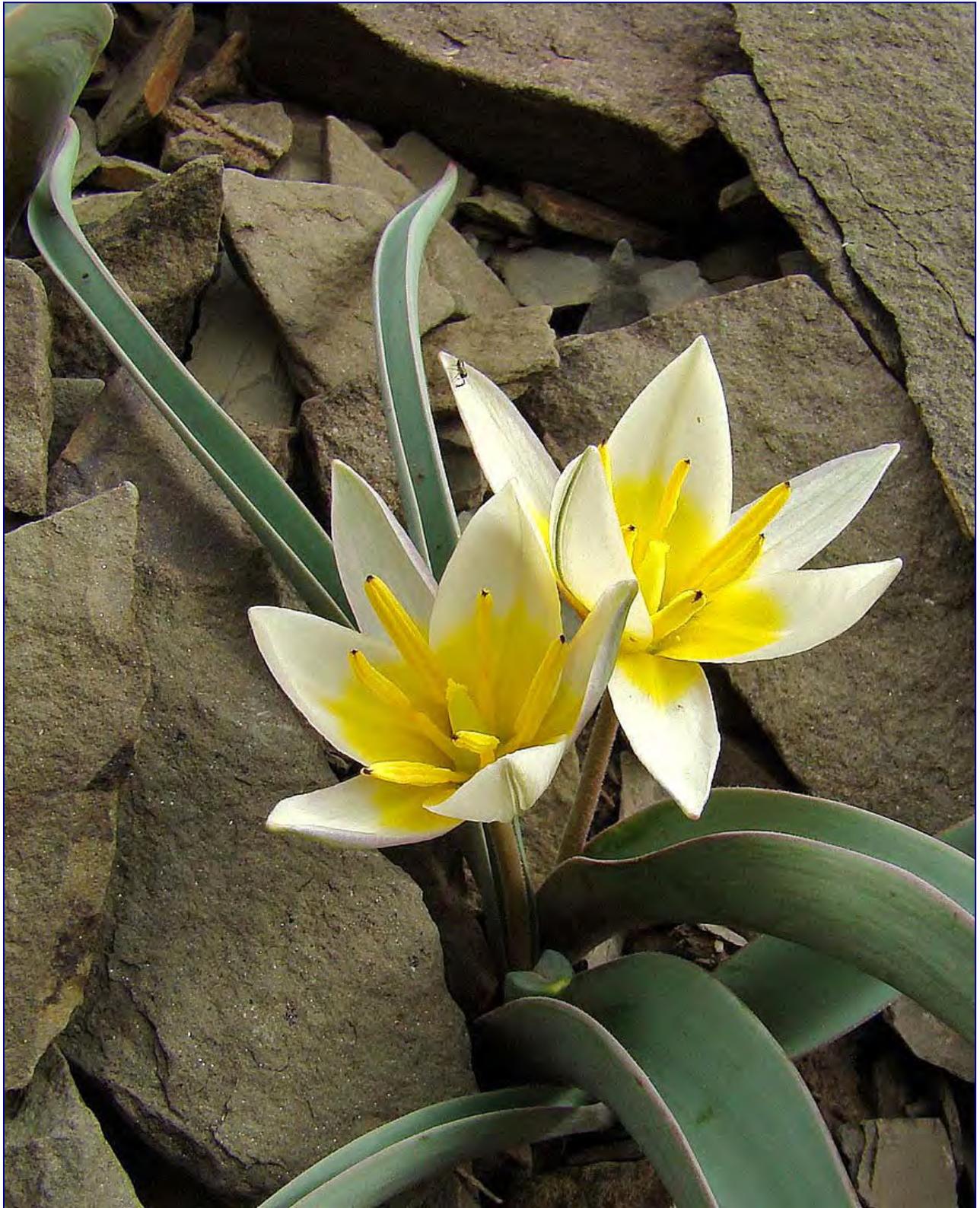


# International Rock Gardener



## ---International Rock Gardener---

April 2011



We have just had the pleasure to welcome many alpine gardening friends to Scotland after the Alpines Without Frontiers conference held in Nottingham. How exciting it was to have the chance to spend so much time with so many experienced and enthusiastic gardeners and explorers from truly international backgrounds. It was especially cheering to meet the large group of students enjoying sponsored places at the event. They surely represent the future of alpine gardening around the world. The young persons were keen and knowledgeable folks who will likely be the mainstays of future international events. We wish them every success in their chosen careers and look forward to more gatherings of such alpine enthusiasts.

### ---World of Bulbs---

Cover photo: *Tulipa orthopoda* by [Vladimir Kolbintsev](#), formerly a research scientist at the Aksu-Dzhabagly nature reserve and regarded Kazakhstan's leading naturalist. He is an immensely popular tour leader as the McCaugheys told us in IRG15, and as Panayoti Kelaidis attests [in his blog](#).

***Tulipa orthopoda*** is a diminutive endemic tulip from Kazakhstan, one of around 17 species found in that country. It was described by Aleksei Vvedensky in 1971 from the Karatau range. It is quite rare in cultivation and its most remarkable feature is its bulb tunic which is said to be very hairy. A pair of blue-green leaves with wine-red stains on the reverse are up to 8cm long and 2cm wide, held close to the buds appearing between them. The short stem is also hairy and the whole plant at flowering is hardly more than 4cms high. Flowers, one or two per stem, are white with a yellow centre and a reverse of smudgy grey-green with a touch of mauve with a green mid-rib, are borne very early in the year. Janis Ruksans reports that it can have up to four flowers per stem. The plant received an RHS Award of Merit and a Cultural Commendation when shown by the RBG Kew in 2009.

***TULIPA LEMMERSII*** Zoon., A. Peterse, J. de Groot, 2008 by **Vladimir Kolbintsev, Kazakhstan**

In early April 2005 green seed capsules of a tulip were found and couple of bulbs were collected in South Kazakhstan on the top of Mashat Canyon (altitude about 900 m). Later, in Holland, it flowered and was found to be new botanically undescribed species.

It grows in almost vertical rocks, directed to southwest, along edges of the slope. The local rocks are from limestone conglomerates. The shortest species from the Section *Kolpakowskianae*, this tulip has



three leaves; flowers are yellow with tints of red on the outside. Filaments are yellow; anthers are black with light brown pollen.

The flowering time is from the last days of March to the beginning of April.

It is a very rare endemic and found only in Mashat Canyon in foothills of Western Tien Shan. This tulip was found in fields during an expedition organized by Wim Lemmers - an outstanding expert in wild-growing tulips of Central Asia - and this species was named after him.

V.K.

# ---International Rock Gardener--- ---Gardens in the Mountains ---

## SERPENTINE BARRENS OF NEWFOUNDLAND, CANADA text and photos Todd Boland

Newfoundland is no doubt the best place in eastern North America for encountering a wide variety of arctic-alpine plants. Many of these are calciphiles restricted to the limestone barrens along the west coast of the Great Northern Peninsula. Here, the combination of exposure, climate and soil (or lack thereof) restricts the growth of typical boreal forest species such as *Abies*, *Larix* and *Picea*. With the lack of competition, arctic-alpines can make a living. As it happens, many of our alpines have a Holarctic distribution so would be familiar to people from northern Scandinavia. Examples include *Saxifraga paniculata*, *Diapensia lapponica*, *Cornus suecica*, *Bartsia alpina* and *Silene acaulis*, just to name a few. However, Newfoundland's alpine flora has another surprise. In three isolated regions of Newfoundland, consequently also along our west coast, we have outcrops of serpentine rock, a rock type rare in the world and one that is often home to endemic species or those with wide ecological tolerances.



So what is serpentine rock? Serpentine is metamorphosed peridotite. Peridotite is the main rock that composes the oceanic crust. Only through extreme geological uplift and folding, does oceanic crust become heaved above sea-level. The pressures involved in achieving this change the peridotite into the olive-green serpentine. There are often white veins through the serpentinite, appearing like snake-skin, hence the common name.

When exposed to the effects of weathering, the surface of serpentine becomes orange-rusty in colour, the distinctive colour seen throughout the rocks of our Newfoundland serpentine outcrops.



Three views of the Tablelands

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From a plant perspective, serpentine produces a host of issues for plant growth. The soils derived from serpentine are high in toxic heavy metals such as chromium, cobalt and nickel. Add to this the fact that the resulting soils are low in potassium and phosphorous and have a low ratio of calcium/magnesium. The resulting vegetation is often specially adapted to these soils. However, a few plants simply have wide ecological tolerances allowing them to survive in this hostile environment. The resulting 'serpentine barrens', at least in Newfoundland, look almost devoid of plants but close inspection will reveal a surprising variety, albeit thinly distributed. There are even a few stunted shrubs and conifers that add to the haunting beauty of this landscape.



As mentioned, we have three outcrops of serpentine; the Blow-me-Down Mountains west of Corner Brook, the Tablelands of [Gros Morne National Park](#) and the White Hills south of St. Anthony. The only easily accessible area is the Tablelands, where a highway passes along the base of the 'mountains' (really a plateau at about 600 feet). Here, the National Park has several hiking trails that will bring you into the heart of the serpentine barrens and allow access to the unique plants that grow there. The serpentine barrens of the Tablelands are just one of many reasons that Gros Morne National Park was declared a UNESCO World Heritage Site in 1987. So what plants can you expect to see among the serpentine barrens? Well, it should first be noted that although initial appearance would suggest the area is desert-like, that is far from the truth.

Left: *Sarracenia purpurea*

Tablelands is actually covered in bogs and everyone knows that water travels downhill. This water does flow as streams in places, but more often than not, the water travels just below the surface rock layer. So while the surface looks dry, just a few inches below, the gravel (I am reticent to say 'soil'!) is actually quite wet.

There are certainly dry ridges in the summer months, but the top of the



So the most bizarre plant seen among the serpentine rock is the pitcher-plant! *Sarracenia purpurea* is actually our [official Province flower](#), a common plant throughout Newfoundland's plentiful bogs. Seeing them growing on gravel is a bit disconcerting until you realize how wet the substrate is below.

Left: Pitcher plant featuring on a Gold Coin

Pitcher-plants are not the only insectivorous plant found here; three species of sundew, *Drosera*, as well as butterwort, *Pinguicula vulgaris*, are also commonly encountered.

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Left: *Pinguicula vulgaris*

The pink-family, Caryophyllaceae, appear to be the most serpentine-tolerant and/or adapted. *Minuartia marcescens* is nearly endemic to Newfoundland. It is also found on the Shickshock Mountains of the Gaspé Peninsula, Quebec, which is the other serpentine region in eastern Canada. This evergreen sandwort has needle-like foliage and small white flowers throughout June and July. Similar but more tufted in appearance is *M. rubella*.

Below: *Minuartia marcescens*



Above: *Sagina nodosa*



Also similar but with broader foliage is the mat-like *Arenaria humifusa*. These sandworts share their serpentine barrens with other pink-family relatives including *Sagina nodosa*, *Cerastium beeringianum* subsp. *terrae-novae* (an endemic), *Lychnis alpina* and *Silene acaulis*.



Above left: the endemic *Cerastium beeringianum* subsp. *terraenovae*



Left: *Lychnis alpina*

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Other species rarely encountered away from serpentine include *Armeria maritima* subsp. *siberica*, *Adiantum aleuticum* (an eastern North America disjunct population of this western North America species) and *Artemisia campestris* subsp. *caudata*.



*Adiantum aleuticum* sheltering in a rock cave



*Silene acaulis*

The remaining herbaceous alpine found on the serpentine barrens are also found on our limestone barrens; *Saxifraga aizoides*, *Packera* (*Senecio*) *paupercula*, *Tofieldia pusilla*, *Tofieldia glutinosa*, *Anemone parviflora*, *Primula egaliksensis*, *Primula mistassinica* (strangely the alba form is more common on serpentine than the typical lilac-pink), *Erigeron hyssopifolius*, *Solidago purshii* and a genetically dwarf form of *Osmunda regalis*.

There are even a few 'alpine' here that are widespread across Newfoundland including *Symphotrichum* (*Aster*) *novi-belgii*, *Campanula rotundifolia* and *Sibbaldiopsis* (*Potentilla*) *tridentata*.



*Packera* (*Senecio*) *paupercula*



*Campanula rotundifolia*

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*Tofieldia glutinosa*



*Primula mistassinica alba*

*Symphyotrichum (Aster) novi-belgii*

*Erigeron hyssopifolius*



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There are also several woody plants which call the serpentine barrens home. Two Newfoundland woodies are almost restricted to serpentine, namely *Salix arctica* and *Rhododendron lapponicum*. The only plant more bizarre to see on serpentine than pitcher-plants is Lapland rosebay (as *R. lapponicum* is known). It may be rarely encountered on our limestone barrens but is far more common among the serpentine.



Above: Lapland Rosebay (*Rhododendron lapponicum*)



[ ED: A coin with the Pitcher Plant , dating from before the official adoption of the Sarracenia as the Nova Scotia Provincial Flower in 1958]



Right: *Arctostaphylos uva-ursi*:

*Arctostaphylos uva-ursi* is another ericaceous plant that seems at home among the serpentine. Here too, grows a genetically dwarf form of *Shepherdia canadensis*. Both *Juniperus horizontalis* and *J. communis* grow here with the forms of *J. communis* very flat and dense in their form. Stunted forms of *Dasiphora* (*Potentilla*) *fruticosa*, *Larix laricina* and *Betula pumila* round out the list of scattered woody plants that may be seen in this unique habitat.



*Shepherdia canadensis*



*Juniperus communis*

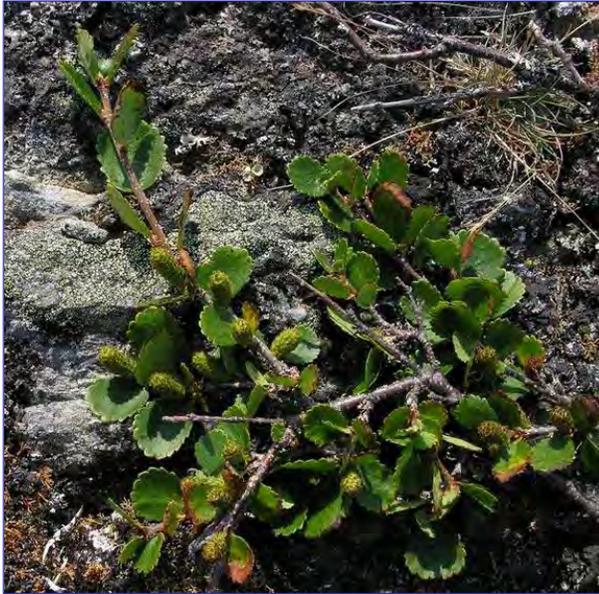
## ---International Rock Gardener---



Above: *Larix laricina*

Above left: *Potentilla fruticosa*

Left: *Betula pumila*



The serpentine barrens of Newfoundland are like no other place on earth. While they appear lifeless at first glance, a stroll among this otherworldly landscape will reveal a host of hidden treasures.

T.B.

## ---Gardens in the Mountains---

**MAY FLOWERS IN THE STEPPE OF ALA DAG** by Cedrik Haškovec and Štěpánka Haškovcová



Ala Dag photo by Basar Safak

[www.srgc.org.uk](http://www.srgc.org.uk)

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There is a huge south sloping Turkish steppe in front of an imposing two kilometres high wall of the limestone mountain called Ala Dag. There are no stony outcrops at the lower part of the steppe (the dolomitic limestone here is eroded into mineral rich gritty and alkaline substrates). It is much richer and not as dry as the higher (2.000 - 2.300 m) and steeper part sloping towards imposing vertical cliffs. This flat steppe is like an enormous playground above the village of Cukurbag (Nigde county) and it is a paradise of flowers in May (the earlier visitors can admire in April, when last snow pockets are melting here, short exotic Junos – *Iris persica* and another bulbs). The bottom of this flat slope is covered with a “carpet” of various Turkish endemic plants.



*Convolvulus assyricus*



*Moltkia coerulea*

The biggest show is provided by *Convolvulus assyricus*. Its dark green flat mats are covered with sweet sugar pink sessile flowers. Only a few rock gardeners are able to flower well this Assyrian Empire beauty. It needs full sun all day and not too rich soil.

A surprise to us was shrubby *Moltkia coerulea* with purple-blue flowers. We photographed here three dwarf *Astragalus*. It is a very frequent and variable genus in Turkey (more than 300 species). We admired the pink *Astragalus lineatus* subsp. *lineatus* (below left) and the small yellow flowering *A. hirsutus* (below right). The cultivation of *Astragalus* is usually a half lost battle and the best results are achieved with young seedlings in sand beds.



## ---International Rock Gardener---

Two interesting species of *Scorzonera* were seen. *S. judaica* (syn. *S. pseudolanata*) (below left) with yellow flowers (from steppes of Central Anatolia) and *Scorzonera* sp. with pink flowers (below right). This pink flowering species is difficult to determine because there are two very similar species differing only in their underground organs. Both *Scorzoner*as have typical undulated margins to their leaves.



The steppe was also decorated with small pink flowers of dwarf woody *Aethionema glaucescens*, blue flowers of *Muscari bourgaei*, which is widely spread in Europe, and several yellow flowering plants like *Ajuga chamaeopitys* subsp. *chia*, *Helianthemum* aff. *canum* and *Alyssum caespitosum*.



*Aethionema glaucescens*



*Alyssum caespitosum*

Later in June and July the upper part of steppe offer flowers of compact shrubs which are all well known in continental rock gardens: virgin white *Convolvulus compactus*, *Salvia caespitosa*, *Prunus prostrata* and *Pterocephalus pinardii*.

C.H. & S.H.

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---Plant Portrait---

**DIONYSIA TACAMAHACA**

by Dieter Zschummel, Germany



It is about ten years ago since we started to visit Iran to see Dionysia in their habitat. Our first trip was very much supported by Magnus Liden, who gave us all the details to find the dionysias he had seen in 1998 when he was in Iran together with botanists of Iran and Latvia (SLIZE).

In the meantime we have found all known dionysias of Iran except *Dionysia kossinskyi*, *D. sawyeri*, *D. esfandiarii* and *D. bornmuelleri*.

Our two attempts to find *Dionysia esfandiarii* were fruitless, but it is now well known in cultivation thanks to the SLIZE expedition. (SLIZE = Swedish, Latvian, Iranian Zagros Expedition)

There are some uncertainties regarding *D. sawyeri* and *D. kossinskyi*. At the moment it seems that nobody knows the exact localities of either species in Iran. We have looked for *D. sawyeri* at all three areas given by the literature without success. To find *D. kossinskyi* may well be difficult because in its probably small distribution area the rather similar *Dionysia tapetodes* might be a common plant. So if *Dionysia kossinskyi* exists at all one has not only to find its locality, one has also to be there when it is in flower.

In 2005 we didn't find *Dionysia bornmuelleri*, known in Iran from Noah Kuh near the borderline to Iraq, but was discovered by Henrik Zetterlund and Gerben Tjeerdsma in Iraq in 2007.

So it was of great interest for us when we received Liden's information of another species of Dionysia not seen by us or by westerners after Wendelbo together with Assadi had collected it about 40 years ago. Magnus found it in the Tehran herbarium (TARI: there is another specimen of that species collected by Tarakli) and noted down all information available and made drawings of the herbarium specimen. For some years it was not possible to get information about its locality (there was no information in the TARI). Luckily Magnus later received this data and in 2007 he published "**The genus Dionysia (Primulaceae), a synopsis and five new species**" [ M. Liden in Willdenowia 37-61 (2007)]

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The new species was named and described as *Dionysia tacamahaca* Liden (tacamahaca is a reference to "balsam, with aromatic resin").



Wendelbo and Assadi collected their specimen in the Bimar Mountain (Bimar means "like a snake" referring to the crest line of that mountain). Thanks to our friend Mohamed from Tehran we located this place near Kerend, not far from Noah Kuh.



Bimar Mountain with gorge

[www.srgc.org.uk](http://www.srgc.org.uk)

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After three years of absence from Iran we started our trip from Tehran via Aligoudarz, Khorramabad and in early April 2009 we spent an awful night in a tent at the entrance of Islamabad. It was not very difficult to find Bimar Mountain though we had to take a very poor road. At around noon we reached a point where we were near the rim of a deep gorge facing east to west, bounded by limestone walls on both sides. With binoculars we discovered cushions with yellow flowers on the cliffs and we were very surprised to find what we wanted so easily.



*Dionysia odora*

It was a short, steep but easy walk into the gorge. But when we reached the cushions we immediately identified the plants: they were only *Dionysia odora*. We had not seen such a large population before. This *Dionysia* was growing on both sides of the gorge. There were sometimes cushions of about 25 cm in diameter and many plants were totally brown, apparently dead.

Particularly conspicuous on the ground and slopes below the cliffs were innumerable tufts of leaves from *Sternbergia clusiana*. Also we found a few *Fritillaria straussii*. The Bimar Mountain is the locus classicus of this *Fritillaria*.

Left *Fritillaria straussii*



We made a tent near the "road" and, after a better night than the one before, we started in the morning on 12<sup>th</sup> April to look for the real mountain situated behind the gorge.

We had to walk down to the gorge and after one vain attempt we found a way out of the gorge. The rest of the walk was rather easy with a steady ascent, only becoming steeper in the last part.

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On the way we saw some beautiful *Anemone coronaria*, *Alrawia bellii*, and higher up was a wonderful *Anemone biflora* of a good red colour.



*Anemone coronaria* above left, *Alrawia bellii*, above right, *Anemone biflora*, below



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We reached the cliffs after about two and a half hours and there it was: *Dionysia tacamahaca*!

It was in full flower just far below the highest peak of Bimar Mountain. The cushions were growing on top of rocks, on vertical cliffs and also under overhanging rocks, which is typical for dionysias. It was not difficult to distinguish between *D. odora* and this species: the leaves of the new species are entire (as described by Magnus) whereas those of *D. odora* are not.

It was striking that the yellow flowers of *Dionysia*

*tacamahaca* were clearly shinier than those of *D. odora*.

Because of the entire leaves, the rather short glandular hairs, not easily recognizable without magnification and the very compact cushions, we were reminded of *Dionysia iranica*. Because of the details Magnus states that it is nearest to *D. zetterlundii*; all these species belong to the section *Dionysia*.

Unfortunately our GPS didn't work: we were too near to the high cliffs. But we think the elevation was around 1800m.



From our position we recognized several places looking promising and not too far away. But as so often we had no time: we had to escape from heavy rain! The rest of our journey was somewhat spoiled by the weather: the year 2009 had a hard winter in April. But perhaps it was just right for seeing *Dionysia tacamahaca* in full flower.

We look forward to see it in cultivation.

D. Z.

## CROCUS FROM SCARDUS

In antiquity one part (the eastern one) of the ancient Illyrian Highlands was called Scardus, later the Turkish (Ottoman) occupants changed Scardus for Shar Dagh and today the Southern Slavonic local people call it Šar Planina. Sharr in Albanian language means saw (the sharp shape of the mountains) so a good name is **Sharr Mountains**.



It is a bold mountain range in the Balkans, which extends from southern Kosovo to the northwest Republic of Macedonia and north-eastern Albania. The mountain massif is about 80 km long and 10-20 km wide. There are four peaks higher than 2700 meters: Mount Korab 2764 m, Titov Vrv 2747, Mal Turčin 2707 and Mt. Bakerdan 2704 m. Sharr Mountains has the largest area of connected pastures in continental Europe.

Old Scardus is found in the name of two good rock garden plants; *Dianthus scardicus* and *Saxifraga scardica*.

Another plant born in great Scardus is *Crocus scardicus*. Because it is a true alpine Crocus we must inform about it.



Above and below: *Crocus scardicus* growing in Scotland, photos by J.I.Young

*Crocus scardicus* KOSANIN is unique with its floral colour combination of orange or golden yellow with purple throat and tube.

In addition, it has tiny flattened corms (0.7 cm) and its thread-like leaves (0.5 – 1 mm wide) lack the white stripe at the upper part of the blade of a classic crocus. The stigma is divided into 3 short orange branches.

Below: *Crocus pelistericus*, photo J.I.Young

## ---International Rock Gardener---



The closest relative of this species is the Southern Macedonian *Crocus pelistericus*, which is deep violet with a whitish style

It grows above the tree line at elevations of 1700 – 2500 metres, usually in short alpine turf or by snow patches, flowering from May to July. Plants have access to plenty moisture in July and after a short moist summer they go dormant in autumn. These local alpine conditions with regular afternoon shading by clouds suggest that this *Crocus* must be grown in cooler place, sheltered from scorching sun, watered in summer and never allowed to be totally dry. As an alpine plant it needs a long cool winter period with only a minimum of moisture. The most well known place, where this difficult crocus is grown outdoors is Scotland. We hope that by hybridising these species with other botanical Crocuses we can get plants with striking colours and with hybrid vigour. The best known is a hybrid between *Crocus scardicus* and *Crocus pelistericus*, which is named *Crocus x gothenburgensis* 'Tricolor'.

The picture of this pretty mixture was taken in Botanical Garden Gothenburg, Sweden.



The mark F2 means that this is the second generation of a hybrid (Maggi Young suggests that it is from a backcrossing with *C. scardicus*).

Because the pollen parent *C. pelistericus* has an even greater need for standing in water in the period of growth, the hybrid must never fully dry out in summer and must be kept out of full sun in our lowland gardens. The root growth is dormant for only a very short period in the early summer.

Left: *Crocus x gothenburgensis* 'Tricolor'