and also more undescribed 'clay endemics': the oxalis presented here; a *Hypochaeris* species (Asteraceae); and a possible third, an *Adesmia*. During this time Carlos did not rest on his laurels. He encountered a rare and unique perennial rosulate *Viola* species at over 3000 m in the



Aconcagua Andes; we published it under the name *V. regina*, Queen of the Violas (International Rock Gardener 122: 17-59). We named his latest and last discovery *Cistanthe celedoniana* (International Rock Gardener 132: 3-58) as a celebration of his achievements and as a farewell in memoriam.

Los Ranchillos. Anita (L), Carlos (R) and Cotello and family, our continuing friends, at his isolated home. (20 Nov 2014. JMW)

Todo se reduce a nuestro querido amigo

El descubrimiento de esta novedad chilena se lo debemos a un naturalista aficionado, Carlos Celedón de Los Andes hoy fallecido (quien fue presentado a los lectores de IRG en IRG 102, IRG 103 & IRG 132). El área que Carlos nos introdujo

donde fue redescubrieto *Viola chamaedrys* (The Rock Garden 133: 97-101) es Los Ranchillos, que ha resultado ser fructífero en la búsqueda y encuentro de nuevas plantas como *Alstroemeria piperata* y también otras 'endémicas de arcilla' aun no descritas: el *Oxalis* presentado aquí; una

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especie de *Hypochaeris* (Asteraceae); y una posible tercera, una *Adesmia*. Durante este tiempo Carlos no se durmió en los laureles. Encontró una rara y única especie de *Viola* escarapela (rosulada) perenne a mas de 3000 m en los Andes de Aconcagua; la publicamos bajo el nombre de *Viola regina*, (IRG 122: 17-59). Finalmente, nombramos su ultimo descubrimiento *Cistanthe celedoniana* (IRG 132: 3-58) como una celebración a sus logros y como una despedida in memoriam.

The chronological sequence

From 26 August 2013 to 8 December 2020, our most recent, we've made 29 visits to the relevant sites and their extensive surrounds. These have enabled us to widen our comprehension of the sector as a whole and to revisit and monitor previously recorded stations and their taxa regularly, including floral sequences and interactions, pollinators, and differences between successive periods. The latter factor was particularly valuable due to the first season (2013/2014) having received early precipitation only, followed by a dry period, whereas 2015/2016 was influenced by an ENSO (El Niño Southern Oscillation) phenomenon (Couper-Johnston 2000). This produced later but heavier and more prolonged rainfall, with consequent significant positive effects on growth, floration and reproduction.

1) Southern South America with Chile and its regions shown. Our Valparaiso Region is outlined and named in red.

What chance cultivation?

An ancient RHS Plantfinder (Armitage et al. 2003) on our home bookshelves cites ten *Oxalis* from South America, just three of them from sect. *Alpinae*. We have no reference on hand to provide the number currently on offer.

Now, please name for us any plant which has been extinguished or even put at risk by responsible private collectors since CITES effectively listed orchids and cacti. Although conservationists can do nothing about the real problems of climate change, massive rainforest and other woodland destruction, or wholesale wilderness appropriation, which are the real causes of biodiversity loss, they at least put a ban on (non-commercial) collecting and introduction. However, they've even



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managed to fall short on that to a degree, since residents of countries can and do still collect and offer their own flora. In this context we mention the Chileflora website of Michail Belov (see References). He offers 12 named Chilean species of *Oxalis*, plus, for the adventurous, a further 15 which are unidentified but illustrated. Michail is a polyglot, fluent in Spanish and English inter alia, in addition to his native Russian, so ordering from him couldn't be easier.

Taxonomy

Oxalis ranchillos J.M. Watson & A.R. Flores, sp.nov. [figs.5-12]

Type:—CHILE. Región de Valparaíso, Provincia de Aconcagua, Los Ranchillos, 2.45 km NW of Cuesta Chacabuco (the Chacabuco Pass), 32°36'32"S 70°42'45"W, 1285 m, 17 October 2014, leg. J.M. Watson & A.R. Flores, F.& W. 12802 (holotype CONC isotypes SGO, herb Watson & Flores).

Diagnosis:—Differs from all other yellow-flowered annual species of sect. *Alpinae* Reiche by its combination of a primary prostrate growth habit and secondary phase of elevated but much reduced plant and organ size; deeply divided, bifid, obtriangular leaflets; multi-flowered cymes; inflorescences approximately equalling foliage; fruiting stems always prostrate; and large flowers well exceeding calyx.

Description:—Life form: annual herb; primary phase procumbent with circular circumference 8-23 cm dia.; later secondary phase 2-3 × 2-4 cm, ascending to suberect, of diminutive growth and foliar dimensions. Root as seen: to 3 cm, vertical, axial, slender with feeder rootlets; dead foliage and remnants cover junction with aerial growth. Leaf: 2-16 mm dia., peltate, trifoliolate, leaflets equal in size, slightly whitish green ageing to brownish; pubescence as fine, short, adpressed white trichomes. Leaflet: 1-8 × 0.5-4 mm, obtriangular, incised to halfway or more into two linear lobes, each with rounded apex, margin irregularly and sparsely ciliate with same trichomes as surfaces. Petiole: 1.5-8 cm, slender, subfiliform, flattened, covered in minute white bristles overall. Stipules: 1 mm, linear-lanceolate, acute, amplexicaul, glabrous. Inflorescence: cymose umbel, commonly of 5 flowers in succession, rarely as few as 3 or many as 8. Peduncle: 1.5-10 cm, slightly shorter than to slightly exceeding foliage, slender, indumentum as sparse, fine minute white trichomes. Pedicels: 2-14 mm, very slender, indumentum as peduncle. Bracteoles: 1.5 mm, narrowly triangular-lanceolate, acute, amplexicaul, faces and margin glabrous, apex penicillate with short white trichomes. Calyx: 5 free equal, sepals, these 3.5-4 × 0.5-0.75 mm, linear to narrowly ovate, apex rounded-obtuse to subobtusate, both faces glabrous, margin densely white-ciliate. Petals: 5, 10.5-16 × 5-11 mm, ca. 3-4 times longer than sepals, rounded-obtriangular, cuneate, apex subtruncate, minutely erose, yellow, pale olive green basally with fine radiating veins to 1/3 length of petal. Stamens: 10 in two series, 5

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long, 5 shorter, lower third united. Anthers: dorsifixed. Ovary: 5-chambered, 5-styled, styles bistigmatic. Mature capsule: not seen. Seeds: not seen.

Note:—A much more compact cushion-forming habit as smaller individuals of *O. ranchillos* with very short, more erect petioles (e.g. F.& W. 12936), as observed mainly but not exclusively towards the end of the season, appears to be a form of secondary regrowth. It is possibly provoked by grazing damage to the earlier foliage. As an alternative explanation, it may be a natural phenomenon, a secondary phase following the completion of the main primary, radiating anthesis (e.g. F.& W. 1802 & F.& W. 12879). When this more confined growth occurs, however, inflorescences retain their tendency to extend to the outer circumference of the plant and terminate as prostrate when in fruit.

Other specimens examined:—CHILE. Región de Valparaíso, Provincia de Aconcagua, Los Ranchillos, 2.45 km NW of Cuesta Chacabuco (the Chacabuco Pass), 32°36'32"S 70°42'45"W, 1285 m, 24 October 2015, leg. J.M. Watson & A.R. Flores, F.& W. 12879 (paratypes CONC, SGO, herb Watson & Flores). Ibid, 29 December 2015, J.M. Watson & A.R. Flores, F.& W. 12936 (paratypes CONC, SGO, herb Watson & Flores). Ibid, 32°56'36"S 70°42'52"W, 1296 m, 8 December 2020, J.M. Watson & A.R. Flores, F.& W. 13409 (photographs only). Ibid, F.& W. 13412 (photographs only).

Etymology:—'ranchillos' is a proper noun in apposition. It derives from the Chilean place name of the centre of distribution of the species, Los Ranchillos. The 'pseudo-Latin' termination was considered appropriate due to it according with genuine published Latin epithets for the genus: e.g. *adenocaulos*, *erichados*, *leptocaulos* and *macromischos*.

Distribution:—As known to date *O. ranchillos* has a restricted range consisting of one station west of the road entrance to the upper Cuesta Chacabuco and two further west in the immediate Los Ranchillos sector, from the more easterly of which the type material was collected. This distribution takes the form of an 'L' with one axis (3.5 km long) oriented east-west is joined by the other (3.8 km long) running south-north. The vertical distribution varies between 1050 m and 1296 m.

2) The geographical setting in central Chile. Pale blue circle indicates our home. Red circle, the Chacabuco pass.



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3) The route from our home in Calle Larga to the Chacabuco Pass and Los Ranchillos, the type location.



4) The pass sector. Its high point lies ca. 1.75 km below the regional border, just within Santiago zone, lower centre here. (Courtesy Google Earth)

Phenology:—Anthesis is recorded from the beginning of October to January, with fruiting and seed dispersal following when ripe.

Dominant environment and local habitat:—The overall main floral community, known as the matrix, is defined by Luebert & Pliscoff (2006) as interior spiny matorral, being mainly grass-carpeted. The distinct habitat of *Oxalis ranchillos* qualifies as a patch system, that is to say, a series of land archipelagos within the matrix consisting of small islands of dense iron clay.

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Exclusive matrix flora: *Acacia caven* (Fabaceae), the dominant element, *Amsinckia calycina* (Boraginaceae), **Brassica nigra* (Brassicaceae), **Bromus rigidus* (Poaceae) and other grasses, *Echinopsis chiloensis* (Cactaceae), *Leucocoryne ixioides* (Amaryllidaceae), *Loasa tricolor* (Loasaceae), *Moscharia pinnatifida* (Asteraceae), *Phycella cyrtanthoides* (Amaryllidaceae), *Tristerix verticillatus* (Loranthaceae), *Tropaeolum azureum*, *T. looseri* and *T. tricolor* (Tropaeolaceae).

Exclusive patch flora: *Adesmia* sp. (Fabaceae), *Alstroemeria angustifolia* var. *velutina*, *A. piperata* (Alstroemeriaceae), *Calycera eryngioides* (Calyceraceae), *Heliotropium geissei* (Heliotropaceae), *Hypochaeris* sp. (Asteraceae), **Moluccella laevis* (Lamiaceae), *Viola chamaedrys* (Violaceae) and **Xanthium spinosum* (Asteraceae). Present in both communities: **Ammi visnaga* (Apiaceae),

Conanthera trimaculata (Tecophilaceae), **Erodium moschatum* (Geraniaceae), *Helenium aromaticum* (Asteraceae), *Olsynium junceum* (Iridaceae), *Phacelia brachyantha* (Boraginaceae), *Zephyranthes arzae* (Amaryllidaceae).

*Asterisked taxa are adventives.

[Ed. More photos of the plants and the area of Los Ranchillos will be added at the end of this article]



4a) Chilean acacia savannah late in the season, with cacti and abundant red mistletoe, *Tristerix verticillatus*. (18 Feb 2011. JMW)

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4b) The little bulb *Conanthera trimaculata*, uncommon at Los Ranchillos, growing near the latest oxalis population. (6 Dec 2020. JMW)

Pollination:—Although no formal attempt was made to monitor and identify flower visitors, we were able to observe a small unidentified hymenopteran (*Apidae*), and a large black- and white-banded wasp-mimicking fly, *Mitrodetus dentitarsus* (Macquart) (Diptera: *Mydaeidae*), which remained on a plant for a long while, sucking nectar from every flower. The same species was common for a short period and seen on other species of the local flora.

Proposed conservation status:—Despite its restricted range and the presence of goat flocks at two of its sites, our observations lead us to the

conclusion that *O. ranchillos* is not under immediate threat. Its ability to flourish on ground that no more than a few other non-aggressive native species have colonised significantly so far confers a considerable advantage. In addition, its annual lifestyle and copious seed production, some expelled well distant from the mother plant, allow for the possibility of further colonisation as well as providing an ample seedbank. As seen, apparent limited herbivory by mammals such as goats and introduced rabbits often fails to destroy the growing point of the plant, which is then capable of rejuvenating and flowering for a second period. A possible cause for concern is increasing invasion of the patch areas by adaptable and dominant alien elements, in particular *Erodium cicutarium*. Nevertheless, *Oxalis ranchillos* maintains healthy populations, and seems able to co-exist with that recent arrival, particularly in its easternmost population. This situation requires careful monitoring over time. Much of the terrain on which it occurs is owned by a large commercial consortium (under economic threat

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from COVID), but the evident lack of a water supply indicates that extensive development is most unlikely in the immediate future. There are also regular and growing off-road motorbike meetings, the tracks of some passing over the patch systems.

Based on the formal red list classifications of the International Union for Conservation of Nature (IUCN 2012), *O. ranchillos* definitely ranks as Critically Endangered (CR) however. Considering the similar status of a number of taxa of the biodiverse and vulnerable flora of the entire sector of the Cordón de Chacabuco, above all at Los Ranchillos, we would urge some kind of initiative to provide formal protected status for the pass area as an immediate priority.

Photos of *Oxalis ranchillos* J.M. Watson & A.R. Flores, sp.nov.



5) F & W 12879 *Oxalis ranchillos*, a typical specimen. (24 Oct 2015) (ARF)

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6) An exceptionally large and multi-flowered specimen of *Oxalis ranchillos*, F & W 12879. (24 Oct 2015. JMW)



7) F & W 12928 *Oxalis ranchillos*, second growth phase, growing untypically between rocks. (20 Dec 2015. JMW)



8) F.& W. 13412 *Oxalis ranchillos* from the new third location, only discovered very recently. (8 Dec 2020. JMW)



9) F.& W. 12879 *Oxalis ranchillos* flower. (24 Oct 2015) (ARF)

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10) A dense colony of *Oxalis ranchillos*, F.& W. 12882, in an *Erodium* infestation. Ca. 4 km E of Los Ranchillos near the main road junction. (24 Oct 2015. JMW)



11) On F & W 12926. A striking (and harmless) wasp mimic fly, *Mitrodetus dentitarsus*, a visitor to Ranchillos in some numbers. (20 Dec 2015. JMW)



12) Foliage of *Oxalis ranchillos*, F.& W. 12802, showing shape and adpressed hairs.

(17 Oct 2014. JMW)

The genus *Oxalis*

Oxalis L. is widespread and cosmopolitan, although the great majority of its taxa are concentrated in two major regions: Latin America with the greatest number, and South Africa. In her monographic revision Lourteig (2000) divided the genus into four subgenera and twenty-eight sections. The very approximate world species total for *Oxalis* as currently adopted varies markedly from between 500 to 800 species, depending on the source.

Rodríguez and Marticorena (2019) include 57 *Oxalis* species for Chile in their vascular flora catalogue, making it one of the larger of the country's 1000-plus genera. To that can be added the new species described herein.

Systematic relationships of *Oxalis ranchillos*

The new species presented here belongs in section *Alpinae* Reiche (1894). The section is characterized by its subcaulescent annual or perennial habit in the form of dense and hard to loose cushions, mats or individual rosettes; non-bulbous root system (rarely tuberous); short, branched,

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prostrate xylopodium; fleshy aerial stems with short internodes; and pseudobasal, long-petiolate, trifoliate leaves. The native range of the section is Andino-Pacific, extending from Ancash Department, Peru, to northern Santa Cruz Province in Argentinian Patagonia. The most recent species total for the section based on various references and including the new species herein is 25.

Oxalis ranchillos is without close allies, but apparently nearest morphologically to *Oxalis mira* Lourteig. With that taxon it shares an annual life-form, notably long-petioled, radiating foliage and multi-flowered cymes of equal length at the circumference. They differ clearly in their indumentum type and its placement, the form of their leaflets, and very disjunct horizontal and vertical distributions, as well as habitats.

Twenty-one *Oxalis* species, ten of them from sect. *Alpinae*, have been recorded recently for Valparaiso Region, the only geopolitical area the new species is currently known to inhabit (Novoa 2013). *O. ranchillos* raises those totals to 22 and 11 respectively, and raises endemic count for the genus in the region from one to two.

Section *Alpinae* Reiche

AR = Argentina. BO = Bolivia. CH = Chile. PE = Peru. E = endemic to the country.

<i>campanensis</i> Lourteig (2000)	Perennial	CH-E	
<i>chachahuensis</i> Alfonso, Prina & Muiño (2004)	Perennial	AR-E	
<i>cinerea</i> Zucc. (1823-24)	Perennial	AR/CH	
<i>clandestina</i> Phil. (1857)	Annual/biennial	CH-E	
<i>colchaguensis</i> Lourteig (2000)	Perennial	CH-E	
<i>compacta</i> Gillies ex Hook. & Arn. (1833) [fig. 23]	Annual	AR/CH	
<i>eremobia</i> Phil. (1865)	Perennial	CH-E	
<i>erythrorhiza</i> Gillies ex Hook. & Arn. (1833)	Perennial	AR/CH	
<i>famatinae</i> R. Knuth (1919)	Perennial	AR-E	
<i>holosericea</i> Phil. (1858)	Perennial	AR/CH	
<i>hypsohila</i> Phil. (1893)	Perennial	AR/CH	
<i>incana</i> Phil. (1858)	Perennial	CH-E	
<i>laxa</i> Hook. & Arn. (1830) [fig. 26]	Annual	AR/CH/PE	
<i>micrantha</i> Bertero ex Colla (1829)	Annual	AR/CH	
<i>mira</i> Lourteig (2000)	Annual	CH-E	
<i>muscoides</i> Phil. (1870) [fig. 25]	Perennial	AR-E	
<i>nahuelhuapiensis</i> Speg. (1901)	Perennial	AR/CH	
<i>penicillata</i> Phil. (1872)	Perennial	AR/CH	
<i>pycnophylla</i> Wedd. (1861)	Perennial	AR/BOL/CH	
<i>ranchillos</i> J.M. Watson & A.R. Flores (2021)	Annual	CH-E	[figs. 15-22]
<i>rigida</i> (Barnéoud) Lourteig (1845/1988)	Perennial	AR/CH	
<i>squamata</i> Zucc. (1823-24) [fig. 24]	Perennial	AR/CH	
<i>strictula</i> Steud. (1856)	Perennial	CH-E	
<i>subacaulis</i> Gillies ex Hook. & Arn. (1833)	Perennial	AR-E	
<i>valdiviensis</i> Barnéoud (1845) [fig. 27]	Perennial	AR/CH	

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Key to *OXALIS* subgen. *OXALIS* sect. *ALPINAE*

Based on Lourteig (2000) and Alfonso et al. (2004)

1. Petals pink, violet, reddish, purple, white or unknown ... 2.
 - Petals yellow or unknown ... 6.
2. Flowers solitary, petals white to faint pink spotted violet, or colour unknown 3
 - Inflorescence a 2-30-flowered cyme, petals pink, reddish or violet, unspotted ... 4
3. Fruit locules 1-seeded. Corolla with hair on reverse of petals where uncovered prior to opening. Petal colour unknown *Oxalis colchaguensis*
 - Fruit locules 2-seeded. Corolla glabrous. Petals white to faint pink spotted violet
..... *Oxalis chachahuensis*
4. Plant annual or biennial. Stipules with apex free and elongated *Oxalis clandestina*
 - Plant perennial. Stipules fully adnate ... 5.
5. Plant notably branched and prostrate-spreading. Leaflets obovate-retuse
..... *Oxalis eremobia*
 - Plant scarcely branched, more or less compact and cushion-forming. Leaflets
obcordate *Oxalis squamata*
6. Plant glabrous, occasionally somewhat glandular, cushion-forming. Flowers not or
scarcely exceeding foliage ... 7.
 - Plant subglabrous or pubescent, if subglabrous, then inflorescence clearly exceeding
foliage ... 8.
7. Leaflets oblong-cuneate, entire or shallowly retuse. Capsule equal to or exceeding
calyx. Carpel obtuse *Oxalis muscoides*
 - Leaflets obovate-cuneate, apex incised for 1/10-1/7 length. Capsule shorter than calyx.
Carpel acute *Oxalis subacaulis*
8. Plant almost glabrous, indumentum short-setose, distinctly sparse. Inflorescence
erect, exceeding foliage *Oxalis valdiviensis*
 - Plant more or less densely pubescent. Inflorescence erect and exceeding foliage or
not ... 9.
9. Pubescence adpressed ... 10.
 - Pubescence more or less erect ... 15.
10. Marginal hair of leaflets in tufts *Oxalis penicillata*
 - Margins of leaflets otherwise ... 11.
11. Leaflets entire or shallowly retuse ... 12.
 - Leaflets incised to between 1/5 and 1/2 of length ... 13.

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12. Leaflets obovate or subtriangular. Indumentum straight, not adpressed.. *Oxalis holosericea*
- Leaflets elliptical to oblong. Indumentum curved, more or less adpressed *Oxalis incana*
13. Plant solitary flowered, sepals glabrous. Petal colour unknown, most probably yellow
..... *Oxalis colchaguensis*
- Inflorescence a 3-7-flowered umbelliform cyme, face or margin of sepals pubescent ... 14.
14. Plant annual ... 15.
- Plant perennial ... 19.
15. Flowers solitary *Oxalis compacta*
- Inflorescence multi-flowered ... 16.
16. Corolla very small, scarcely exceeding calyx *Oxalis micrantha*
- Corolla evidently exceeding calyx ... 17.
17. Foliage more or less dense, erect *Oxalis laxa*
- Foliage lax, usually more or less radiating-prostrate, if more ascending then plant notably small ... 18.
18. Leaflets broadly obtriangular, ca 2 times as long as broad. Sepals pubescent on margins only *Oxalis ranchillos*
- Leaflets linear, ca. 3-4 times as long as broad. Sepals pubescent overall *Oxalis mira*
19. Foliage glabrous *Oxalis cinerea*
- Foliage with indumentum ... 20.
20. Plants evidently glandular-sticky ... 21.
- Plants pubescent, non-glandular or scarcely so ... 23.
21. Inflorescence as long-pedunculate umbelliform cymes. Indumentum irregularly distributed, shiny-glandular *Oxalis campanensis*
- Flowers solitary or inflorescence a bifid cyme. Indumentum regularly distributed, sticky-glandular ... 22.
22. Flowers solitary, level with foliage. Leaves dark reddish in sicco *Oxalis hypsophila*
- Inflorescence bifid cyme exceeding foliage. Leaves green in sicco *Oxalis rigida*
23. Plants sessile, or aerial stems few branched or unbranched, not notably thick, short or long and slender. Foliage herbaceous, forming more or less lax, hemispherical clumps ... 24.
- Aerial stems thick, woody, prostrate and much branched. Foliage short, forming hard, dense, compressed, spreading cushions ... 26.
24. Indumentum mixed, including stiff, scarios bristly hairs *Oxalis strictula*
- Indumentum uniform ... 25.

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25. Roots with tubers. Petiole glabrous. Leaflets glandless. Sepals narrowly elliptical, very acute *Oxalis famatinae*
- Roots without swollen storage organs. Petiole pubescent. Leaflets often with dark gland in apical sinus. Sepals broad, obtuse *Oxalis nahuelhuapiensis*
26. Leaflets oblong, obovate or subobcordate, rounded-obtuse, entire to subretuse, flat, pubescence short, sparse *Oxalis pycnophylla*
- Leaflets narrowly cuneate-obtriangular, truncate, somewhat plicate, pubescence long, dense *Oxalis erythrorhiza*



13) Widespread annual *Oxalis compacta* of the same section, *Alpinae* as *Oxalis ranchillos*.

(15 Dec 2019. JMW)

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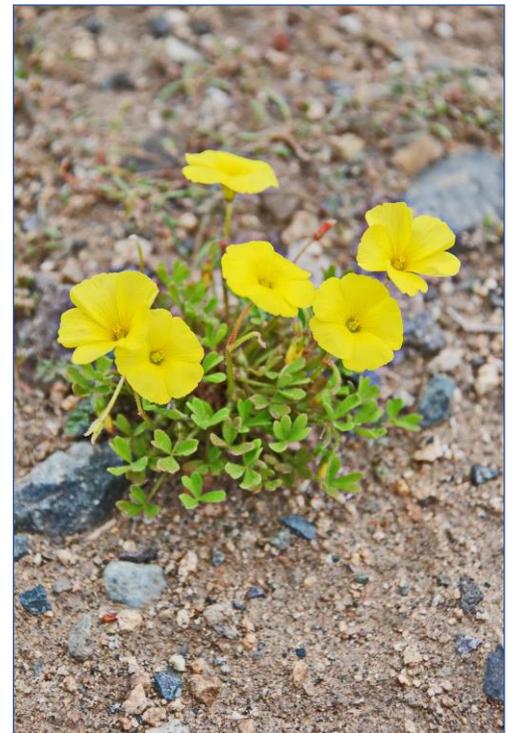


14) *Oxalis squamata*, a sect. *Alpinae* species of a different and uncommon colour for South American *Oxalis*.

(31 Dec 2005. ARF)



15) *Oxalis muscoides*, F.& W. 12569, in Argentina. One of the compact Andean cushion-forming species of sect. *Alpinae*. (2 Dec 2013. JMW)



16) *Oxalis laxa*, another member of the same sect. *Alpinae* as *Oxalis ranchillos*. (27 Sep 2014 JMW)

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17) *Oxalis valdiviensis*, a lanky southern species of sect. *Alpinae*. (13 Jan 2014. JMW)

18) Annual *Oxalis rosea*, the only species of its sect. *Roseae*. (24 Sep 2018. JMW)



19) *Oxalis perdicaria*, formerly *O. lobata* (which is now a synonym), is from sect. *Ionoxalis*. (9 May 2014. JMW)

20) *Oxalis bulbocastanum*, from a different section to *O. ranchillos*. (16 Mar 2010. JMW)



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21) Well-known *Oxalis adenophylla*, the fourth here from a different section (*Palmatifoliae*) of the genus. (7 Jan 2019. JMW)



22) *Oxalis mirbelii* Dehne of section *Carnosae*. (13 Sep 2008. ARF)



23) *Oxalis gigantea* of the homonymous sect. *Giganteae*. (27 Oct 2002. ARF)

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Photos of other plants and the area of Chacabuco and Los Ranchillos



A view from the Chacabuco Pass back N towards Los Andes at 25 km distant from this point.
(5 Sep 2020. JMW)



A view from the Chacabuco Pass crown, looking S towards Santiago. Snow-clad main high Andes can be seen in the distance. (Sep 1997. JMW)

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Annual *Viola chamaedrys*, which Carlos and his father found many years ago when looking for artifacts. He recalled it later and took us to it. (1 Oct 2015. JMW)



The Los Ranchillos patch system early in the season with carpets of *Alstroemeria piperata* sterile foliage. (1 Oct 2015. JMW)

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Alstroemeria piperata flowering among the desiccated foliage of its sterile phase at the upper Ranchillos station. (20 Dec 2015. JMW)



The hitherto unpublished red-tinged form of *Alstroemeria piperata* at Los Ranchillos.

(20 Dec 2015. JMW)

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Abundant, vigorous, familiar *Alstroemeria ligata*, one of ca. 38 taxa in Chile, the main of two distribution centres for the genus (the other is Brazil). (14 Jan 2014. JMW)



Alstroemeria angustifolia var. *velutina*, uncommon at Chacabuco. We saw just a small colony at Los Ranchillos. (19 Nov 2014. ARF)

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A view from Los Ranchillos looking E, the main Andes distant. Foreground - the patch system type site of *Oxalis ranchillos*. (26 Aug 2013. JMW)

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