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June in the UK has been somewhat cold and damp - in contrast to reports from elsewhere in Europe of temperatures in the mid- 30s C. Whatever the weather in your part of the globe we can only hope for some degree of pleasure from your plants! Articles begin this month with Janis Rukšāns who introduces a new *Fritillaria* species from Uzbekistan, named for the mountain range where it was found. Next we visit Somerset in the UK, where Paul Cumbleton and Colin Everett show the construction and development of a raised bed to accommodate a crevice garden. You can see more photos of their plants of interest as Jon Evans, well known as one who mounts terrific photographic displays, recounts a recent visit to Paul and Colin's garden in his diary on the AGS website. Canadian Grahame Ware writes about a *Claytonia* he favours and this issue rounds up with a report from Iep and Gerrit Eijkelenboom on the plants they have seen in Kefalonia and Ithaka in March and April this year.

Cover photo*:* The perennial *Crepis incana,* page 41 - photo Paul Cumbleton. An annual species of the pink dandelion, *Crepis rubra,* also features in the Kefalonia article, page 61*.*

Paul Cumbleton, far left and Colin Everett, left.

See **here** for a video from 2011 of Zdeněk Zvolánek with Paul Cumbleton about the building of the RHS Wisley Crevice garden.
In 2015 Kenton Seth was given a tour of the Wisley crevice garden by Paul – read about that **here.**

Postscript to IRG113:
Thanks to John Watson for his note re. *Calandrinia umbellata* article in IRG 113, pages 70-71.
Calandrinia umbellata (Ruiz & Pav.) DC. is a synonym of *Montiopsis umbellata* (Ruiz & Pav.) D.I.Ford Phytologia 74: 276 1993.

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---Species Description---

Fritillaria baisunensis Rukšāns **species nova (Liliaceae)**

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Summary: New species of *Fritillaria* (*Rhinopetalum*) from Uzbekistan and its morphological differences with *F. bucharica* are discussed.
Key words: New taxa, *Fritillaria baisunensis, Fritillaria bucharica,* Uzbekistan.

In 1998, together with Dr. Arnis Seisums, I travelled to Sina in the SE of Uzbekistan. Our target then was to find two Juno species. Arnis together with Tony Hall from Kew, was (and still is) working on the taxonomy of irises from the subgenus *Scorpiris* (Juno irises). *Iris parvula* and *I. nicolai* had been reported from Sina, but we found *I. vicaria* there, too, and several other plants, rare and little known in cultivation, such as *Tulipa carinata, T. orithyioides,* a *Geranium charlesii* form with purple-mottled leaves, the practically unknown *Eremurus aitchisonii*, and a lot of other bulbous plants. We wanted to stay there longer, but very heavy rains, which had started in the southern part of Uzbekistan, forced us to stop our research; the ghastly downpours had ruined roads, corn and cotton fields. Actually, it was eventually a happy coincidence even if many roads and bridges had been damaged and we had to change our route to get back to Tashkent. At places only a narrow strip of the road had remained driveable for our limousine (we were aided by the transport of the Ministry of Foreign Affairs of Uzbekistan with the kind support of the Secretary of the State). In some places the asphalt was covered with such a thick layer of wet mud that we had to step out and push the car so that it could get over the most slippery parts; at one such spot I walked in front of the car guiding the driver along the highest lines. Where bridges had been washed away we had to look for the nearest ford where Arnis and I waded the now swollen stream and removed the larger stones out of our limousine's way. But ultimately we had luck – on the way back we collected many a new taxon for our collections.

Geranium charlesii var. *punctata* leaves.



Iris vicaria, Iris nicolai and Iris parvula from Sina.


Tulipa carinata at Sina. *Tulipa orithyioides* has long neck below stigma, resembling genus *Orythia*.

Tulipa carinata in the author's collection.

En route we made a short stop at the SW end of the Ghisar Mountains, on the SSE slopes of the Baisun-tau, in the valley of the river Pulkhakim, between vil. Kaghaniyata and Sarikamish, at an altitude of around 800 m. There was a quite steep slope ending at a vertical rock and we stopped there without any intention to look for plants, just to stretch our legs after sitting so long in the car. I only grabbed my

camera with me to take some pictures of the landscape. At the top we found a *Fritillaria* sp. in large numbers, supposedly *F. karelinii* [1]. There were many seedpods beaten to the ground. The showers had been so heavy that they had washed away the stems; although higher up the slope where the water had not been able to get the upper hand there were more plants that had been left intact. The usually smooth slope was crisscrossed by minor ravines cut out by the previous days' heavy rains. Moreover, at the bottom and on the sides of these ravines lay many fritillary bulbs – mostly already sun-baked, but some at deeper spots still looked firm. Fortunately, it had rained quite recently and the weather afterwards had not been too hot and sunny, therefore not all the bulbs had been scorched. With no extra exertions we collected a few handfuls of bulbs, half of which survived and sprouted the following year. The next stop was on the S slopes of Sarimar Mtn. not far from vil. Shurab, where we again encountered fritillaries, which later turned out to be identical with the plants from Pulkhakim.

Eremuris aitchisonii in the wild in Sina, Uzbekistan.

[1] Unfortunately in my travel notes the features of this fritillary are not characterized and there are no photos of plants observed *in situ*. Naming as "*karelini* aff." was wrong, because in *F. karelini* seed capsules must be unwinged, but in the species described here they are distinctly winged. Really by its winged seed capsules and twisted foliage it more resembles *F. gibbosa*.

There are not that many fritillary species growing in the Central Asian region of the former Soviet Union, consequently the identification of the collected plants should not be difficult. The collected plants certainly belonged to the rhinopetalums – a rather small group with only 5 species which are characterized by deeply sunken nectaries at the base of each perianth segment, seen on the outside of the flower as hump-like projections – equal in some species and unequal in others.

By the overall look the collected fritillary seemed similar to *Fritillaria karelinii*, that's why we initially nicknamed it "*F. karelinii* aff. Pulkhakim." But *F. karelinii* (and two other species similar to it – *F. gibbosa* and *F. ariana*) has zygomorphic flowers where only the upper segment has a large hump-like protuberance. The flowers of the "Pulkhakim fritillary" turned out to be actinomorphic – all the segments were similar. Two more rhinopetalums from Central Asia have such flowers – *F. stenanthera* with large "humps" on all flower segments and *F. bucharica* with smaller and less prominent humps, like those in our plant.

So, by the flowers, our fritillary was closer to *Fritillaria bucharica* and looked somewhat intermediate between *F. gibbosa* ("*karelinii*") and *F. bucharica*. Maybe it was a hybrid between the two, but there were none of the supposed parents observed in the vicinity. Later I raised an identical fritillary from the seed distributed by Jan Jílek in the Czech Republic that had been reported as collected near vil. Shurab. Even more – a few years later the Dutch commercial bulb grower Wim de Goede sent me some 10 bulbs of a fritillary species to determine its name. He had received them as "*F. olgae*" collected somewhere in "SW Uzbekistan". The plants, of course, were not *F. olgae,* although the species grows in the same mountains, but looks very different. In reality they turned out to be practically identical with our fritillaries from Pulkhakim and Shurab, only the bottom leaves were somewhat wider, but such differences can be natural intraspecific variability. This confirmed that our plants were not accidental hybrids, but represented another, not yet published species.

Fritillaria ariana from Afganistan.

Fritillaria gibbosa from Tajikistan.

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Fritillaria stenanthera from Chimgan, Uzbekistan.

Fritillaria karelinii from Kazakhstan.

Fritillaria karelinii from Turkmenistan.

Fritillaria bucharica from Varzob Valley at Hodji-obi-Garm, Tajikistan.

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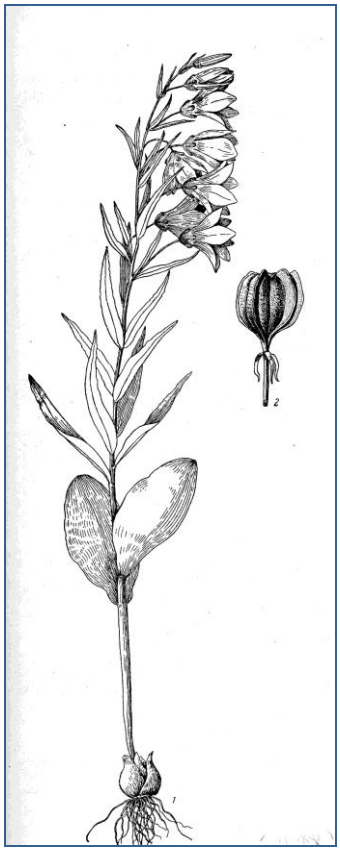
Fritillaria bucharica from S Tajikistan, near border with Afganistan. *Fritillaria bucharica* seedlings.



Fritillaria bucharica (design from Flora of Tajikistan). Anthers of *Fritillaria bucharica* from Varzob.

I decided to name the new fritillary as *Fritillaria baisunensis* after the mountain system (Baisun-tau) where it was discovered. Although the new fritillary freely hybridises in cultivation with *F. bucharica* when both grow together, the two species are easily distinguishable by their foliage. The leaves in *F. baisunensis* are distinctly glaucous (greyish) green (in *F. bucharica* soft to dark green); the basal leaves are narrow and curled, while in *F. bucharica* they are much wider and smooth edged. Flora of the USSR and Flora of Tajikistan characterise the basal leaves of *F. bucharica* as widely ovate – the given dimensions and design show them twice as long as wide. In cultivation the new species always starts blooming around one week earlier than the earliest of *F. bucharica* stocks in my collection. In F-1 generation the hybrids look like *F. bucharica*, but in F-2 and further generations splitting takes place. Such behaviour is quite common for F-1 and further generation hybrids between two different species. Anthers in all the samples of *F. bucharica* seen by me were solely yellow to yellowish green (in Flora of Tajikistan and Flora of the USSR they are characterised as greenish), while in *F. baisunensis* they are dirty purple to blackish purple. Although B. Mathew (2005) opposes its separation from *F. bucharica* as a different species (basing it on the “important characteristics of stamens”), the features mentioned here make it plain that it is a very distinct and still unpublished species. All three stocks of *Fritillaria baisunensis* slightly differ in the flower colour and in the shape of the flower segments, but show common features in the leaf colour and shape and other features.

Fritillaria baisunensis from Pulkhakim, Uzbekistan.

Fritillaria baisunensis from Shurab, Uzbekistan.

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Fritillaria baisunensis received as *F. olgae* from Holland.

Fritillaria baisunensis flower stalk with nodding tip.

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Fritillaria baisunensis Rukšāns ***species nova***

Type – Plants from SW Uzbekistan, Baisun-tau, valley of the river Pulkhakim, between vil. Kaghaniyata and Sarikamish, at an altitude around 800 m, originally collected on 12th of June, 1998 (in seeds) by Jānis Rukšāns and Arnis Seisums, ARJA-9830. Holotype: GB (Gothenburg) ex culturae in horto Jānis Rukšāns, 05-04-2019.

Habitat and distribution: Known from the type locality and its surroundings where it was growing on open slopes with sparse vegetation together with *Tulipa sogdiana*(?), *Allium baissunense, A. gypsaceum, A. verticillatum, Iris narbutii, Delphinium semibarbatum*, etc.

Flowering time – not observed in nature, but most likely March.

Bulbs – around 1-2 cm in diameter (in cultivation larger), 2 scales, without bulbils.

Stem – up to 20 cm long in nature, in cultivation up to 35 cm long, at the base purple, higher up gradually becomes lighter greyish purple, densely covered with minute hairs, especially in the basal half.

Leaves – glaucous (greyish) green, the lowest opposite [70-100 mm long and 20-30 mm wide, average 87.5 x 24.8 mm (n=10, in cultivation)] , the rest shorter and narrower, distinctly undulate at the margins, even curled, bract leaves 2 per flower, somewhat twisted.

Flowers – in the wild up to 5, in cultivation – up to 16, scentless, regular, only rarely the upper horn somewhat larger than the others, mostly slightly nodding, less often horizontal; lower pedicels up to 40-45 mm long, slightly upturned with nodding upper 5 mm, densely papillose.

Flower segments – variable in shape and dimensions, mostly elongated (occasionally even lanceolate) and slightly twisted, up to 30 mm long and 9 mm wide, sometimes wider to narrowly obovate (20 x 13 mm), tips acute, spreading to somewhat funnel shaped, whitish to slightly greyish or pinkish shaded, irregularly and minutely spotted darker.

Nectaries – usually equal, inside yellowish-green, outside dirty blackish green, only slightly exserted.

Filaments – at the start of blooming curved, adpressing anthers to the petals; right before the dehiscing of the anthers the filaments straighten, elongate and become up to 8 mm long, triangular in shape, distinctly hairy, white.

Anthers – dark blackish purple to dirty purple, at the start of blooming up to 7 mm long, adpressed to the segments, during flowering after dehiscing shrivel to around 2 mm in length, pollen grains dirty greenish yellow.

Ovary – dark green, ribbed, ribs blackish green.

Style – 4-5(-7) mm long, slightly bent sideward, papillose, at the base light greenish white, becoming lighter towards the top.

Stigma – white or yellowish, slightly overtops the anthers when they open, undivided, triangular.

Capsule – distinctly winged.

Etymology – named after the Baisun-tau, a mountain range where it was found.

Fritillaria baisunensis flower details.

Fritillaria baisunensis anthers.

Different authors use different features for identification of fritillaries from subgen. *Rhinopetalum* (Fisch. & Alexander) Baker. Most of authors include in this group 5 species but Pazij V.K. (1971 - in Conspectus Florae Asiae Mediae) regards *Fritillaria ariana* as synonym of *F. gibbosa*. Turill & Sealy (1980) even reduces number of species to two placing them into sect. *Olostylae* Boiss. Martin Rix (2000) notes that distinctions between them correlates with geographical distribution so it is preferable to maintain them at specific level. Identification is not always easy, some former keys and plant descriptions are contradictory, so I'm attaching here key for all 6 species, including 5 earlier recognised and the newly described *F. baisunensis*. It is based on my own observations, although some misidentification (*ariana/gibbosa*) cannot be excluded.

Key:

1. Flowers actinomorphic (radially symmetrical)
    2. Flower segments prominently horned ……..…….*F. stenanthera*
    2. Flower segments without prominent horns
        3. Basal leaves oval to ovate, soft to dark green with smooth edge, anthers yellow to green …….. *F. bucharica*
        3. Basal leaves oblanceolate, glaucous green with waved edge, anthers dark blackish purple to dirty purple ……*F. baisunensis*
1. Flowers zygomorphic (only one segment with very prominent horn)
    4. Seed capsules smooth with no wings at the corners ……*F. karelinii*
    4. Seed capsules conspicuously winged
        5. Flowers distinctly tessellated, plant distinctly papillose ...…..*F. gibbosa*
        5. Flowers with no tessellation, plants glabrous or only edge of leaves papillose …… *F. ariana*

Fritillaria baisunensis anthers.

Fritillaria baisunensis seedlings

Fritillaria baisunensis – winged seed capsule

Acknowledgments

First of all I want to pay tribute to our long-time friend in Tashkent, who assisted us in our trips for more than 25 years – Vladimir Vinogradov. He was the unofficial gardener of the First Secretary of the communist party of Uzbekistan before the collapse of the Soviet Union and later the President of Uzbekistan, Islom Karimov, and just Vladimir's (called Volodya) contacts at the highest level secured our trips, the transport, the support at local level, and the permits to collect and export the plants. Sadly, he and many of the local helpers during those visits are not among us anymore… I must express my thanks to all my travel companions, especially to Dr. Arnis Seisums from the National

Botanic Garden of Latvia who was the one planning the routes of our trips, and whose tireless legs, sharp eyes and permanent optimism ensured the success of all the expeditions. Especial thanks goes to Henrik Zetterlund, who provided financial support for our Central Asian expeditions from Gothenburg Botanical Garden and its Friends Society. Of course, my thanks go as well to my regular language consultant Mārtiņš Erminass. And I am especially thankful to my family and my wife Guna in particular for their hard work at the nursery during my absence while in the mountains.

True *Fritillaria olgae* from Baisun-tau.

Some Plant Neighbours of *Fritillaria baisunensis*:

Delphinium semibarbatum

Allium baisunense

Allium gypsaceum

Allium verticillatum

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Iris narbuttii

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---Making and planting a raised crevice garden ---

A British Crevice Garden by Paul Cumbleton & Colin Everett

Our crevice garden was 195 million years in the making. At least the limestone from which it is constructed is of that age, from the early part of the Jurassic period - the age of dinosaurs! This limestone forms part of the Blue Lias, a sequence of layers of limestones and shales which are particularly prevalent in Dorset and in Somerset – the county where we live in the U.K. Here it is well known from the area around Glastonbury and the Polden Hills where towns such as Street, Ilchester and our own town, Somerton, have many buildings constructed from it. The Blue Lias is regarded as making a major contribution to the built heritage and character of Somerset. It can be rich in fossil remains and has an attractive blue-grey colour due to some iron compound content.

Blue Lias walling blocks

I have long been interested in geology, so for me these geological details add extra interest to the crevice garden beyond its plantings. It was important to me that I used rock 'of its place' i.e. local materials. Ashen Cross Quarry is just one mile from our house and as well as the walling blocks shown above, it also produces "slabby" pieces of Blue Lias suitable for building crevice gardens, so this was the obvious choice of stone with which to construct. Being so close, delivery costs were negligible and "rock miles" travelled as small as they could possibly be. One difficulty I encountered when first building a crevice garden was knowing how much rock was needed – there seemed to be no guidance anywhere about this. My experience is that (unless you are using unusually large pieces) approximately half a tonne of rock per square metre of proposed crevice garden should suffice.

Construction

Raised bed for Crevice Garden.

I have written elsewhere in detail about the actual construction[1], but I'll summarise here. Work commenced in the first week of April 2016. The site we chose is open and sunny but our soil is heavy and poorly drained. So to help with drainage, having first removed the grass and dug over the underlying soil, we built a small raised bed on top of which the crevice garden would sit.
This was filled with the growing medium we had decided on – a mix of sands and grit. We used a mixture because no one sand or grit available seemed just right.

The final mixture was composed of:
1-6 mm Horticultural grit: 30%
CLS27 Dolomitic sand: 20% (an alkaline sand)
Sharp sand: 40%
6mm Cotswold chips (dolomite): 10%

Construction under way.

Raised bed filled with sand/grit mix.

Following Zdeněk Zvolánek's "Rules of Construction"[2] and his building style we arranged the stone slabs in a mainly east-west orientation with varying heights to a maximum of 1m above ground level. The crevices were filled with the sand mixture as we went along.

For interest, and to create other planting aspects and niches, we also incorporated a curve to represent folded strata.

Curved section of the crevice garden.

On 17 May 2016, six weeks after placing the first stone, the construction was finished. The area of it is about 17 square metres. Here are a few pictures from different angles to show the finished construction:

Photos of finished crevice garden construction.

The local Blue Lias naturally comes out of the ground with very straight edges, appearing almost as if cut. This has contributed towards the finished crevice garden looking, to my eye, very “linear” and not

very naturalistic. Perhaps in hindsight we may have done better to angle the rock somewhat rather than placing it vertically. Originally we also finished off between the crevices with slivers, but these too were very straight edged and simply added to the un-naturalistic look. In the end, we made some adjustments to a few rocks and replaced the linear slivers with broken up pieces that look more like very coarse gravel, and this has improved things at least somewhat. In the end, you can only work with the materials available and as our main aim was to provide suitable habitats for alpines we were happy enough. We also thought that subsequent growth of plants would do much to soften things and distract the eye where required and this has proved to be so.

Planting

Planting began in the last week of May 2016 and took three weeks. We mainly used plants raised from seed but also many bought from various alpine nurseries. It is really helpful to use a narrow “rockery trowel”- seen right - when planting crevices.

Whenever you first plant a crevice garden, despite planting hundreds of plants, their small original stature makes it look as if there is little in it! But now, after three seasons of growth, things are very different as we shall illustrate later.

A section of the crevice garden partially planted.

Sand as a Growing Medium

First we would like to discuss some of the lessons I think we have learnt about using sand, based on having been involved in building and managing both the Wisley Crevice Garden (which also used sand), various sand beds and now our own crevice garden. Sand can certainly be used as a growing medium – the many sand crevice gardens, sand beds and sand plunges planted out with alpines and bulbs that have been built in recent years testify to this. Sand can however have its downsides:

- It may dry quickly leading to watering being required more often than anticipated.
- Managing nutrition can be tricky. There are some who have used sand as a growing medium who claim they never feed their plants planted in it. But my experience is that without feeding they simply do not grow, often turning yellow and looking very sorry for themselves. So for me, feeding is critical. I apply a top dressing of Vitax Q4 powder (NPK: 5.3 : 7.5 : 10) at 30 grams per square metre twice a year, once around the end of February and again about the end of

May. I vary the exact amount depending on the plants' overall appearance. You can liquid feed if you prefer, though in sand liquid feeds wash out very quickly when it rains.

- Planting Method: I find that plants establish much better if, having dug a planting hole in the sand, the hole is filled with normal alpine growing mix rather than backfilling with the sand. This may partly be due to the clay content of the mix holding on to fertiliser and releasing it over a period of time. The plants soon get their roots down and out into the sand; I have never had a problem with them being reluctant to move from one medium to the other.
- Not all plants seem to be happy to grow in sand: Those that like richer conditions – many alpine meadow plants for example – do not do so well. However, remember our crevice garden is built on top of a clayey-loam soil. We have found that those plants that happen to have deeply delving roots, such as pulsatillas, grow very poorly at first but if we can keep them alive long enough for them to get their roots right down to the soil underneath, they suddenly then "take off" and grow superbly.

So sand can have its difficulties. I think if we were to build another crevice garden I would not use sand again. I would either use a normal alpine potting mix, or if I used sand I would add about 20% loam to it to make what some call "dirty sand". This seems to have good success for some growers.

Maintenance & Editing

Gardens of all kinds are never "finished"; they evolve continually and need maintenance and development or "editing" and this is certainly true too of crevice gardens. As well as the basic maintenance of watering, feeding and weeding they should be continually edited. This involves things such as removing plants that have perhaps outgrown their allocated place, relocating others, replacing any dead or poorly performing plants and adding in new ones. Trimming may be required. Over time it becomes apparent which plants like the conditions you have created and which ones struggle. You can then plant more of those that do well.

Pests

Pest and disease problems inevitably will vary from location to location and from year to year. Our major pest problem so far has come from ants which love to make their nests in the sand, undermining plants, destroying their roots and leading to their collapse and death. This year we learnt that there is a biological control available for ants, nematodes which while not actually killing ants are not tolerated by ants in their vicinity and this leads to them abandoning the area to build a new nest elsewhere. I tried applying these for the first time this past summer and was pleased to find they proved very effective. There was not a single nest left occupied and we lost no plants as a result of ant activity this year. It was noticeable that the ants built new nests around the edge of the crevice garden, immediately outside of the treated area.

Bringing things up to date

Three years on, we are very happy with our crevice garden and it gives us much joy. The peak of flowering is in May but there are things in flower and of interest in every month of the year. You can see how it has progressed in these contrasting views of 2016 compared to 2018:

Crevice garden in 2016

Crevice garden in 2018

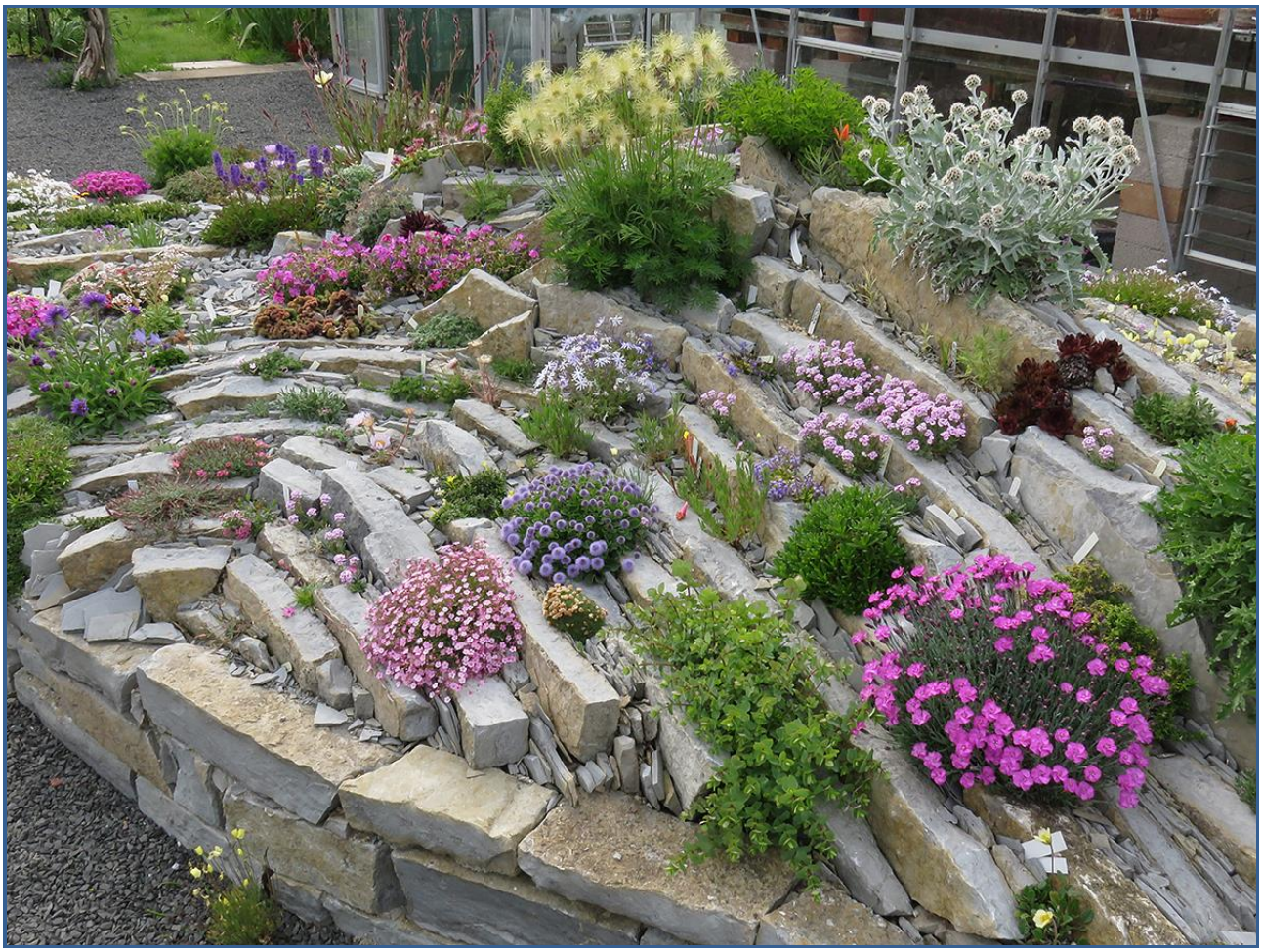
You can also see that the surrounding grass has been replaced with gravel (which is black basalt, chosen because it was the best rock we could find whose colour complemented that of the crevice garden's stone). Closer inspection will also reveal where the original linear slivers were removed, broken up and replaced as chunky gravel. Here are a few more views from different angles to show how it looked in May 2018:

Crevice garden May 2018

As I write, it is May 2019 and the crevice garden is starting year 4 since planting. This year, February was unusually warm and many things subsequently flowered earlier than usual. To bring things up to date, here are some views taken in late April and into May 2019:

Crevice garden 30 April 2019

Crevice garden 5 May 2019



Crevice garden 16 May 2019

Stars of the Show

We'd like to finish by illustrating just some of the plants that grow well for us in the sandy, alkaline conditions we have created. Among the early flowerers is my favourite *Saxifraga*, *S*. 'Coolock Kate'. Tucked into a narrow crevice in the small part of the crevice garden that is somewhat shady, its unique colour heralds the start of much more to come as Spring arrives.

Saxifraga 'Coolock Kate'

Also early is Corydalis solida 'Firebird', one of various geophytes planted.

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Dwarf Irises seem very much at home. *Iris pumila* and *I. reichenbachii* usually start flowering in April, often at the same time as *Iberis carnosa* and *Aster alpinus*, preceded somewhat by *Androsace studiosorum* ‘Doksa’ *and Androsace sarmentosa* var. *watkinsii.*

Iris pumila, dark violet form

Iris reichenbachii

Iris pumila, yellow and gold form

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Iberis carnosa

Aster alpinus

Androsace studiosorum 'Doksa'

Androsace sarmentosa var. *watkinsii*

Erigerons grow well and soon follow, giving their main show from early May but often throwing odd flowers out at almost any time. *Erigeron chrysopsidis* ‘Grand Ridge’ is particularly adept at doing this, with almost no time of year when it is without the odd flower. It does tend to be short lived however, perhaps literally flowering itself to death! Regular propagation is advised. At the same time we see the wonderful “sneeze plant”, *Tchihatchewia isatidea* beginning to make its presence felt, both in flower and by its strong, rich perfume. This plant is usually monocarpic, mostly behaving as a biennial and so we sow seed every year to make new plants to replace those that have flowered.

Erigeron chrysopsidis 'Grand Ridge'

Tchihatchewia isatidea

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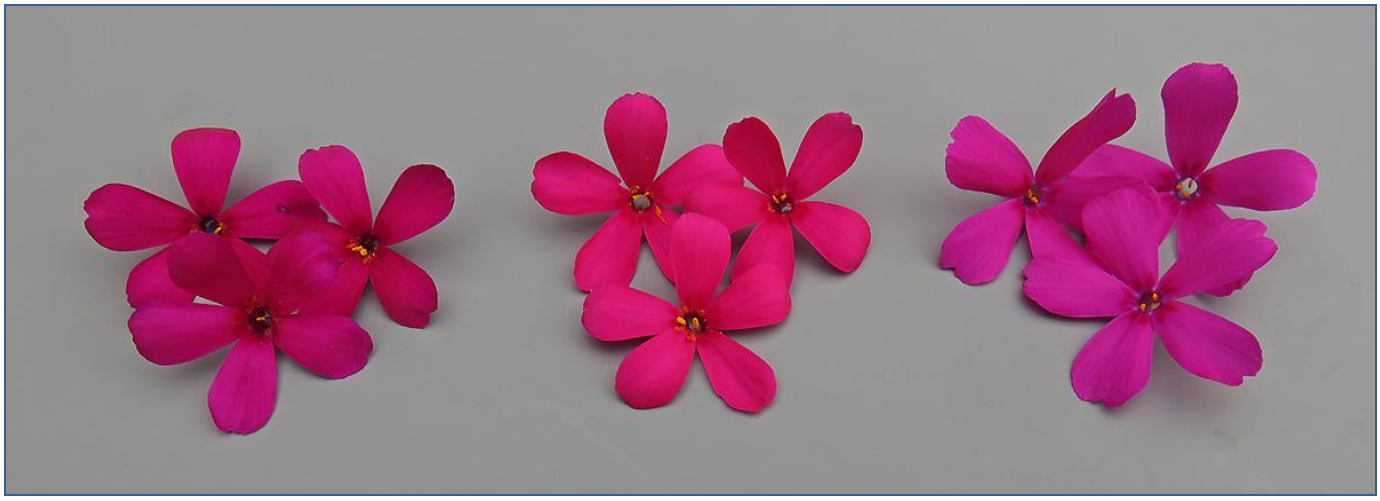
Moving a little further into May and among the stars of the show are the phloxes and we have planted several. The bold colours of *Phlox* 'Zigeunerblut' and *Phlox* 'Ochsenblut' contrast with *Phlox subulata* 'Bavaria' with its white flowers each adorned with a purple eye.

Phlox 'Zigeunerblut'

Phlox 'Ochsenblut'

Phlox subulata 'Bavaria'

Phlox 'Ochsenblut' and *Phlox* 'Zigeunerblut ' are quite similar, but to my eye the latter is brighter and redder while the former is a little darker. To try and show the differences I have photographed flowers of both cultivars along with the well-known Phlox ‘Crackerjack’ for comparison:



Phlox cultivars compared: left to right 'Ochsenblut', 'Zigeunerblut' and 'Crackerjack'

Of the two, *Phlox* 'Ochsenblut' is the better plant - *Phlox* 'Zigeunerblut' has a strong tendency to die out in the middle after a couple of years or so (a feature confirmed by other growers) while 'Ochsenblut‟' gladly lacks this trait.

Slightly later flowering is *Phlox subulata 'Zwergenteppich'* ('Dwarf Carpet').

 Charity registered in Scotland SC000942 ISSN 2053-7557

Phlox bifida can make a super display, both in the cultivar ‘Ralph Haywood’ and also in the pure white ‘Alba’ and both grow well for us. However, they are short-lived and we find it better to treat them as annuals, renewing them from cuttings each year.

Phlox bifida 'Ralph Haywood'

Phlox bifida 'Alba'

Phlox 'Boranovice'

But without doubt the most beautiful of all the phloxes is *Phlox* ‘Boranovice’ with its distinctively shaped flowers of purest pink. This plant originated by chance in 1998 in the garden of the late Ota Vlasák in the village of Boranovice (pronounced “Boranoveechey”) in the Czech Republic. It is probably a cross between *Phlox pulvinata* and *P*. 'Red Admiral' or *P*. 'Crackerjack' and Ota named it for the village where he lived. The villagers there are very proud of this fact! I first saw it in ZZ’s garden while attending one of the Czech International Rock Conferences and I immediately knew I must have it! We have managed to get this growing in the crevice garden and in a pot, though it does not seem as easy as most other Phloxes and has also proved harder to propagate, with very few cuttings rooting. We would like to know if other people have found propagation difficult too, or have we just been unlucky so far?

Phlox 'Boranovice' in a pot

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Globularia incanescens

Globularia species such as *G. incanescens* peak with the phloxes, giving a calming blue to counter the others' brashness, aided by silver saxifrages such as *Saxifraga* 'Southside Star'. *Gypsophila repens* in various colour forms, including the deep rose coloured 'Rosa Schönheit' add large splashes of colour into the mix – though this species seems short lived for us.

Saxifraga 'Southside Star'

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Gypsophila repens 'Rosa Schönheit'

Summer Stars

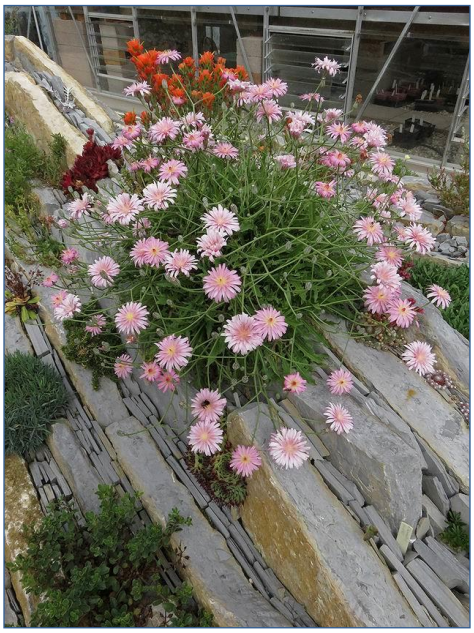
Many alpines flower in the Spring and it would have been an easy mistake to fill the whole area with them. But with a little consideration there are plenty of plants that are invaluable for providing later colour.

Origanums seem to particularly love the sandy conditions and are indispensable for giving colour right through the summer when many other plants have finished flowering. *Origanum* 'Kent Beauty' and *O*. 'Barbara Tingey' are well known and widely grown. *Origanum* 'Emma Stanley' seems to be less widely grown, but is superb with particularly rich, deeply coloured bracts that get longer and longer as the season progresses.

Origanum 'Kent Beauty'

Above: *Origanum* 'Emma Stanley' and below : *Origanum* 'Barbara Tingey'

Some of the campanulas have long flowering periods, especially if you are prepared to take the time to deadhead them regularly. *Campanula carpatica*, in both its blue and white forms flowers with us for many weeks. Also prolific with its flowers at this time is the lovely pink dandelion, *Crepis incana.*



Crepis incana (also seen as the cover image for IRG 114.)

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Campanula carpatica 'Blue Clips'

Campanula carpatica 'White Clips'

Moltkia petraea is another summer favourite with its flowers a fabulous blue. Helianthemums are also summer essentials and we especially favour *H*. 'Baby Buttercup' because it stays short and compact. And no self-respecting alpine garden could do without a few of the smaller *Dianthus*, such as the old popular hybrid *Dianthus* 'Whatfield Cancan'.

Moltkia petraea

Helianthemum 'Baby Buttercup'

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Dianthus' Whatfield Cancan'

Jovibarba heuffeli 'Black Star'

Foliage plants also play their part at this time of year. *Jovibarba heuffeli* ‘Black Star ‘is simply outstanding and we wouldn’t be without it.

We hesitated before planting *Centaurea clementei*; native to limestone cliffs in Southern Spain and North Africa, we were uncertain as to its hardiness.
But so far, planted at the highest point of the garden, it has survived unprotected with no problems. Its brilliantly silver leaves give impact the whole year round.

Centaurea clementei

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Now, in May 2019, *Centaurea clementei* is going to flower for the first time.

Eschscholzia lobbii

I sometimes think that we forget annual plants when it comes to any kind of rock gardening. But annuals can be a real help in filling odd gaps or sparse flowering times and of course many are simply beautiful in their own right. Our personal favourite is *Eschscholzia lobbii*, a dwarf relative of the more familiar garden California Poppy (*Eschscholzia californica*). With care, these can be raised from seed in the usual way and then planted into the crevice garden once large enough. Once present, they will re-sow themselves each year in situ, plants popping up here and there all over. Any unwanted ones are easily weeded out.

We also like *Townsendia parryi*, a biennial rather than annual but we sow seed each year and plant a few out in whatever gaps arise.

Townsendia parryi

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Castilleja latifolia

Castillejas are still not widely grown, many perhaps put off by their semi-parasitic nature, believing them tricky to grow. But, as I have written elsewhere[3], they vary immensely in their grow-ability (with or without a host) and some have proved good doers. Under our very alkaline conditions, the best grower to date is *Castilleja latifolia* which has proved reliable and perennial for all the three years so far (and has now reappeared again for year 4). It flowers over an extremely long period, its bright orange-red bracts lighting up the garden from early summer until well into autumn. We send seed of this each year to the exchanges, so do give it a try. Seed needs cold stratification for germination, so we sow in early winter and leave outside – or if the winter is too mild, we put the sown pots into a fridge for a few weeks.

Castilleja flava

In their native America, castillejas are pollinated mainly by hummingbirds. Lacking these in the U.K., and with no native alternative seemingly able to oblige, I have never found them to set seed here unless I deliberately pollinate them by hand. As well as saving most for deliberate sowing and for sharing, if sufficient seed is produced, I scatter a little. This year, 2019, I have recently noticed the first seedlings appear from this scattering. When I was responsible for the crevice garden at Wisley, *Castilleja integra* grew easily. At home it also does reasonably well. The yellow-flowered *Castilleja oresbia* has lasted two years so far, and we have also had some success with *Castilleja flava* and *C. applegatei* subsp. *pinetorum.*

Castilleja integra

Castilleja oresbia

Castilleja aside, you may have noticed that many of the plants we grow in our crevice garden are not exactly the rare, the difficult or the unusual. This is not a coincidence! The common, well known and widely grown plants are often so for a reason – they are really good, easy to grow and very rewarding! While liking an odd challenge as much as the next grower, we prefer to grow mainly easy, reliable plants which we know will bring us joy every year almost unfailingly. I'm sure the crevice garden is much the better for it. And so are the crevice gardeners! P.C. and C.E.

References

1: The Alpine Gardener, journal of the AGS, September 2016, pp. 272-285
2: The Crevice Garden and its Plants by Zdeněk Zvolánek, pages 11-15 (revised edition 2015), AGS Publications Ltd, ISBN 978-0-900048-95-1
3: "Castilleja: Saying Goodbye to The Host" in The Plantsman, Dec 2008, pp. 218-221. Courtesy of 'The Plantsman', you can download a free copy of the Castilleja article mentioned (Reference 3) from the link above.

***Claytonia megarhiza* var *nivalis* 'Paddy-Go-Easy Pass form' by Grahame Ware**

Claytonia is a genus named by Linnaeus for John Clayton, a transplanted Englishman who was a member of the English colonial administration in Virginia. The genus type specimen is Spring Beauty or *Claytonia virginica*. The variety *nivalis* was authored by Charles Hitchcock (after English) some 200 years after the naming of the genus type specimen.

CULTIVAR HISTORY

This plant is a selection of the subspecies, *nivalis* and a member of the Portulacaceae, the purslane family. The subspecies (and this selection) is native to the Wenatchees. This particular form was offered by that super Northwest alpine plantsman, Rick Lupp (Mt. Tahoma Nursery near Tacoma, Washington, nursery now closed) from a cutting collected by Ron Ratko. Alas the gentlemen are no longer collecting or propagating this cultivar commercially.

Lupp comments in his last catalogue that, "*About 10 years ago Ron Ratko gave us a cutting of an unusual form of* Claytonia *that he had found growing near Paddy-Go-Easy Pass in the Wenatchee Mts. This outstanding form features soft, pastel-pink blooms produced in abundance*."

Further to this, Ratko informed me via email of the following: "*The 'Paddy-Go-Easy' Pass form' that Rick offers originally came from an individual plant that I encountered at the pass in September 2000. This one plant at Paddy-Go-Easy was a significantly paler pink. I could not pass it up. I assumed that there was little chance that any of the seedlings would be as pale, so I took a few pieces of the crown and sent them to Rick. If my memory serves me correctly, I collected more cuttings from several plants along the ridge. I have collected seed from Paddy Go Easy 5 times: '94, '96, '97, 2000, and '07. There must be something about this population that keeps me going back*."

I believe that Ratko was the first one to commercially offer seed of *nivalis* (other than society or club seed exchanges or university index seminum). This would be in his 1994 Northwest Native Seed catalogue as accession 94-26. Ratko lists the elevation at 6100' in Chelan Co., WA although some sources list the dry ridgeline known as Paddy-Go-Easy Pass as being in Kittitas Co. In truth, it is right on the border of the two counties. Ratko imparts some very useful cultural information in the aforementioned catalogue. He states that, "*The large rose pink flowers, several per stem, cover the rosettes. East facing boulder slopes and outcrops in rocky crevices and pockets of silty soil*." (Take note of this in the upcoming *Alpine Garden Culture* section.)

Geologically, this area is a complex meeting of minerals. See here for more in this paper 'Contact Metamorphism of Serpentinite, Chloritic Blackwall and Rodingite at Paddy-Go-Easy Pass, Central Cascades, Washington' by B. Ronald Frost.
Part of the abstract reads as follows:" The 2 km wide contact aureole produced from serpentinite by the intrusion of the Mount Stuart Batholith into the Ingalls Complex at Paddy-Go-Easy Pass contains the following ultramafic assemblages, in order of increasing grade: serpentine-forsterite-diopside, serpentine-forsterite-tremolite, forsterite-talc, forsterite-anthophyllite, forsterite-enstatite-anthophyllite, forsterite-enstatite-chlorite, forsterite-enstatite-spinel."

Got that? Uh-huh.

Essentially the Paddy-Go-Easy Pass is composed of chrome magnetite with iron impurities contributing to the rusty red-brown quality of the rocks. There is also a considerable amount of compressed sandstone here that also has a fair degree of iron. After weathering (and oxidizing) over millions of years, the rocks of Paddy-Go-Easy Pass take on that rusty colour. See picture below.

Paddy-Go-Easy Pass, Cle Elum Valley, Wenatchee Mtns., WA. Photo: Wiki Commons

"Usual" forms of the plant are a much stronger pink. Photo courtesy of R.T. Ramsden, Alpine Flora of Washington State.

The generous botanist Paul Slichter also shows the typical flower colour in this link from one of his websites.

Due to Ratko's collecting efforts and Lupp's propagation energies, it seems likely that in horticultural circles the 'Paddy-Go-Easy Pass form' is the most common! The flower colour of the type however is deep pink so the 'Paddy-Go-Easy Pass form' with its pastel pink colour is a definite shift. Note that Lupp also had on offer another selected form from Ratko that was simply dubbed 'Rich Pink'. This one is also from a cutting from the Ratko's 2000 expedition. A final note on the typical flower colour of deep pink: it too can be found in this Pass as duly recorded by members of the WNPS and NARGS hikers.

ALPINE GARDEN CULTURE

Once people get excited about its kissing cousin *Lewisia*, it's not long before they find *Claytonia megarhiza* as another possibility for inclusion in the firmament of western North American alpines. Art Kruckeberg says of this plant subspecies that, "*When successfully introduced into the rockery this* Claytonia *can vie with the best of rock garden plants for crevice-hugging beauty*." (p. 186, *Gardening With Native Plants of the Pacific Northwest*, UW Press, Seattle 1982).

However, most species and subspecies of *C. megarhiza* are not as attractive nor are they as amenable to culture as the plant under discussion. Let us not forget that they are essentially a species of the Rocky Mountains. For example, I was completely underwhelmed when my grown from seed *C. megarhiza* var *bellidifolia* (from the Wallowa Mountains) finally flowered. They were peeking sheepishly through the spoon-shaped fleshy leaves. Not my cuppa Darjeeling. In my mind, it was instantly shoved into the dusty Collectors' Plant category drawer. I then found myself looking to give its prominent spot in the crevice to something more deserving...like maybe the *nivalis* variety! The flowers of most *Claytonia megarhiza* are not a big plus and the alpine tundra proclivities of *C. megarhiza* preclude an easy entree for gardeners wishing to impress. Fortunately, the variety *nivalis* is the exception.

When I received that plant form, I was impressed with it strong disposition. Rick Lupp didn't mollycoddle his seedlings or cuttings and it showed. They were tough and turgid plants that willingly fall into your garden's rhythm. Such was the case again this year with this fine plant. Although I have not been a regular customer of Lupp's by any stretch of the imagination, I did get some plants from him in 1992 and '93. He continued to grow wonderful plants until he closed the nursery in 2018.

It is an alpine of distinction in the garden because it has the largest flowers in the genus that are on stalks that usually exceed that of the rosette thus making for a good display. But don't be under any illusions. This is not as easy as *Lewisia* to grow or keep but it certainly isn't a *Dionysia* either.
But when you see them in the Spring sending forth stalks from between the fleshy spatulate leaves of a tight rosette, you know it is well worth the effort. Granted it is more difficult to overwinter it here on the east coast of Van Isle than it was in the North Okanagan in a previous incarnation of my alpine garden(s). I had it *up there* in a crevice of my boulder garden and it had come skipping through nicely for two winters. But, the increasingly maritime quality of the N. Okanagan due to global warming, cost me that one about 15 years ago. Thus, even east of the Cascades/Coast mountains, you have to be vigilant regarding winter wet.
Re-framing the overwintering here on the east coast of Van Isle as a 'no problem' deal isn't that difficult, is it? Mildness is your friend and a little *rainblast* protection-anything to mollify the monsoons- is to be desired as a first step in a positive plan to combat the fundamental two-headed problem namely *wet & rot*. It will get cold enough here but just too wet.

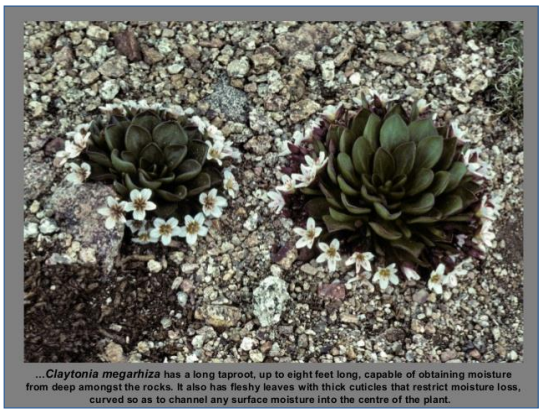
Oh and don't forget ground drainage. This makes future gardening work much more simple anyway. Develop natural looking slopes and swales to take the water away when in deluge mode or to neutralize his boring brother- the constant 3 day rain, December variety. These physics are also to be desired. Drier ground makes for a warmer garden and less fungal diseases.

This tap-rooted succulent (to really appreciate its tap root structure see especially the gorgeous black and white illustration by Jeanne Janish in Art Kruckeberg's very fine and still relevant book referenced above - *Gardening With Native Plants of the Pacific Northwest: An Illustrated Guide* - p.186) is adapted to prolonged periods of no water thus making it an ideal alpine subject. This illustration illustrates and provides a compelling visual for the morphological requirements for the engine of this plant - its roots.
It has evolved on talus and small, iron-rich particles and so it should come as no surprise its hard to overdo the air-to-the-roots-and-drainage game. This is the fundamental step when you're planting it up. Get the soil right. Coarse sand is a must along with something coarser like manufactured sand, birds'-eye pea gravel or pathing sand. This will complete the trick. Here on the east coast of Vancouver Island ,*C. megarhiza var nivalis* 'Paddy-Go-Easy Pass form' can flower over a long period.

OPEN GARDEN CULTURE
For open garden culture on the maritime west coast, Kruckeberg recommends that it be strategically placed under a rock overhang with an eastern exposure. Many succulents from the Wenatchees have this *eastern head*. *Lewisiopsis tweedyi* is the first that comes to mind. Some alpine gardeners like to place *Claytonia megarhiza var nivalis* near a big native conifer with an eye to keeping it relatively dry over winter. With correct placement and clever design this can be accomplished relatively easily. Between the roots, construct raised stone beds that are laced with sharp aggregates and sloping outward and downward. This is the nub of the physics. To accomplish this you'll need to do some hard work using a maddock and small axe. Working around and with the roots is tough work but after removing as many of the fine roots as well, you are set to begin. You may opt for laying down some commercial ground cover fabric and pinning it down with galvanized nails (like 6" Ardox spiral nails) before building up the substrate. Remember to give the bed a really good soak before planting up to allow it to settle and send the smaller aggregate particles though to the bottom of the bed where the capillary roots can access the minerals. You might opt for even more lift and root room by building up a specific spot with more boulders and stones. This will also really set it off visually.

Another ally in the game to successfully overwinter outside this fine plant, are little flat hats/roofs of Coraplast or its equivalent. In other words, give them a winter bonnet. This is another approach that has been touted by Ian Young of the Scottish Rock Garden Club's website Bulb Log fame. Young creates them by housing them on little aluminum stakes that keep them anchored through the legendary Aberdeen gales coming off the North Sea. He then removes them in March or April at some magic moment.

POT CULTURE
Pot culture is easily done as long as a few rules are followed. With some good pots (functional as well as aesthetically pleasing), this portability is to be aspired to. This is what I am doing. I like and use terracotta pots but I prefer the rustic pots especially some the newer Vietnamese products that are double-fired. As for sources of good pots: Rick Lupp has some fabulous pots at his Graham, Washington nursery. They are very deep and thick. Robin Dening of Brentwood Bay Nursery in Saanich (near Victoria), also has some magnificent pots (and urns) that are well worth seeking.


...*Claytonia megarhiza* has a long taproot, up to eight feet long, capable of obtaining moisture from deep amongst the rocks. It also has fleshy leaves with thick cuticles that restrict moisture loss, curved so as to channel any surface moisture into the centre of the plant.

Ed.: The late Gwen and Phil Philips, in a slide presentation on their website "A Wildflower Gallery" said the tap-root of *Claytonia megarhiza* could be "up to eight foot long" – so a long-tom pot is a wise choice!

Claytonia megarhiza 'Paddy-Go-Easy Pass form' Photo Grahame Ware

SOIL MIX

Okay... so how do I create the best soil mix for this Wenatchee succulent? Noting the natural context of its native habit, I attempt to replicate *home* starting with the "soil". The growing media should be free-draining and alkaline. Don't overuse peat in the mix but do include a little bit of it along with components such as Perlite, pumice and coarse sand. It should be very well mixed. Blend as much air as you can when mixing and aerate with moisture as this process unfolds. Some people have moved to concrete mixers to ensure a good standard of mixing, aeration and, most importantly, taking it easy on one's body in later years.

Benign underfeeding is the next pointer. To balance off this low-nutrient soil mix of mine, use regular feedings of a liquid seaweed fertilizer (with rainwater). I make my own from seasonal gatherings on the Yellow Point shores that face Valdez Island. (After thoroughly flushing and cleansing them with well water with my hose, I place the kelp and seaweed in a large poly garbage can and then let them ferment in rainwater for 3 weeks. Then I tap it off and use the leftovers for side-dressing my larger woody plants and *Hemerocallis*.) Alpines like this *Claytonia* form (along with *Lewisia, Penstemon, Aconitum*, etc.) thrive on the minerality and trace minerals of this marine organic feed and this leads to good flowering without turning the soil into a potential rotting medium after one season. There are some other good seaweed/kelp products on the market with Rubicon being the first one that comes to mind.

I stop fertilizing after flowering but continue to water it at least once a week during the Summer employing a bottom-watering technique in the plant's clay saucer or winter boot tray. This way I don't overwater in the Summer. Its easy...the plant decides through *osmosis*.

If keeping it outside in a pot so that it receives the necessary cold for dormancy, I still recommend that *Claytonia megarhiza* var *nivalis* gets a break from the winter rains by providing overhead protection from either a cold frame or an unheated alpine house. Big trees are fine but just to be sure, I'd use this old-fashioned approach. A judicious roof overhang might be good at the houses' eastern mid-side. It has worked with my *Pleione* hybrids for 3 years now. Outside *Pleiones...*mmmm...not a bad microclimate!

POTTING UP

The soil that goes into the pot before the plant needs to be pushed and compacted. As always, ease the plant into the pot and filter more soil around the outside as you tamp and fill the inner rim of the pot with your fingers. However, once that you're potting it up resist the temptation to press the plant too firmly into the pot. You can do this step of really firming it up gradually over the next few days as it settles in and reacts to your watering and/or fertilizing. Finally, make sure that you finish it off with a much needed and decorative stone mulch. For this all important last step to work, be sure that that the crown of the plant is placed and positioned at least 1/2" above the soil surface. Then, with small, sharp stones like shale chips bunch them under the plant and around the crown and taproot. This way the crown will not rot. As part of the pre-Winter preparation, make sure to check on any sloughing of these stone chips over the Summer and re-gather the chips around the crown if necessary.

Used as a mulch, the iron-partial qualities of the Nanaimo Group (Cretaceous) of sedimentary shales suits the plant under discussion in that they feed the roots everytime that it rains or is watered. (See pics of plants in pots). It is worth noting that much of the rock and soil of the Nanaimo Group was derived from North Cascades and San Juan lands some 80 Million years ago. (Earle, VIU Geology).

Raising saleable plants from seed is not easy and it will take at least two years. Cuttings take easily and it is possible to have a saleable plant within a year. Deep pots are the best with ones that are at least 4 1/2 " deep and as wide. This way you can grow a seedling in the same pot for an extended period without having to touch it. They also like to be grown *tight* so getting them *stuck in* and leaving them alone makes sense from a cultural perspective.

The plant looks good over winter but will benefit from a little pricking out of dead leaves. Try to remove the leaves *en whole* by pinching the spatulate leaves and pulling away in one single motion. This way it will be clean near the stem where one does not want rot. Leaving pieces of leaves is tempting the Fates. The leaves will turn reddish purple when things heat up in the summer but will default to green once the rains of Fall and cooler temps return.

BOTTOM LINE: Great alpine that is a tough and willing plant if guidelines are followed.

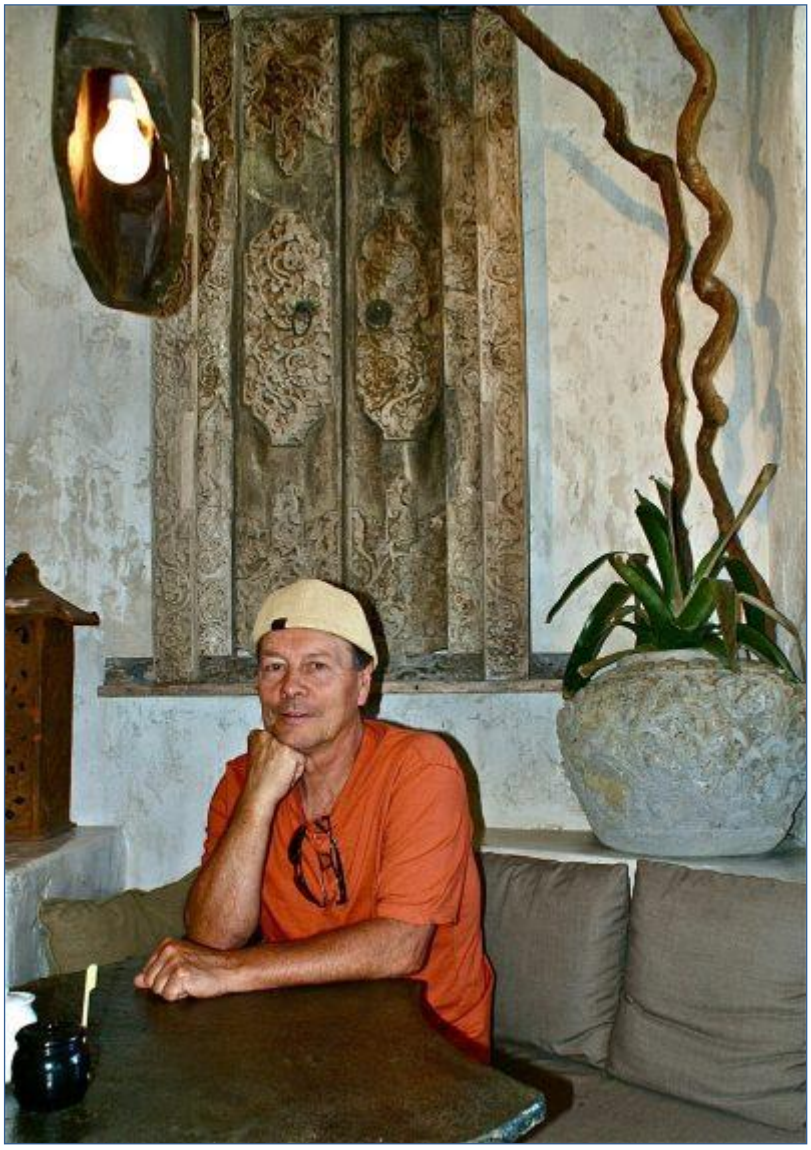
MY RATING: 4 1/2 out of 5. Much better flowers than you might expect especially with this form. I'd venture to say that this form's flowers are longer lasting than the type in that being a pastel shade, they are intrinsically more sun-proof. One of the best Far West N. American alpines and yet another Wenatchee gem.

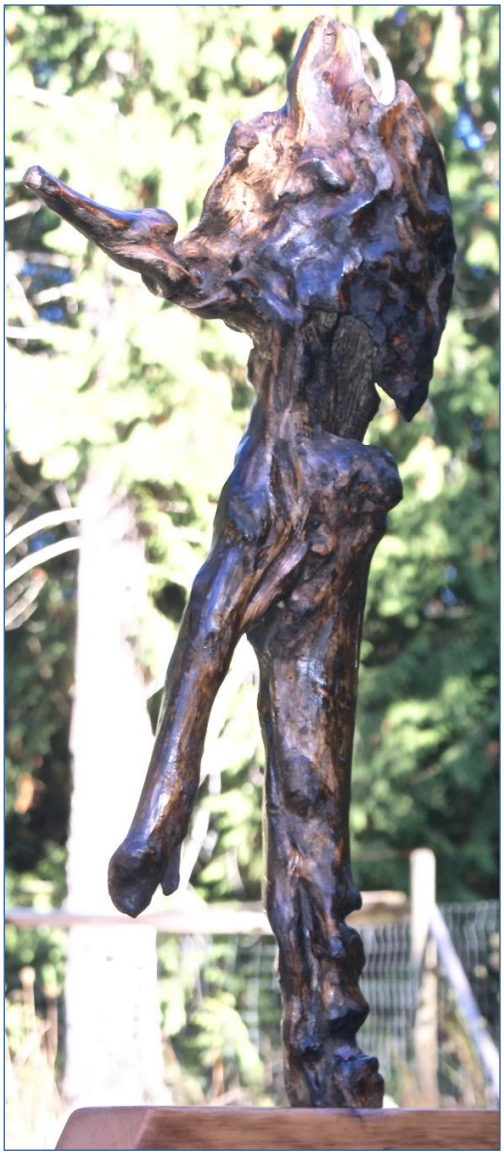
Keywords: Claytonia megarhiza var nivalis, nomenclature, cultivation, sources.

'Paddy-Go-Easy Pass form' seen in the hot days of summer.
Photo Grahame Ware

---International Rock Gardener---

Grahame Ware is a writer and carver on Gabriola Island, British Columbia, Canada. He studied creative writing and communication studies at Simon Fraser University. In his varied career he also has previously run a rare plant nursery and spent three years as editor of the Alpine Garden Club of B.C.
With Dan Helms, he is author of Heucheras and Heucherellas: Coral Bells and Foamy Bells (Timber Press, 2005), and has contributed articles to the *International Rock Gardener*, *The Rock Garden*, and *The Plantsman*.
For some years he has dedicated himself to creating mu-gongshi sculpture with cured driftwood and dried wood as his medium.
See www.phantasma.ca for his wood sculpture and related subjects.



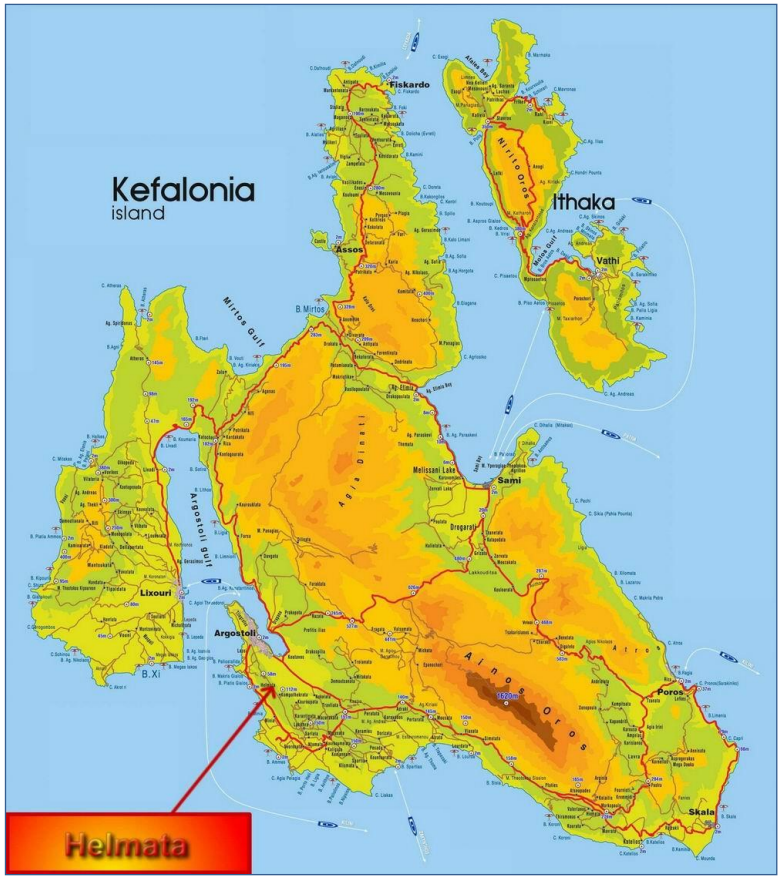


Examples of Graham's mu-gonshi works….
This, left, is entitled ' "*Would you like to dance", he said*' - this spends the summer in the studio garden. It is all wood (red cedar) but "burnished to within an inch of its life with a beeswax finish".There is some charcoal burn by lightning. The whole thing was about twice the size before removing the dry rot and pith carefully over a 2 month period (allowing it to dry between).

Orchids and other species of Kefalonia and Ithaka

by Iep & Gerrit Eijkelenboom

Our visit to the Greek islands of Kefalonia and Ithaka, during the last week of March and the first week of April 2019, was a challenge. It seemed to be rather a “terra incognita”. Almost no information was available, we had to discover the best findspots for flowers ourselves, with no help from previous visitors. During the first two days we even did not find a single orchid or any interesting flora. The reason for this is the strong overgrazing by goats on both islands. The hills and mountains are goat-territory. The animals roam around freely, searching in large groups for food. They are allowed to go everywhere and do what they like. We asked ourselves the question, where could we find the orchids before the goats got them? The answer was, at places where they are not allowed to go: the main roads and the vicinity of houses in the villages. Main roads, because of the danger that animals and people might get killed or injured by accidents and the second, because of the risk of eating the flowers and vegetables from the gardens. Happily at the end of our visit, we unexpectedly had success, by finding two complete black orchids and the discovery of the "Snow crocus" *Crocus sieberi* subsp *sublimis* was fantastic.



Kefalonia and Ithaka are part of the archipelago of the Ionian islands in the Ionian Sea: from Corfu in the north to Zakynthos in the south.
We rented an apartment in the village of Lassi, a tourist village, a few kilometres from the capital of Argostoli, and a short distance from the airport. At the end of March we were the only visitors and all facilities were closed. It was a well-chosen place, central on the island and all the findspots were easily accessible, within an hour by car. On the map the arrow is pointing to our residence.

I like to start with the orchid with the name of the island, ***Ophrys cephalonica*.** This ophrys does not occur on Kefalonia only, but also on the other Ionian islands and adjacent Greek mainland. It is a species with a green perianth (sepals + petals) The lip is of a dullish brown colour and is often

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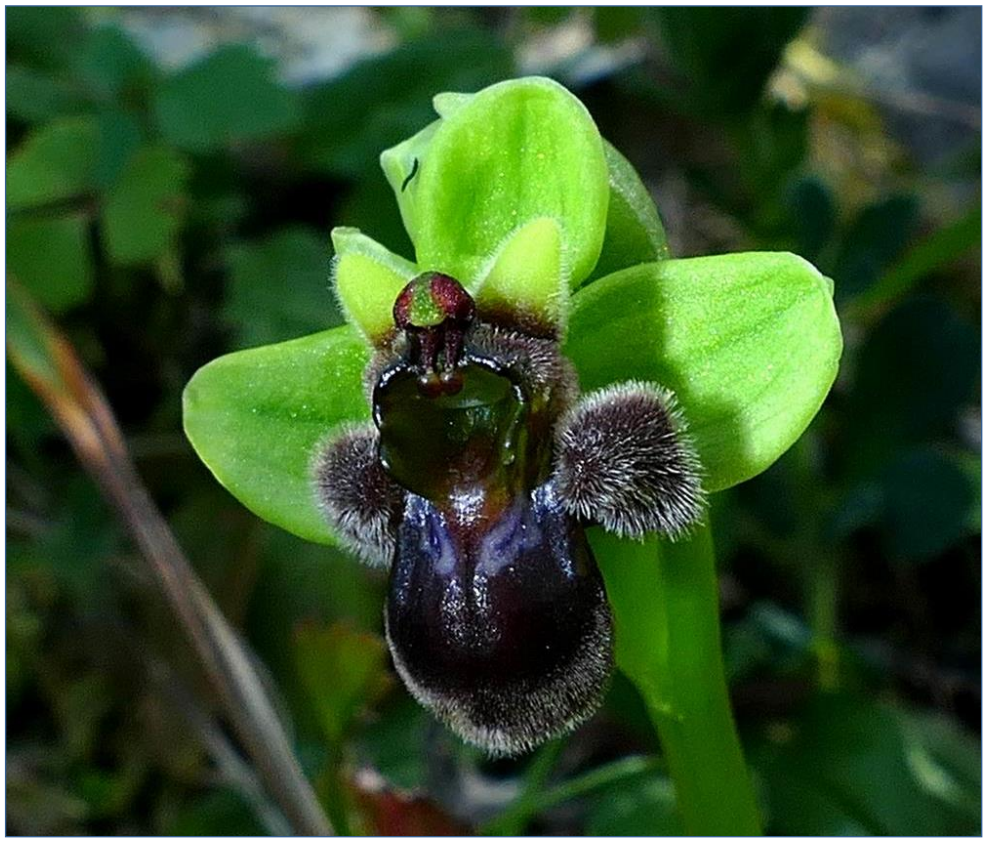
confused with *Ophrys grammica*, but the latter posseses more developed swellings. Sometimes this orchid is cheered up by a yellow margin. The broad marginal band of hair around the lip is remarkable.

Ophrys cephalonica

The next "dull" orchid is ***Ophrys grammica***. (Mount Grammos, a mountain on the border of Greece and Albania) As mentioned above, the two species are near equal. The distinguishing features are the strong swellings and the overall brown colour. Although it is a late flowerer, we found plenty of them along the main road between Sami and Agios Efimia on April 4th. Unfortunately this population is heavily threatened, due to a reconstruction of this road. The roadsides of this 12 km long road provide a safe haven to this orchid, and not accessible to goats.

Ophrys grammica



An old acquaintance is ***Ophrys bombyliflora*.** This tiny orchid forms large colonies and is a very good-looking one. Especially when taking pictures so close, the sun enlivens the colours.

***Neotinea lactea*,** the milky orchid, was at its best when we saw it. It is an early species and we were just in time. The major and best way to make sure it is correct named, is to look at the sepals. The veins in the "ears" must be clearly green.

***Neotinea maculata*,** is a woodland orchid which has a large range in Europe.

The representative of *Ophrys tenthredinifera* in this area is ***Ophrys ulyssea*** (named after the Greek hero Ulysses). It is a very small plant, but thickset, (densely flowering on the top). The lip is hairy. The colour of the lip is usually yellow, but sometimes brown. The perianth is pink, lilac or white, with green veins.

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A nice daisy, ***Crepis rubra***, the pink dandelion.

Anemone coronaria

Anemone coronaria: We saw them on Kefalonia in only one colour, pink. On Crete for instance they occur in many striking colours, such as lilac, deep blue, rich red or pure white.

Suddenly, on a walk, we had an encounter with this beauty. I recognised the grass-like leaves and presumed it was a member of the Iridaceae. And I was right. The name is ***Sparaxis bulbifera*, syn. *Ixia bulbifera***, the harlequin flower. It is a bulb-forming plant, native to Cape Province in South Africa and naturalised in the Azores and Australia. It has white to cream flowers. This plant however has white flowers with a large yellow throat and the underside of the petals are red and yellow. A stunning species (or a hybrid?)

Anacamptis papilionacea is now called **Vermeulenia *papilionacea*** (after the Dutch botanist P. Vermeulen) Probably we see here the **subsp. *aegaea*.** The hood is somewhat darker, the inflorescense is denser than the subspecies *grandiflora*.

Orchis quadripunctata is a tiny orchid, which grows on dry calcareous and stony substrates. The four dots (hence its name) are not always visible. Two of them are hidden inside the stigmatic cavity. We saw on Kefalonia many plants with a very dark pink, almost purple colour.

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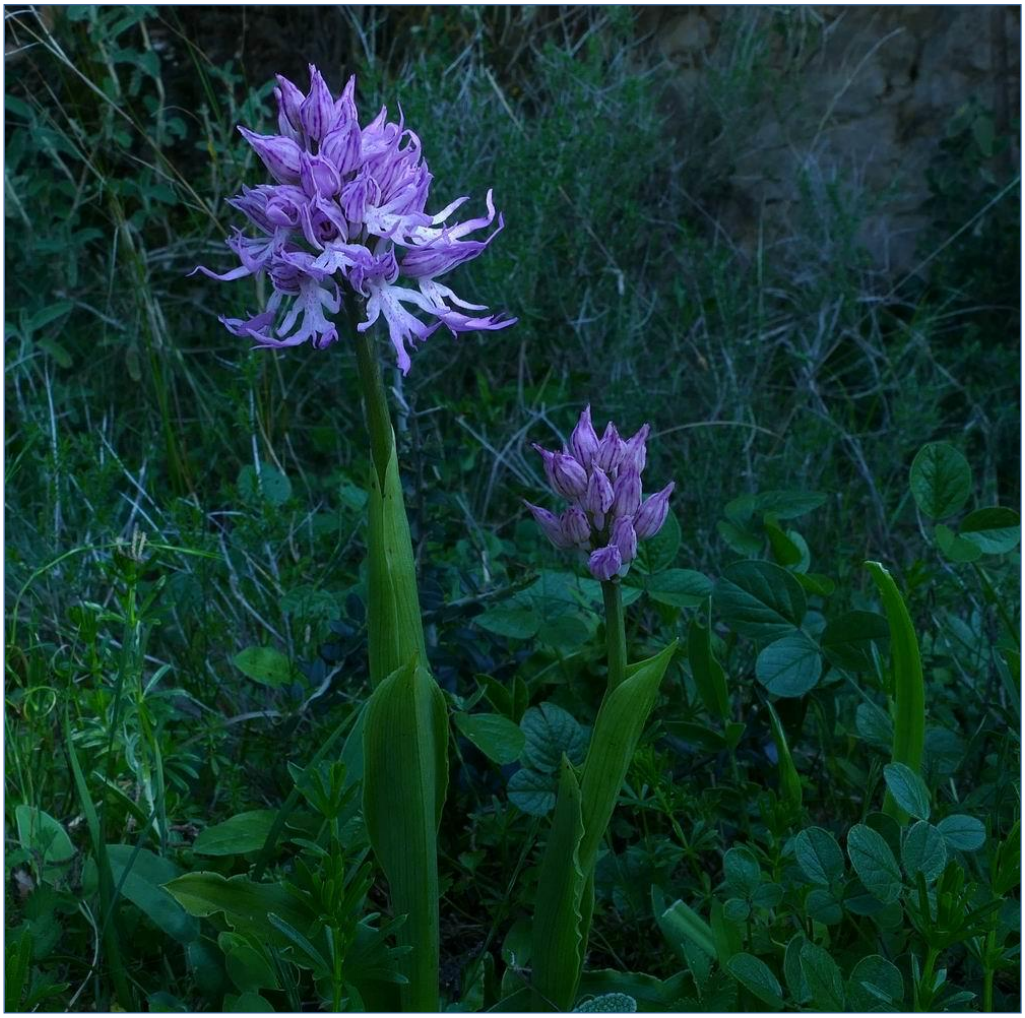
Orchis italica is also present on the island. Not in such masses as for instance in Crete, due to overgrazing. This species is an indication, that you may find more orchids in the direct vicinity.



One of the most appealing species, which of course is a personal choice, is ***Ophrys iricolor,*** the rainbow orchid. It is most exciting to find it, because it is so rare. When you are looking for it, it is nowhere to be found. When you are not expecting it, it is suddenly there. It is a species occuring in eastern Europe, from the Ionian islands eastwards. There is one indentification clue: look at the underside and it must be red.

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Ophrys iricolor

We now come to the orchids with a dark lip. The first one is ***Ophrys ferrum-equinum***. It is widespread throughout Greece, but rather rare. The dark lip is entire, without swellings. The colour is blackish-brown to reddish-brown, velvety. The edges have a band of purplish-brown or greyish hairs.

The speculum of *Ophrys ferrum-equinum* bears 2 bars or isolated drops, mostly forming a horseshoe, hence its name. Between the pseudo-eyes there is often a greyish spot.

Ophrys ferrum-equinum* var. *gottfriediana occurs on Kefalonia and is named after Swiss botanist Gottfried Keller. Its distinguishing feature is the strongly recurved lip margins, turned down and under, which gives the flower a heart shaped appearance.

Three examples of *Ophrys ferrum-equinum* var. *gottfriediana.*

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Ophrys spruneri is named after W. von Spruner, a German botanist. It is a robust plant with several flowers. The most important identification feature is its speculum. Blue lines go from the shoulders like a necklace to the tip of the lip, sometimes with a crossbar, forming an **H**. The colour of the lip is from dark red to almost black. The lip is sometimes clearly 3-lobed, but also obscurely 3-lobed.

Ophrys punctulata* x *Ophrys spruneri

In the immediate vicinity, less than 5 metres from *Ophrys spruneri*, we found an *Ophrys fusca*, totally black with a yellow border. Only one individual. At home I recognized *Ophrys punctulata*, because of the shape of the lip and the broad yellow margin. Since *Ophrys spruneri* was so close and a blackish orchid, I am almost sure that this hybrid must be called: ***Ophrys punctulata* x *Ophrys spruneri*.**

It is an exciting thought, the presence of a black *Ophrys fusca*. It does not exist yet. Of course this it not yet a reliable and stable species. Probably it will disappear after a year, but one can not be sure about that. A population can be called stable, when it consists of a minimum of 20 individuals.

Readers, when you see this report and have plans to visit Kefalonia and want to check the black orchid in the future, please contact me for the GPS coordinates by email **here**.

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Ophrys attica is a widespread but rather rare species in the western part of Greece. It is a scolopax-like orchid, with many flowers on a spike, making a good performance for photos. The perianth is green. The dorsal sepal is bent over the column. The speculum is complex with one or more occeli, surrounded by yellow borders. Two pointed swellings at the sides are remarkable.

Ophrys pauciflora usually yellow, grows here at high altitude. We have found a small colony with pure white flowers. Very special!

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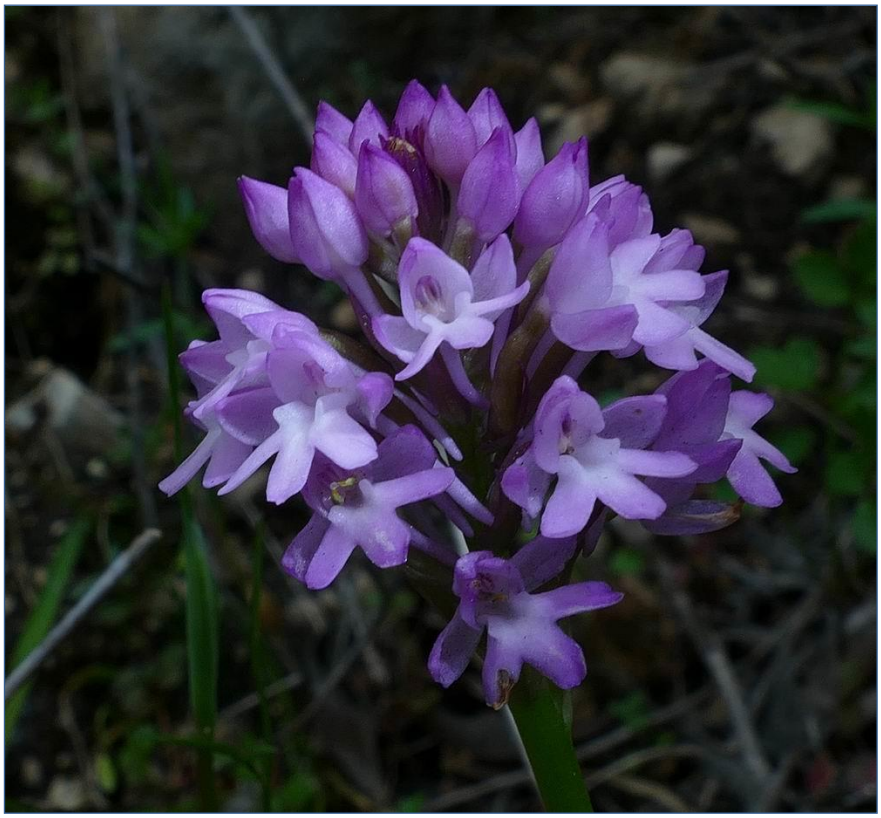
***Orchis fragrans*, now called *Anteriorchis fragrans*,** is a late flowering species, yet we have found it on a warm and hot spot in the southermost part of Kefalonia.

Anacamptis pyramidalis is also late, but we managed to find it.



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Serapias ionica is an early flowering species. The pictures were taken on March 31st, while the other members of this genus come into flower about a month later. This species, occurs on the Ionian islands and the islands of the Dalmatian Archipelago. The major characteristics are the dense inflorescens, the large lip, and the extending lip hairs, and of course its early flowering period. We found this Serapias in low hills in the interior, not in the coastal areas, where it is usually found.

This is an early flowering representatve of ***Serapias lingua***.

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The *Ophrys fusca/lutea* complex:
Beginning with the species of the The *Ophrys lutea* group:

Ophrys sicula has small flowers, held horizontally from the stem, even pointing upwards. So the base is not kinked.

Ophrys penelopeae

Ophrys penelopeae: A new name, obviously replacing *Ophrys phryganae* on the Ionian islands, Cyclades and Peleponnese. I do not see why the two species are separated. *Ophrys penelopeae* should be somewhat smaller than *Ophrys phryganae*, there seem to be no further morphological differences. However, the most important characteristic to keep in mind, is the abrupt kink at the base of almost 90 degrees, just like *Ophrys phryganae*. (*Ophrys lutea* 45 degrees, *Ophrys sicula* flat.)

The *Ophrys fusca* group on Ithaka:

Three species of the fusca-group were found on the island of Ithaka. We made a one-day trip to this island, with the ferry from Sami in half an hour. The three representatives are difficult to distinguish from each other, so hopefully, I am not wrong with the determination.

The least difficult species is ***Ophrys leucadica,*** (after Levkas, the adjacent island.) There is a long central groove below the stigmatic cavity, between two longitudinal prominences. It has an overall brown colour with dense hairs and a small yellow margin. The tip of the lip is strongly curved. The lateral lobes are close to the lip and turned down and under. It is a strong and robust plant with large flowers.

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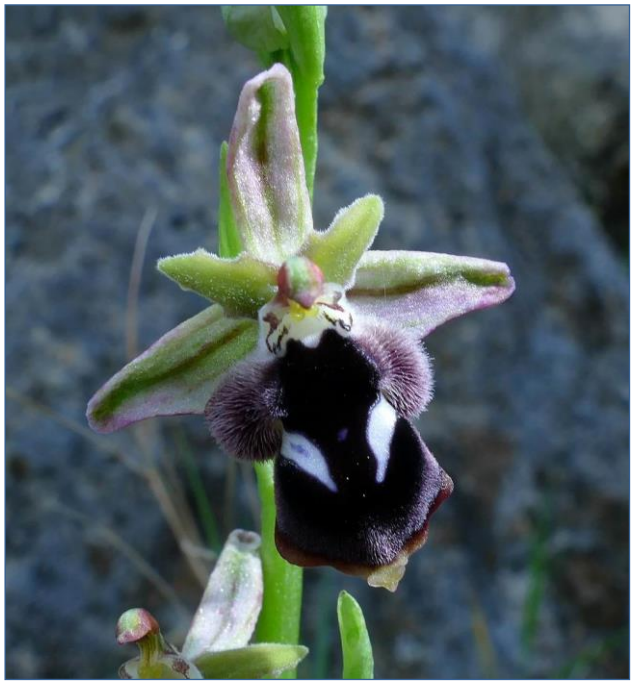
Ophrys lupercallis: named for Lupercalia, an ancient Roman festival (celebrated on 15 February). It is an early flowering species and we found it on the third of April. The most important identification feature is the flat appearence of the lip. The lip is near horizontal and only slightly convex longitudinal, without a clear central groove. At the tip of the lip it is rather convex. The speculum is elongated and almost reaches the sinuses.

Ophrys punctulata**:** The lip makes an kink of 45 degrees at the base, so it is a little pendent.The lip is rather convex transversally and longitudinally. The lateral lobes are rounded. The speculum is bluish grey, marbled with deep blue and two crescent moon shapes. A groove divides the lip. The lip margins are clearly yellow.

The last species of the island of Ithaka is a nice one; ***Ophrys reinholdii.*** They are large and strong plants with many flowers per spike. The lip is deeply 3-lobed. The lateral lobes have a dense band with hairs. The medium lobe is much longer than the lateral lobes and is velvety and dark coloured, bordered with fine silvery hairs. The speculum is in the centre of the lip, white or slate-grey, broadly edged white. The appendix can be red.

Ophrys reinholdii



Continuation of Kefalonia:

Bellevalia dubia is a small bulbous plant allied to Muscari. It grows on rocky stony dry and calcareous mountain sides. The flowers are rich blue and turn to grey/brown after flowering. There are masses of them on the island.

Fritillaria messanensis. It is possible this is the **subsp. *gracilis*.** The stem bears only one flower. The inside is of a bright golden colour. The petals are slightly checkered.

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Iris unguicularis* subsp. *cretensis. A rhizomatous species, growing in grassy, stony circumstances, often along roads.

Anemone blanda

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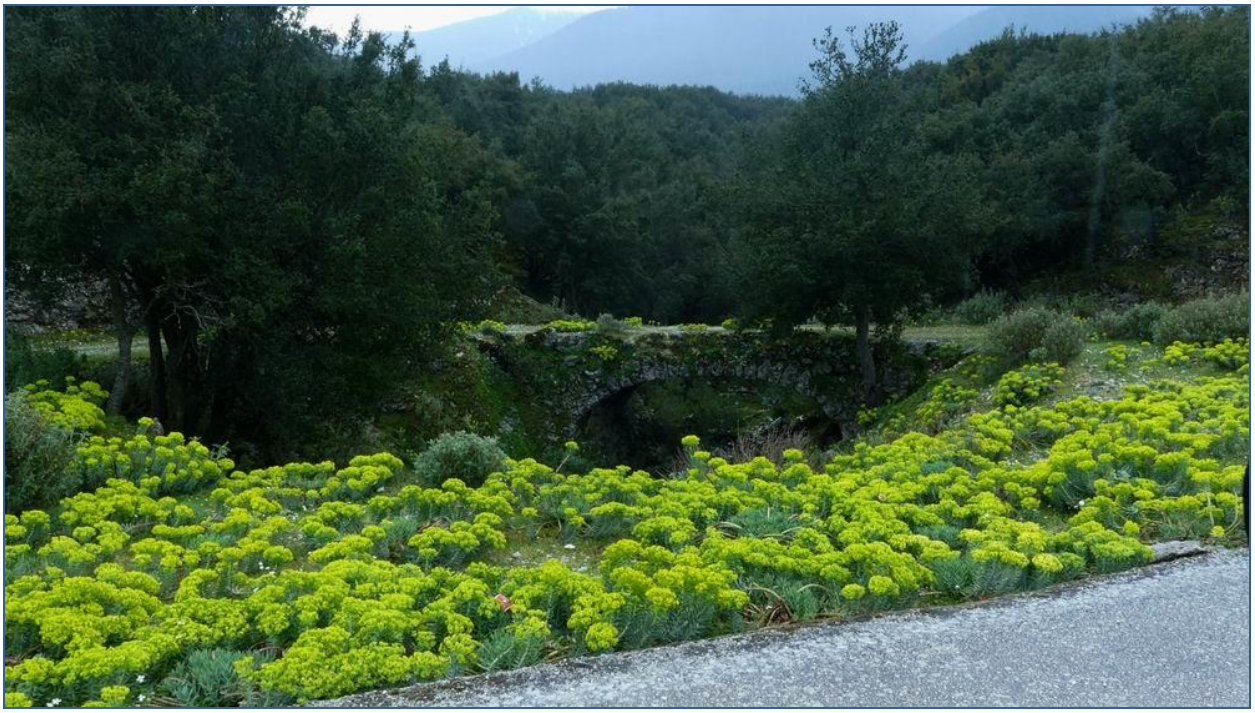
Malcomia chia

On our way to the highest peak of Kefalonia, **Mount Ainos** (1628 m), we passed by interesting flowers along the roadside. ***Anemone blanda*** **(**perhaps ***Anemone apennina*****)** and ***Malcomia chia.*** Both found a nice place between the bricks of a wall. The same as *this* ***Euphorbia biglandulosa*** **Desf.** According to the The Plant List, it is a synonym of ***Euphorbia rigida***, (Large areas of the mountains had been colonised by this plant.



We found this example of *Euphorbia rigida* in a somewhat peculiar place in a wall.

Mount Ainos was hidden in clouds when we decided to go there and that was not very promising. It became colder and colder. Between the rocks we discovered this light blue small species; ***Bellevalia hyacinthoides.*** Small bulbs make a basal rosette of narrow leaves, with white campanula-like flowers with a blue stripe and a blue throat.

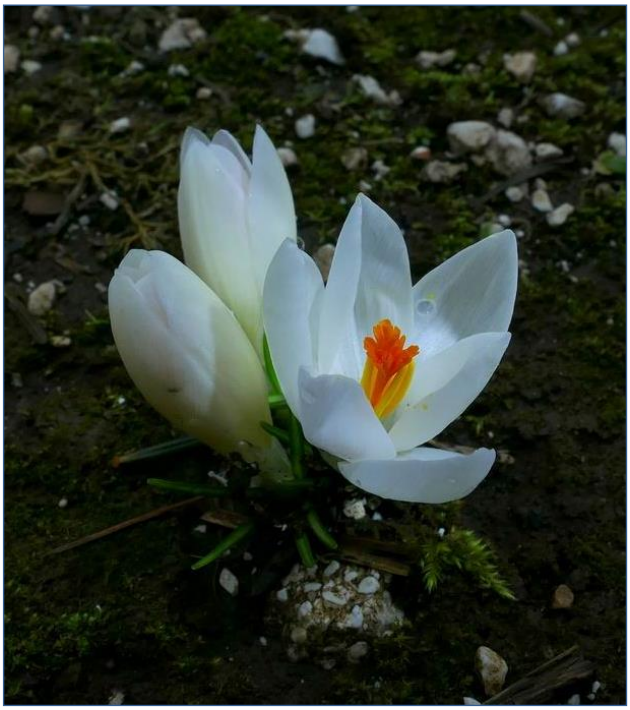
Entering the Mount Ainos National Park, large spots of remaining snow made it somewhat difficult to drive safely, but eventually we came to the end of the road, where a transmittor station has been built.

From here a 2 km long dirt road blocked by snow lead to the top. It was raining and ice and snow fell with temperatures of zero degrees. There, on this very spot we found the endemic ***Viola cephalonica*** between rocks. The flowers were closed due to the cold and lack of sunshine, but with the help of my warm breath and a flashlight I was able to make a rather good photo. The lower petal is light blue, which is not visible on the photo.

Iep in the icy rain

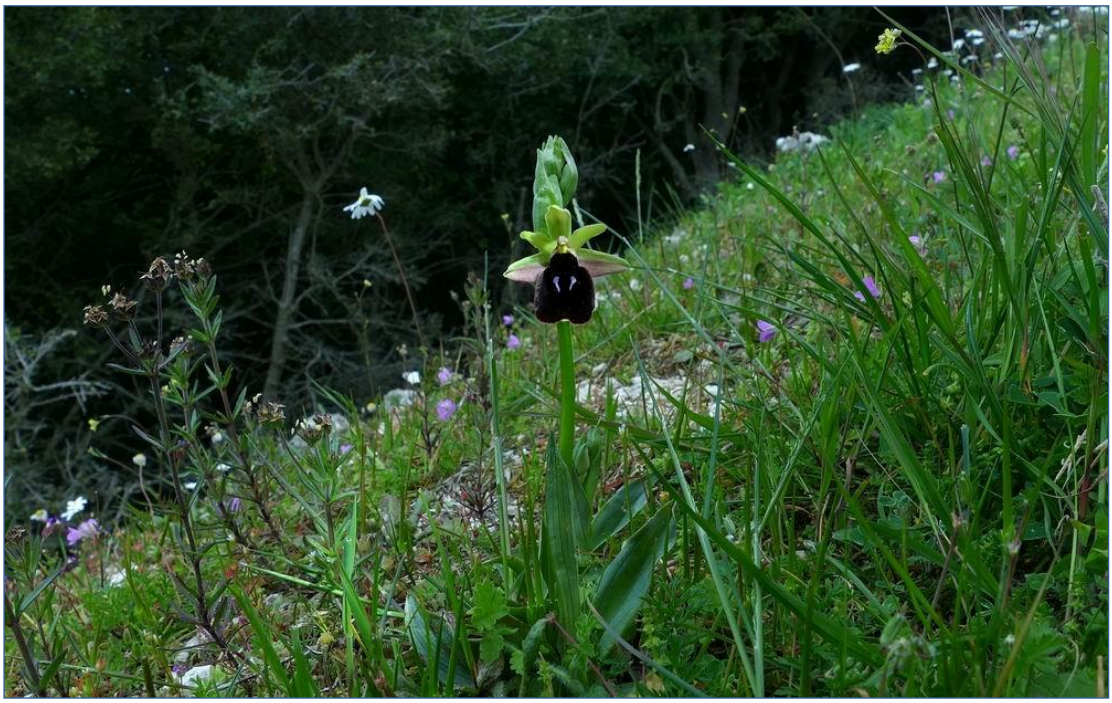
Viola cephalonica, once it was persuaded to open!

Our plan was to find the snow-melt crocus species ***Crocus sieberi* subsp*. sublimis*.** On a picnic place some hundred metres downhill, there was a snow field surrounded by the crocuses.
All of them were closed but using the same technique as described above, we managed to make the remarkable photos you may see. The pure white one is magnificent. The blue are great too!



Please compare this subspecies with ***Crocus sieberi* subsp*. sieberi*,** below, seen when we visited Crete in 2015. The crocuses grow in the mountains around the Omalos Plain, when the snow melts.

The crocuses were accompanied by ***Scilla bifolia***.



We come to the end of this report and the apotheosis of the journey to Kefalonia and Ithaka. We found a rare, completely black orchid, named ***Ophrys mavromata*****.** This species was described in 2015 by Alibertis, A. & Triantafyllaki, A. In J. Eur. Orch. 47: 285-292. Actually black does not exist, basically it is deep purple/red. It is extremely difficult to make appropriate

photos, but I think they are good enough. On the place where the stigmatic cavity is located, a vague white spot is visible, this maybe a sign for insects.

Ophrys mavromata

Ophrys mavromata

For your information: See the website of our residence, Tzivras villa Apartments, **here**. (If you make a reservation, we think the best situated apartment is number 8.)

Books: Pierre Delforge: Orchids of Europe etc. 2006.

Pierre Delforge: Orchidées d'Europe etc. 2016

Orchids of Britain and Europe website – here

All photos by the author,
Gerrit Eijkelenboom , Lelystad NL, 2019