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A new fritillary species from the Zhetysu area of south-eastern Kazakhstan is described by Jānis Rukšāns and Dimitri Zubov. They have named it *Fritillaria kolbintsevii* for Vladimir Kolbintsev, the nature explorer and travellers' guide from Kazakhstan, who showed the authors this exceptionally interesting fritillary species.

Cover image: *Fritillaria kolbintsevii* seedpods of the previous season in the wild.



Jānis Rukšāns and Dimitri Zubov.



Vladimir Kolbintsevii

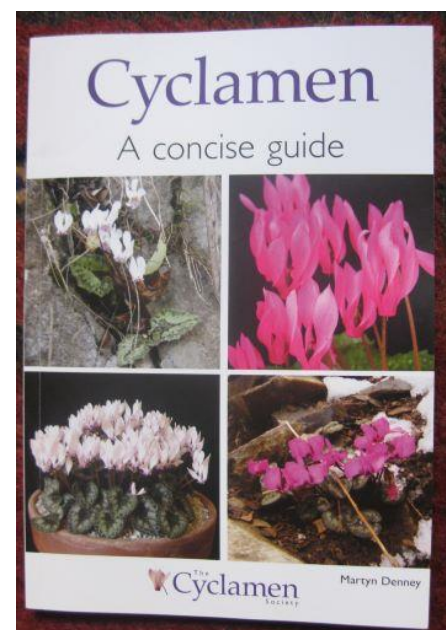
Chris Gardner and his wife, Başak Güner Gardner run [Vira Natura Tours](#), leading specialist botanical (and garden) holidays to many parts of the world. They have led hundreds of such tours to over thirty countries over the last two decades. These tours aim to show beautiful flowers in spectacular natural environments. Travelling in small groups, with flexible transport to allow access to the best areas, providing guests with plenty of time in the field. Everything I've heard of the comfortable accommodation, close to good areas for botanising, on the tours led by such friendly, knowledgeable folk, has made me envious of their clients!

Chris has made a series of "Covid blogs" over the last while in the pandemic and we publish a small selection from those -starting with praise of the gentian family in summer, and its incomparable blues.

Finally in this issue, with text by Zdeněk Zvolánek, the delicate beauty of *Cyclamen* 'Porcelain' is shown - a form distributed by the late Jan Bravenboer of the famous Dutch Nursery, fondly remembered by Václav Jošt from Czechia.

A new book from the [Cyclamen Society](#), '**Cyclamen – A concise guide**' by Martyn Denney, was launched on 18th September.

This excellent 104 page booklet, ISBN 978-0-9537526-5-2, packed with information, a must-have for anyone interested in this genus, is priced at only £5 from the Society. Lots of vital information at a modest price! Recommended!



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--- Species Description ---

***Fritillaria kolbintsevii* (subgen. *Fritillaria*; Liliaceae): a new fritillary species from Zhetysu area of south-eastern Kazakhstan**

Jānis Rukšāns¹ and Dimitri Zubov²

¹Stalbe, Latvia

²Kyiv, Ukraine

Correspondence: janis.bulb@hawk.lv

Summary. *Fritillaria kolbintsevii* (Liliaceae), a new fritillary species (Central Asia: north-eastern macroslope of Dzungarian Alatau; south-eastern Kazakhstan – Zhetysu), is described and illustrated. Morphological differences between the new species and other possibly related taxa of the subgen.

Fritillaria (*F. ruthenica*, *F. meleagroides*, *F. ferganensis*, and *F. walujewii*) are discussed.

Photographs (habitat and morphology) and distribution map are provided.

Key words: geophyte, fritillary, Zhetysu geographic area, Kazakhstan flora.

Introduction

The genus *Fritillaria* has about 165 taxa recognised worldwide [12]. They are distributed throughout Northern hemisphere – both in the Old and New Worlds. Many of them are growing on the territory of former USSR. The Flora of USSR [9] lists 32 species (together with genera *Rhinopetalum* and *Korolkowia* now treated as subgenera included into the genus *Fritillaria*). Later Czerepanov [4] reduces the number of species to 29, keeping the same separation of the genera *Rhinopetalum* and *Korolkowia*, regarding some as synonyms of other fritillary species. In last years a few new species were described – *Fritillaria hajastanica* Gabrieljan and *F. tunievii* Gabrieljan, but they seem to be only the morphological variants of *F. caucasica* Adams [5, 6]. *Fritillaria sonnikovae* Shaulo & A. Erst is a very interesting taxon, described from Western Sayan (related to *F. dagana* Turcz. from Sayan Mountains and *F. maximowiczii* Freyn from Far East; all from the subgen. *Liliorhiza*) [15]. Another new species from subgen. *Rhinopetalum* – *F. baisunensis* was described by J. Rukšāns. It is related to *F. bucharica* Regel but easy separable by its twisted leaves and black anthers [13]. Very recently another species from the *Rhinopetalum*, *Fritillaria rugillosa* Naumenko & Zubov, from the Fergana Valley of Kyrgyzstan was published in [IRG 140 August 2021](#).

There are not many fritillary species growing in the Central Asian region of the former Soviet Union, consequently the identification of the collected plants should not be very difficult. In 2012 our team of fritillary enthusiasts from several countries travelled along border between Kazakhstan and China. Our main target was just studying members of the genus *Fritillaria*, where several tasks could be cleared during an exploration of variability of various species in the wild. One of these tasks was the

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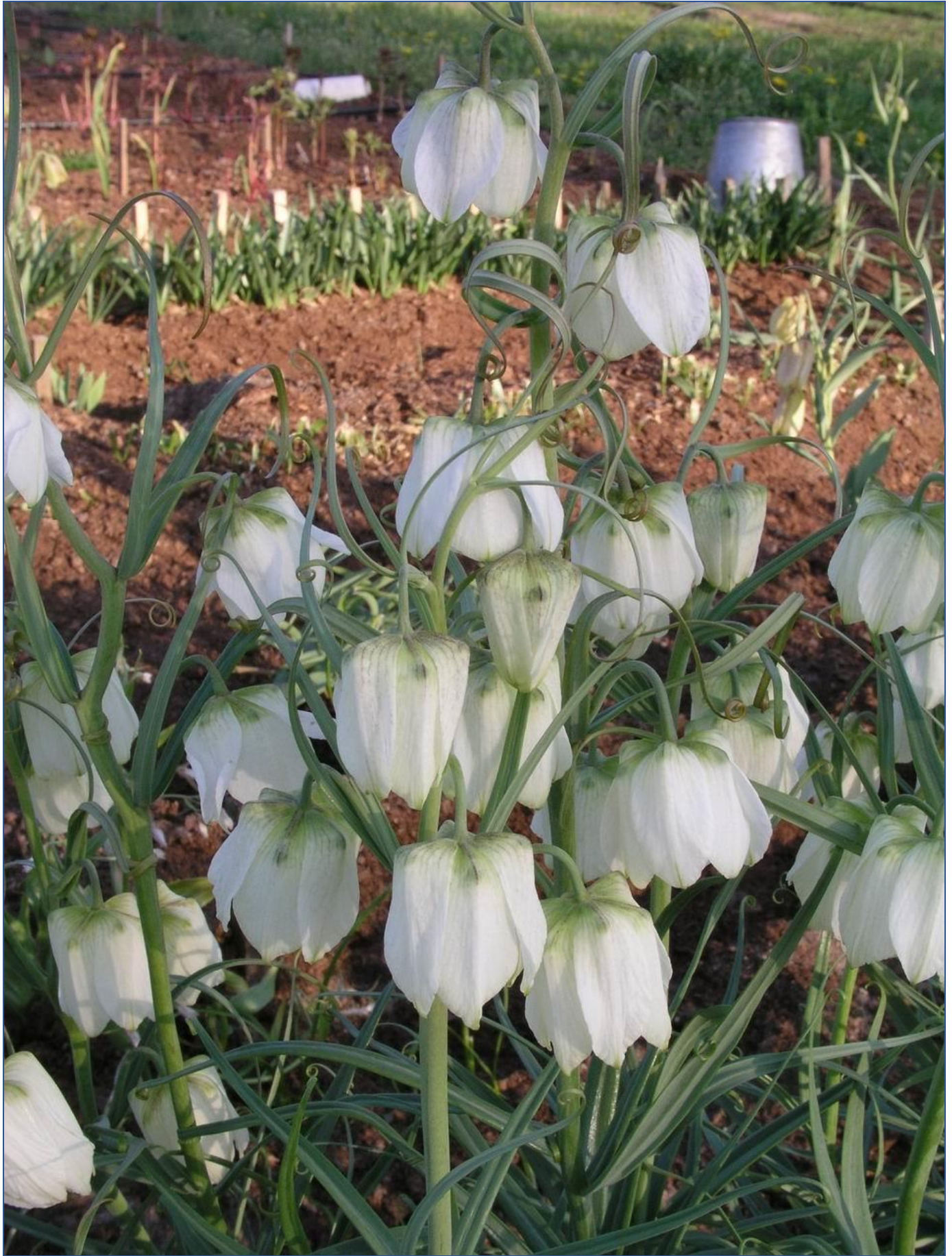
variability of *F. verticillata* Willd., which had two very distinct forms in cultivation (from the vicinities of the villages of Urdzhar and Kara-Sumbe, Kazakhstan). Findings on Tarbagatai Mountains where both forms were growing side by side and even intermediates were observed, confirmed that they belong to the same species.



Fritillaria baisunensis from Pulkhakim, Uzbekistan



Fritillaria baisunensis from Shurab, Uzbekistan



Fritillaria verticillata from Urdzhar, Kazakhstan



Fritillaria verticillata from Kara-Sumbe, Kazakhstan



Fritillaria verticillata, 12KZ-087 - Tarbagatai Mountains, Kazakhstan



Fritillaria verticillata from Marble Pass, E Kazakhstan

Our botanical guide in that trip was Vladimir Kolbintsev (after whom a new tulip species was named in 2012 [19]: *Tulipa kolbintsevii* Zonn.).

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Tulipa kolbintsevii, 12KZ-073, from Dzungarian Alatau, Kazakhstan

Tulipa kolbintsevii, 12KZ-073 - note long bulb neck allowing easy identification of this species

On the 7th of May 2012 he brought us to Kol-Asuu gorge in Dzungarian Gate. We drove into gorge up to altitude of 1230 m where we made our camp and, on foot, further explored the flora lower and



higher from our camp up to altitude of 1700 m. In very peaty (pure humus) soil, deep in and only under shrubs we found very special looking *Fritillaria* named at that time by our guide as cf. *Fritillaria walujewii* Regel. In shrubs, on rocks and on meadows, but more often in lighter spots between dwarf shrubs and on clay soils, *F. pallidiflora* Schrenk grew. Both species in the explored area during our time were in full bloom.

Left: *Fritillaria pallidiflora*, 12KZ-076, in its habitat at Dzungarian Gate, Kazakhstan.



Close up of *Fritillaria pallidiflora*, 12KZ-076, in its habitat.

It should be noted that we had been visiting Zhetysu geographic area. This is a historical name of a part of Central Asia, corresponding to the south-eastern part of modern Kazakhstan. It means in Kazakh “seven rivers/waters”, from the rivers which flow from the south-east into Lake Balkhash.



Fritillaria kolbintsevii in the wild, Kazakhstan



Fritillaria kolbintsevii in the wild, Kazakhstan



Fritillaria kolbintsevii in the wild, Kazakhstan

Materials and Methods

Field studies for *Fritillaria kolbintsevii* were undertaken in south-eastern Kazakhstan (Zhetysu) in 2014, and seed grown living material in cultivation (Latvia, Ukraine) was examined by us between 2017 and 2021. Herbarium specimens were examined at the herbarium of GB (abbreviations after [7]). Measurements, colours, and other details are based on living material, spirit and herbarium specimens and data derived from field notes. Morphological and anatomical examinations were made using a stereo microscope Stemi 2000-C (Carl Zeiss, Germany). Morphological terminology follows [2].

The distribution map (Map 1) was plotted and produced using specimens and recorded coordinates, verified using Google Earth Pro (©2017 Google). The preliminary conservation status of *F. kolbintsevii* was not evaluated against the Red List Criteria [8] due to the insufficient data of the new species full-range distribution.

Holotype herbarium sheet of new *Fritillaria kolbintsevii*, deposited in GB.



***Fritillaria kolbintsevii* Rukšāns & Zubov sp. nov. Type: Kazakhstan, Dzungarian Alatau, Kol-Asuu valley side gorge (45°42'N, 81°07'E), c. 1250-1350 m elevation, leg. J. Rukšāns (12KZ-075), fl. 7 May 2012. J. Rukšāns s.n. (holotypus GB!)**

Bulb – 2-scaled, whitish, up to 2.0-2.5 cm in diam.; in flowering plants a mother bulb is replaced by very small c. 5-7 mm in diam. bulb.

Stem – brownish-green or green, falling if no support, in flowering plants 50-70 cm long, non-flowering plants forming only one large, up to 20 cm long and 4.5 cm wide elliptic leaf, gradually narrowing from widest part to pointed tip, without a stem.

Leaves – green or green shaded with bronze, basal leaves absent, lower ones commonly in whorls of 3-4, linear, 10-12 cm long and 9-12 mm wide, distal leaves opposite but higher alternate, gradually shortening from 9 cm to 5 cm long and from 8 to 2 mm wide, linear and attenuate to a sharp and distinctly cirrose point.

Inflorescence - 1-3(-4) flowered; bracts 2, green, brownish to the apex, linear with strongly cirrose apex, ending with several distinctly cirrose tendrils.

Flowers – actinomorphic, nodding, rounded-campanulate; pedicels green, 2-4 cm long.

Perianth segments – in two trimerous whorls, glaucescent, brownish-purple, abaxially indistinctly spotted and slightly tessellated with purple, tessellation pattern more prominent adaxially; middle part of a segment uniformly brownish-purple or with wide greenish-toned mid-zone in an upper half abaxially, and adaxially with 2-3 mm wide greenish-yellow to dirty greenish mid-zone along all length of a segment with short, elongated nectary at the base. Outer perianth segments – 3, 25-27 mm long and 9-11 mm wide, elliptic to oblong-elliptic with pointed tips. Inner perianth segments – 3, obovate to oval, 25-27 mm long and 13-15 mm wide.

Nectaries – 6, elongated, c. 2(-3) mm long, abaxially projecting at a right angle indistinctly.

Androecium – stamens 6, in two trimerous whorls, diplostemonous; filaments 6, green, densely pubescent, slightly reflexed at the top, c. 7-10(-12) mm long; anthers 6, yellow, lanceolate, with four locules per anther, introrse, basifixed, 5(-7) mm long; pollen yellow.

Gynoecium (ovary and receptacle) – syncarpous, tricarpellate; ovary superior, green, cylindrical, ±rounded in cross section, c. 5 mm long; placentation axile; pistil green, filiform, papillose-pubescent, c. 11-12 mm long, style c. 5 mm long; stigma distinctly trilobed, lobes distinctly reflexed and slightly overtop anthers, c. 6 mm long.

Capsule – tricarpelate, trapezoidal (wider at the top, narrower at the base), up to 20-25 mm wide and 10-14(-17) mm long, loculicidal and six-angled, broadly winged, wings up to c. 10 mm wide.

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Seeds – flattened with a narrow marginal wing, $\pm$ ovoid, c. 0.4×0.5 cm, brownish, in two rows per chamber (carpel), the seed coat made out of both integuments, but the testa is thin and the endosperm lacks starch, the embryo is small and visible.



Flower details of *Fritillaria kolbintsevii*



Perianth segments of *Fritillaria kolbintsevii*



Fritillaria kolbintsevii – filaments and anthers (paper square = 5 mm)

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Recognition – compared with *Fritillaria ruthenica* and other somewhat similar species, *F. kolbintsevii* forms a smaller replacement bulb of a generative shoot, and a much bigger daughter one with a single leaf, without bulbils, whilst other species - single replacement bulb, sometimes with tiny stoloniferous or non-stoloniferous bulbils. Perianth of *F. ruthenica* is narrowly campanulate with prominent abaxial nectary horns/shoulders but in *F. kolbintsevii* - rounded with inconspicuous abaxial nectary horns/shoulders; its stem is erect, not drooping whilst in *F. kolbintsevii* it is much thinner and weaker, drooping, needs support from surrounding shrub's branches. Seed capsule in *F. ruthenica* is square to cylindrical (length to width index 1:1 – 3:2) but in *F. kolbintsevii* flatter, shortened, trapezoidal (length: width ratio approximately 2:3).

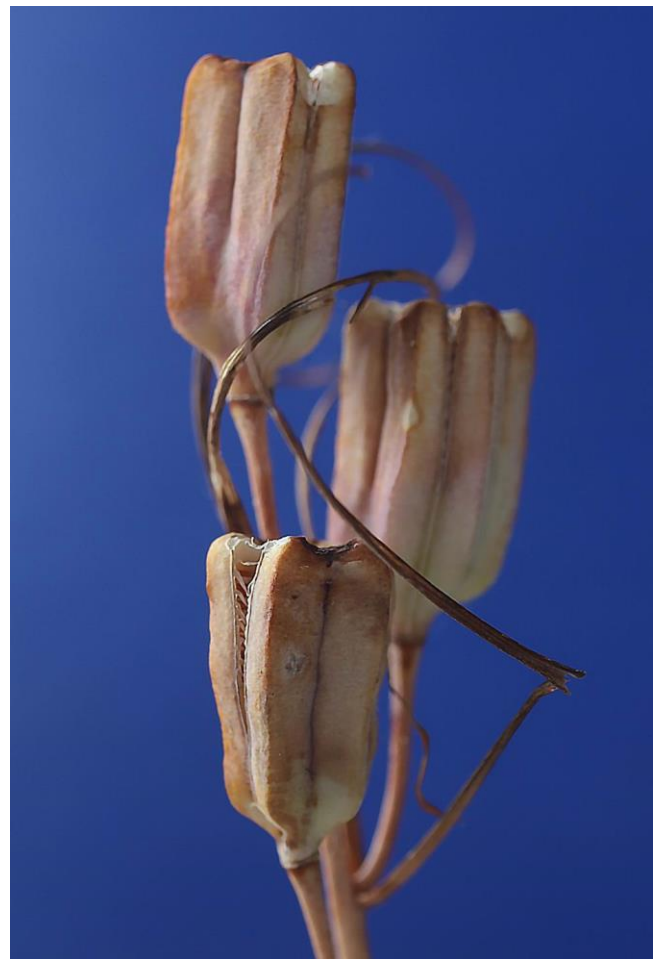


New *Fritillaria kolbintsevii*, 12KZ-075, in the wild: note its specific feature – single wide leaf of next year's blooming bulb (see red arrows)

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Single leaves of the next year's replacement bulbs of *Fritillaria kolbintsevii*, 12KZ-075, in the garden



Seedpods of *Fritillaria ruthenica*



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Fritillaria meleagroides makes a single replacement bulb and forms only 1-2 flowers per stem, but *F. kolbintsevii* up to 4; its upper leaves' apices are without tendrils, but in *F. kolbintsevii* tendrils are prominent and it has completely different seed capsules – they are wingless narrowly cylindrical (in *F. kolbintsevii* – conspicuously winged flat, shortened, trapezoidal).



Seedpods of *Fritillaria meleagroides*

Fritillaria ferganensis has two basal opposite leaves at the base of a stem, absent in *F. kolbintsevii*. Its seed capsules are elongated and horned at lateral wing apex. Perianth of *F. ferganensis* is cup-shaped and light pinkish red, but in *F. kolbintsevii* glaucous dark-coloured brownish-purple and much more rounded.



Fritillaria ferganensis seedpods showing typical "horns" on the top; photos by Aleksandr Naumenko.



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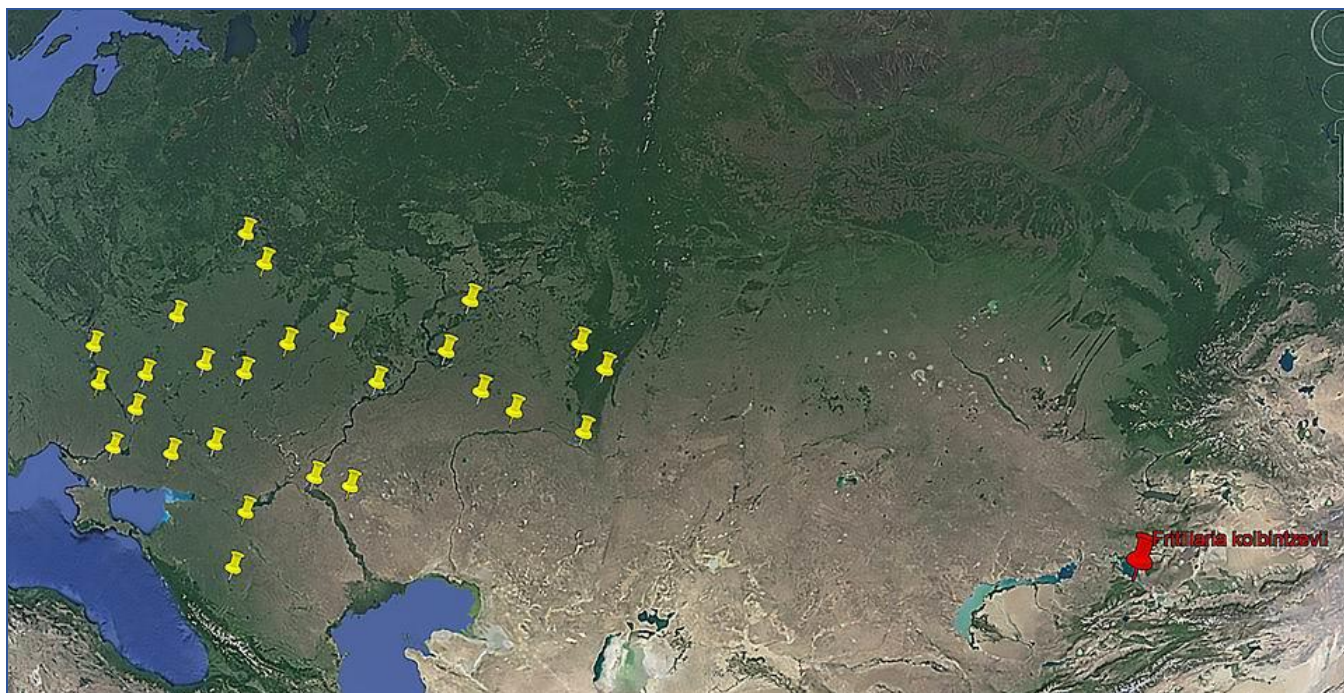


“Horns” on *Fritillaria ferganensis* seedpods can be easily seen even on dry stems from previous season; photo by Robert Wallis.

Fritillaria walujewii similarly with *F. ferganensis* has two basal opposite leaves at the base of a stem and stem is sturdy compared with much weaker drooping stem of *F. kolbintsevii*. The abaxial side of the perianth segments are greenish-white but adaxial side contrasting wine-red-coloured with prominent abaxial nectary horns/shoulders, but in *F. kolbintsevii* perianth segments are dark-coloured brownish-purple on both sides with inconspicuous abaxial nectary horns/shoulders. Filaments of *F. walujewii* are

glabrous, whilst in *F. kolbintsevii* – pubescent. Seed capsules are elongated and cylindrical.

Specimens examined – Kazakhstan. Dzungarian Alatau, Kol-Asuu valley side gorge, c. 1250-1350 m elevation, leg. J. Rukšāns (12KZ-075), fl. 7 May 2012. J. Rukšāns s.n. (holotypus GB!). The exact localities of *F. kolbintsevii* have not been documented here for fear of unlawful plant collecting.



Map 1: Yellow marks – localities from where *Fritillaria ruthenica* are known (incl. data from www.plantarium.ru); red mark – locality of new *Fritillaria kolbintsevii*

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Distribution – Central Asia (Zhetysu): Kazakhstan, Alakol District, Almaty Region (north-eastern macroslope of Dzungarian Alatau); known only from the type locality (Map 1); possibly, it can also be found in adjacent area of Xinjiang Uygur Autonomous Region in the People's Republic of China.

Habitat – described from dense shrubs of *Berberis* sp. and *Rosa platyacantha* Schrenk at c. 1250-1350 m elevation; growing in very peaty (pure humus) soil. Mesophyte.

Phenology – flowering (wild): May; fruiting (wild): July.

Etymology – named after Mr. Vladimir Kolbintsev, the nature explorer and botanical guide through Kazakhstan and Central Asia, who showed us this new highly decorative and cherished fritillary species.



Vladimir Kolbintsev during our trip to Kazakhstan

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Discussion

On our trip we had already expressed great doubts about correct naming of species regarded by V. Kolbintsev as cf. *Fritillaria walujewii* taking into account the observed morphology of already fading fritillaries. And many years later Vladimir at www.plantarium.ru renamed those plants for *F. ruthenica* Wikstr., although Kol-Asuu lies very far away from the typical area where *F. ruthenica* is known to be distributed (Map 1).

Fritillaria ruthenica was described by J.E. Wikström (1789-1856) from specimens collected in southern Russia [18] and named by Marschall von Bieberstein as *F. verticillata*. It is native to the Eastern Europe and recorded from the southern Ukraine across Russia, as far north as the Moscow Region and in the direction to the east it reaches as far as NW Kazakhstan [11]. The Kol-Asuu gorge is located about 1700 km to SE from the closest known habitats where typical *F. ruthenica* was observed. The data about its distribution within W Siberia [9] seems to be incorrect, as quite often under this name were actually given typical *F. meleagroides* Patrin ex Schult. et Schult.f. (European-West Siberian species with a disjunctive range). The area of the former really stretches from Ukraine (central, southern and eastern regions) in the west up to Altai Republic (Russia) in the east. Although similar by flowers, both species have different foliage and are very easy identifiable by shape of a seed capsule, which in *F. meleagroides* is wingless, but in *F. ruthenica* – distinctly winged.

One of the features which most immediately surprised us, seeing this new fritillary in Kol-Asuu, was its very special way of growing: flowered plants with formed seed capsules produced the replacement bulbs, which didn't flower in the following year. But at each spot we observed several individuals with one large and wide leaf and large flowering size bulb attached to an actually much smaller flowered mother-bulb. The new species plants were observed only in scrub of *Berberis* sp. and *Rosa platyacantha*. Its tendrils were wound around every twig with which they were able to contact and the large number of the previous year's, now almost empty, seed capsules indicating how they had not been subjected to any grazing due to protection by spiny shrubs. Higher to the gorge, near the birch wood (*Betula* sp.), *Malus sieversii* (Ledeb.) M. Roem., and *Populus* sp., *Fritillaria pallidiflora* started. Occasionally we observed the latter one providing a support to the so named by V. Kolbintsev "*F. walujewii*", but this was more as an exception, than a rule. It seems that both species in Kol-Asuu are separated by altitude and soil conditions, although their areas slightly overlap. The new fritillary seems to be a typical shade lover, whilst *F. pallidiflora* prefers more open and sunny sites.



Fritillaria kolbintsevii 12KZ-075, in the garden



Fritillaria kolbintsevii, 12KZ-075, in the garden

A few bulbs of this fritillary were collected and planted in the collection of J. Rukšāns. Some of them were potted and grown in a greenhouse, but a few were planted in the open garden in deep shade between some small hostas and *Paeonia obovata* Maxim. under a large *Prunus divaricata* Ledeb. shrub. Plants cultivated in greenhouse became weaker and weaker from year to year and finally the few remnants were planted outside in the same site where the outside individuals were grown. A similar thing happened with plants grown by other members of our team who tried to cultivate this new fritillary in pots (R. Wallis, K. Vickery, pers. observ. 2021), but those ones planted in

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the outside garden flourished and bloomed every year and were keeping the same multiplying pattern: blooming individuals made small replacement bulbs and a large one-leafed bulb of flowering size to bloom in the following season.

Observations in the wild and in cultivation confirmed our opinion that it is a new, still undescribed species morphologically resembling *Fritillaria ruthenica*, but separable from it by several distinct features. We decided to name it *F. kolbintsevii* after Vladimir Kolbintsev, the nature explorer and travellers' guide from Kazakhstan, who showed to our team this exceptionally interesting fritillary species.



Fritillaria ruthenica from Donetsk Region, SE Ukraine



Fritillaria ruthenica from Penza Region, W Russia

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Fritillaria ruthenica from Poltava Region, C Ukraine

To compare both species we used plants of *F. ruthenica* grown in our living collections originally raised near Penza in W Russia and from SE Ukraine (Donetsk Region), where it is growing in bayrak (ravine) forests along the Seversky Donets River in sympatry with *F. meleagroides*, but *F. ruthenica* is growing in more dry clearings, whilst *F. meleagroides* occupies seasonally flooded meadows within the bayrak forest zone. Another Ukrainian sample of *F. ruthenica* came from Poltava Region (in vicinities of Krugloye Ozero village), where it grew in dry sites under trees (thanks to Nikolai Treba, the local bulb enthusiast, who collected those samples for us).

Fritillaria meleagroides from various localities:



Fritillaria meleagroides from Donetsk Region, SE Ukraine



Fritillaria meleagroides from Poltava Region, C Ukraine

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Fritillaria meleagroides, yellow form from Poltava Region, C Ukraine



Fritillaria meleagroides from Altai, Kazakhstan, near border with Russia



Left and far left: *Fritillaria meleagroides* from Tarbagatai Mountains, Kazakhstan

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More or less detailed descriptions of *Fritillaria ruthenica* are done by Lozina-Lozinskaya (1937) in [9], less detailed by Artjushenko and Rix in [1, 11]. We found a more detailed characteristic with an excellent figure showing minor details in Turrill & Sealy, table 3829 [16]. Nevertheless, for the best and most detailed description of *F. ruthenica*, the authors express thanks to Rix & Wallis, who shared with us a description of this species from their coming monograph dedicated to the genus *Fritillaria* (E.M. Rix & R.B. Wallis, in work up).

One of the main features characterizing *Fritillaria kolbintsevii* vs *F. ruthenica* is the forming of large, single leaf daughter bulb and the smaller replacement one of a generative shoot, whilst in *F. ruthenica* there is single replacement bulb, sometimes with tiny stoloniferous bulbils (so called “caviar-bulbils”, like in Donetsk Region plants of *F. ruthenica*). The perianth in *F. ruthenica* is narrowly campanulate with prominent nectary horns/shoulders but in *F. kolbintsevii* perianth is more rounded with less conspicuous nectary horns, sometimes even they are only minutely expressed. Stem in *F. ruthenica* is erect, stronger and can stay up even without a support of neighbouring plants, whilst in *F. kolbintsevii* the stem it is very thin and needs surrounding plants to keep erect position by twisting tendrils around overgrowing shrub branches.



Fritillaria kolbintsevii tendrils twisting around any twig to support its thin stem

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By this pattern it is very similar to *F. ussuriensis* Maxim., both having many characters in common - especially its blackish flowers with small tessellations and numerous coiled leaves, some on an extension above the flowers, but *F. ussuriensis* has a wingless capsule, replacement bulb with tiny caviar-bulbils, and only the uppermost leaves are coiled. Both species were seen growing only within shrubs, it provides a support for their thin and long stems.



Various forms of *Fritillaria ussuriensis*, Far East, Russia

Only Rix & Wallis (E.M. Rix & R.B. Wallis, in work up) mention papillose lobes of a style for *Fritillaria ruthenica*, although according to the drawing given by Turrill [16: table 3829], the style lobes could be(?) regarded as papillose. Filaments by Turrill are characterized as “puberula” (minutely pubescent, hairy), and such they are on a given drawing, but Rix & Wallis characterize them as papillose. Those features are not mentioned in other known publications. No one author characterizes a style underneath the lobes, which in

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F. kolbintsevii is densely pubescent throughout, although hairs are minute, and they are true hairs, and not papilla.



Flower details of *Fritillaria kolbintsevii* showing densely hairy (pubescent) filaments and style

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Separation of *Fritillaria kolbintsevii* from *F. meleagroides* growing in the same region, is very easy by upper leaves apices which in *F. meleagroides* are without tendrils (vs upper leaves' apices with prominent tendrils) and by a wingless narrowly cylindrical capsule (vs a conspicuously winged flattened trapezoidal capsule).



Seedpods of *Fritillaria meleagroides* are wingless...



...but those of *Fritillaria ruthenica* are winged



Left and below: *Fritillaria kolbintsevii* seedpods from the garden





Fritillaria kolbintsevii seedpods of the previous season in the wild

The seed capsule in *F. kolbintsevii* is comparatively short, distinctly and deeply winged. Otherwise, *F. ruthenica* seed capsules are longer by overall appearance and less deeply winged, although the last feature in *F. ruthenica* is something variable. Plants from Poltava Region have less prominently acute angulate capsules than plants from Donetsk Region, but we never observed it being so deeply truncate as in *F. kolbintsevii*. By shape of seed capsules *F. kolbintsevii* is somewhat similar to the

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Chinese *F. tortifolia* X.Z. Duan & X.J. Zheng and *F. yuminensis* X.Z. Duan (another one of the “climbing” species). But both has whitish or slightly pinkish-bluish flowers with more or less pinkish-red tessellation of perianth segments adaxially [3].



Fritillaria tortifolia from China



Fritillaria tortifolia from China



Fritillaria yuminensis from China

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A question still remains: Why did Vladimir Kolbintsev initially misidentify a new species as *Fritillaria walujewii*? It seems that this mistake is based on the confusion between two species – *F. walujewii* and *F. ferganensis*.



Fritillaria ferganensis from Kyrgyzstan



Fritillaria ferganensis from Kyrgyzstan

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Both were regarded as different species in the Flora of the USSR [9] and both were accepted in the *Fritillaria* monograph [16], but mysteriously synonymised with the strikingly dissimilar *F. walujewii* Regel by Pazij [10].



Fritillaria walujewii in Kyrgyzstan; photos by Sergei Zenin





Fritillaria walujewii in Kyrgyzstan; photo by Sergei Zenin

Such an erroneous synonymy has been uncritically incorporated into all the subsequent reference books on the Flora of Central Asia (e.g., in [4]). Sennikov and Lazkov [14] provided excellent evidence that this is an error and that both species are strikingly dissimilar species and well separated not only by morphology but also by the different distribution areas (see attached Map 2 from [14]). Those two species differ in many characters [9, 17] as summarised in the following Key:

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1. Perianth moderately angular. Tepals chequered, pinkish-violet both on the outer and inner sides. Capsule valves with prominently elevated ridges, topped with acute hooks

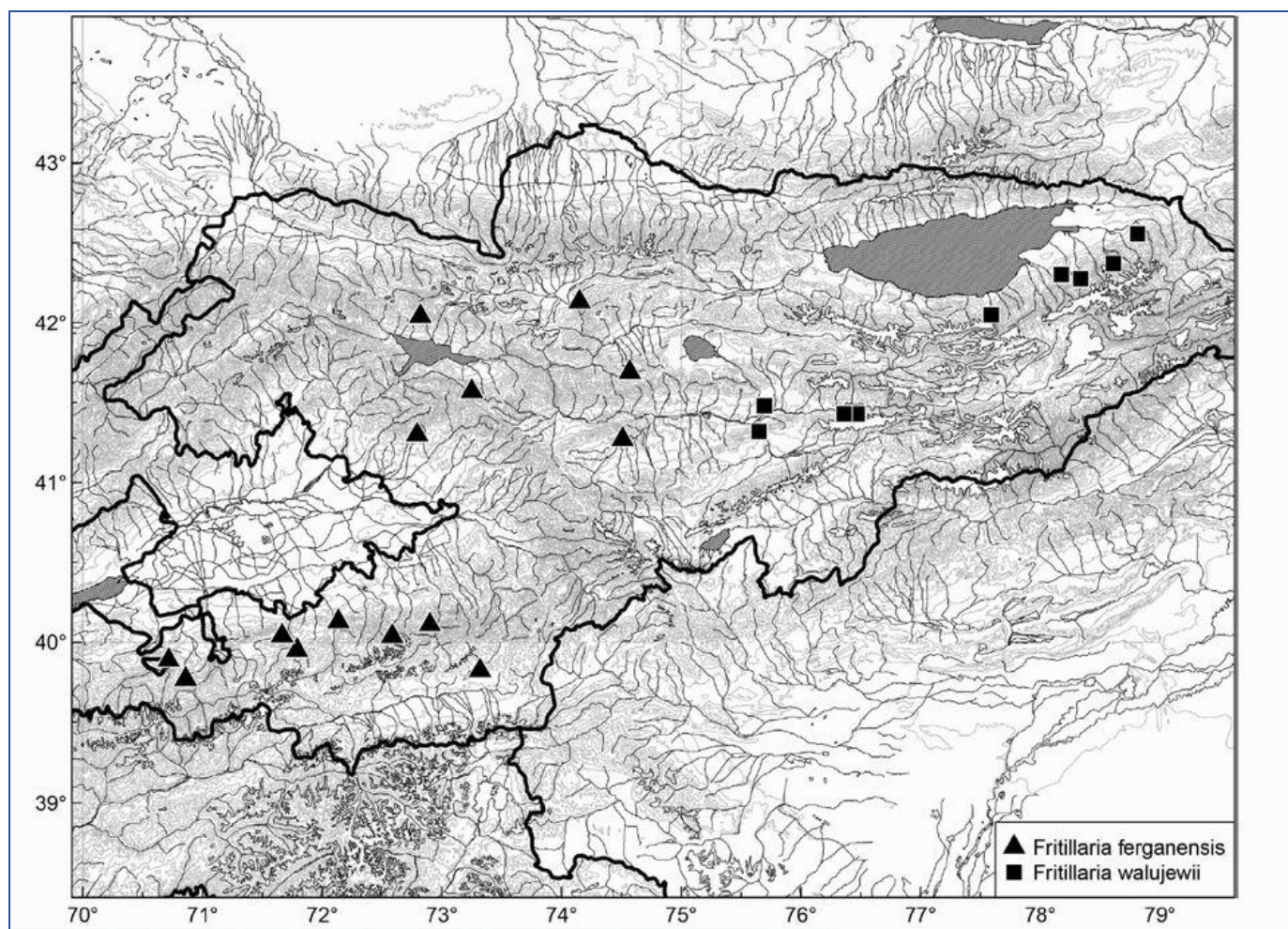
..... *Fritillaria ferganensis*

+ Perianth strongly angular. Tepals whitish with a pink tint and green midveins on the outer side, wine-red, whitish squared on the inner side. Capsule valves with narrowly elevated ribs, obtuse on the top

..... *Fritillaria walujewii*

In any case *F. ferganensis* more resembles *F. ruthenica* than *F. walujewii*. They look something similar with their round-shouldered bell-shaped flowers and tendril-like leaves, although the flowers of *F. ferganensis* are more reddish in colour. The main difference is in the capsules which in both species are slightly winged, but in *F. ferganensis* the outer margins are topped with the hook-like elevated ribs, that are absent in *F. ruthenica*.

All those observations allowed us to decide that a fritillary from Kol-Asuu gorge in south-eastern Kazakhstan represents a new species, which we describe here.



Map 2 where *Fritillaria walujewii* and *Fritillaria ferganensis* are found in Kyrgyzstan (by Sennikov & Lazkov, 2013).

Acknowledgments

First of all, we must express our thanks to Vladimir Kolbintsev (Kazakhstan), who showed us this unusual *Fritillaria* sp. and insisted that we do further research on it. Next, we must thank our travel partners of the 2012 trip lead by Robert Wallis (UK). We express our thanks to Sergey Zenin, Aleksandr Naumenko (Kyrgyzstan), who supplied us with additional pictures as well as Robert Wallis, who in addition shared with us information about *F. ruthenica* derived from the unpublished monograph. And we are especially thankful to our families for the hard work at our gardens during our absence while in the wild doing field work.

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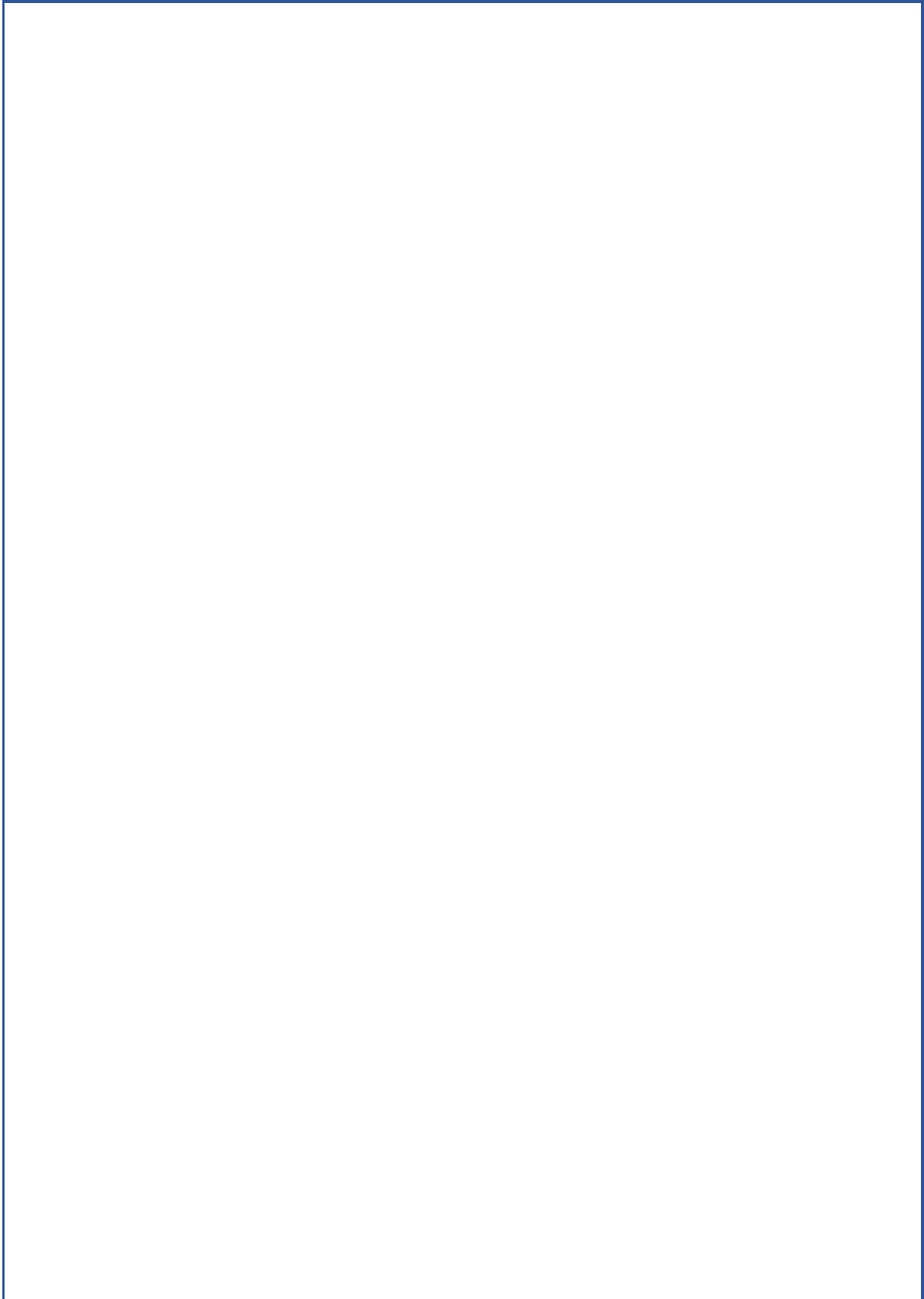


Vladimir Kolbintsev in Kazakhstan, with Kurt Vickery (UK), behind and in the background - Chinese border view and white dunes of large Ak-Kum Desert in China.

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--- Gardner's Gatherings ---

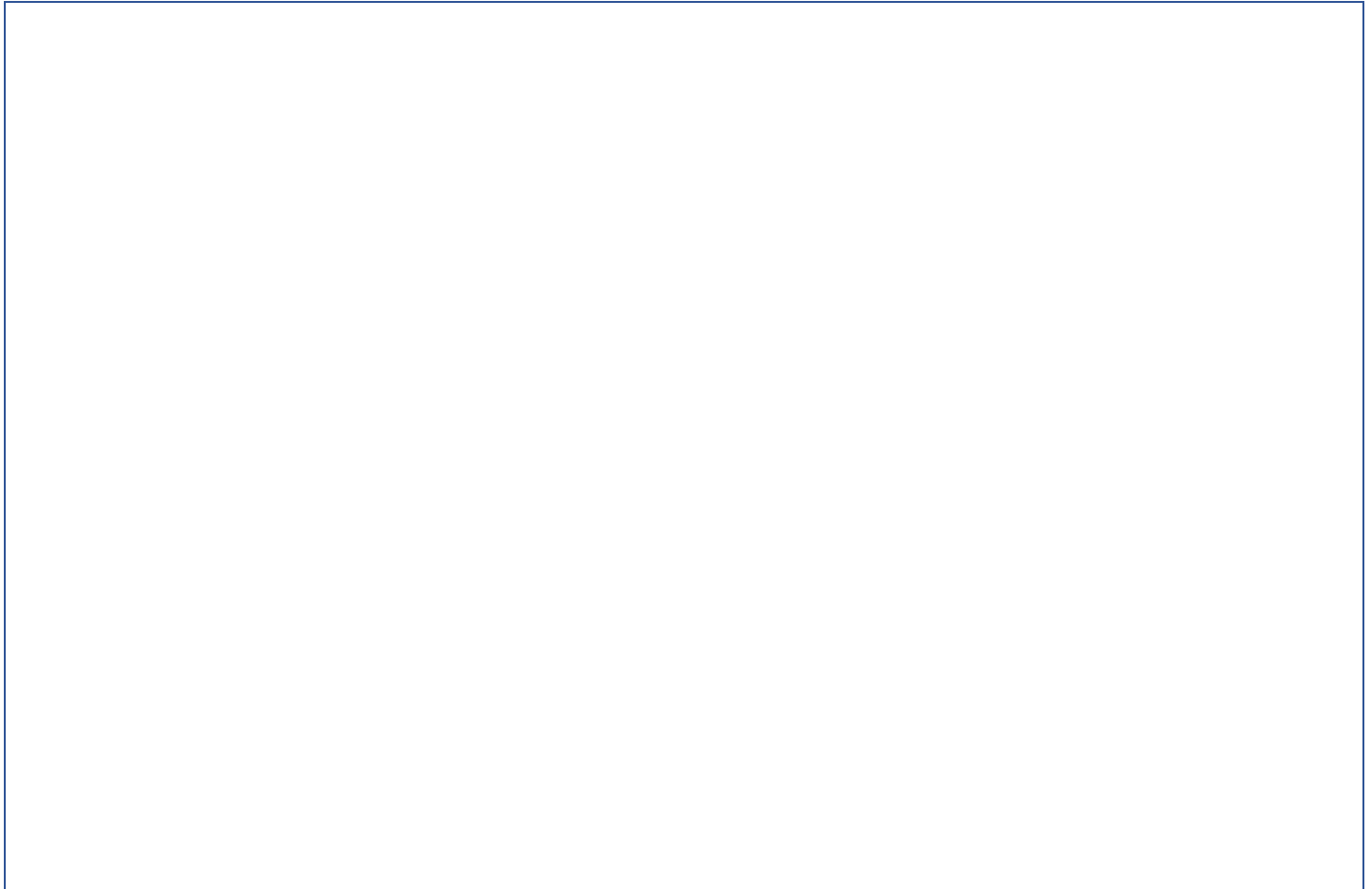
GENTIAN BLUE – August 2020 - Chris Gardner



Gentiana septemfida

---International Rock Gardener---

Mention gentians to many and they no doubt conjure up images of the Himalayas or maybe western China - the world centre for these charismatic flowers with around 250 species. And then there is the Alps and Pyrenees which host amongst others the gorgeous *Gentiana acaulis*, where I photographed these. These two mountain ranges also share species with north-east Turkey, an area that is perhaps not associated with having many gentians. This is not correct. It may lack the great diversity of eastern Asia, but it has quantity and from late summer and into autumn, gentians can be seen throughout the north-east Black Sea or Karadeniz region.



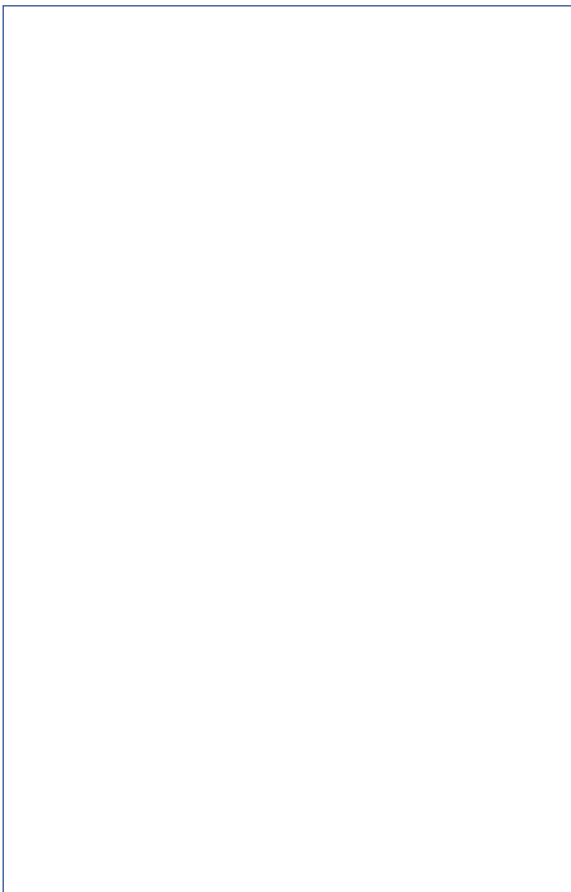
Gentiana verna

They begin earlier in the year with the incomparably intense blue of *Gentiana verna* subspecies *pontica*, a frequent plant of alpine turf throughout central and eastern Turkey. However, it can still be found in flower in a few spots even in late-July. It is one of the worst flowers to try and capture in print, that unbelievable blue is completely out of gamut. As such, it's vibrance can only be appreciated on screen (where more colours are possible) or in the field. Ovit Dag is an excellent area for gentians and at the same time as *G. verna* flowers it's possible to find the small, but still vivid, *G. nivalis*, diminutive *G. aquatica* (a rather tiny, pallid species) and the widespread violet-blue of *G. pyrenaica*.

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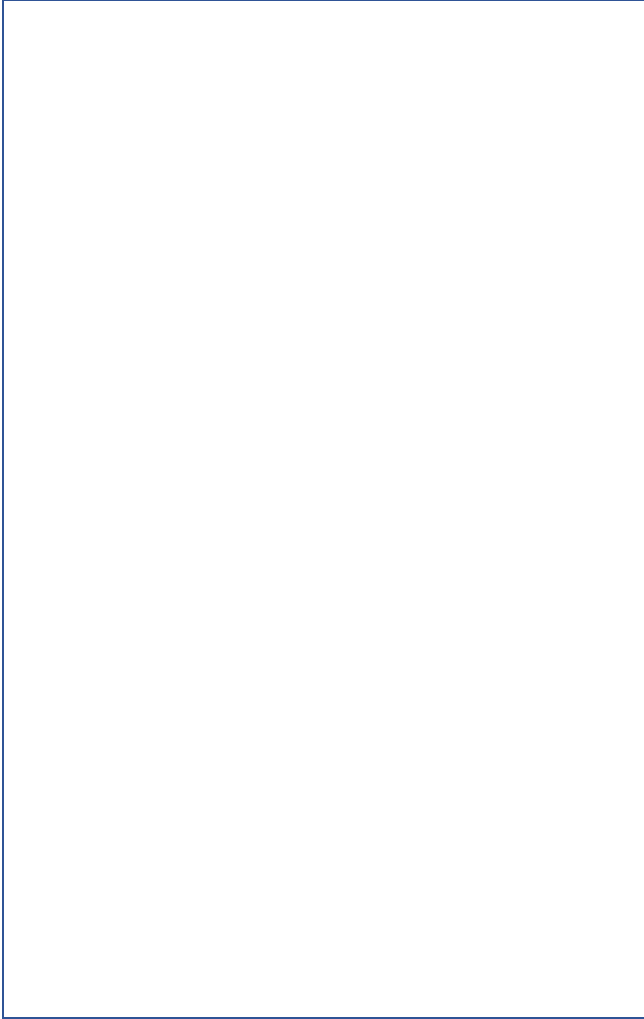
Gentiana acaulis in the Pyrenees



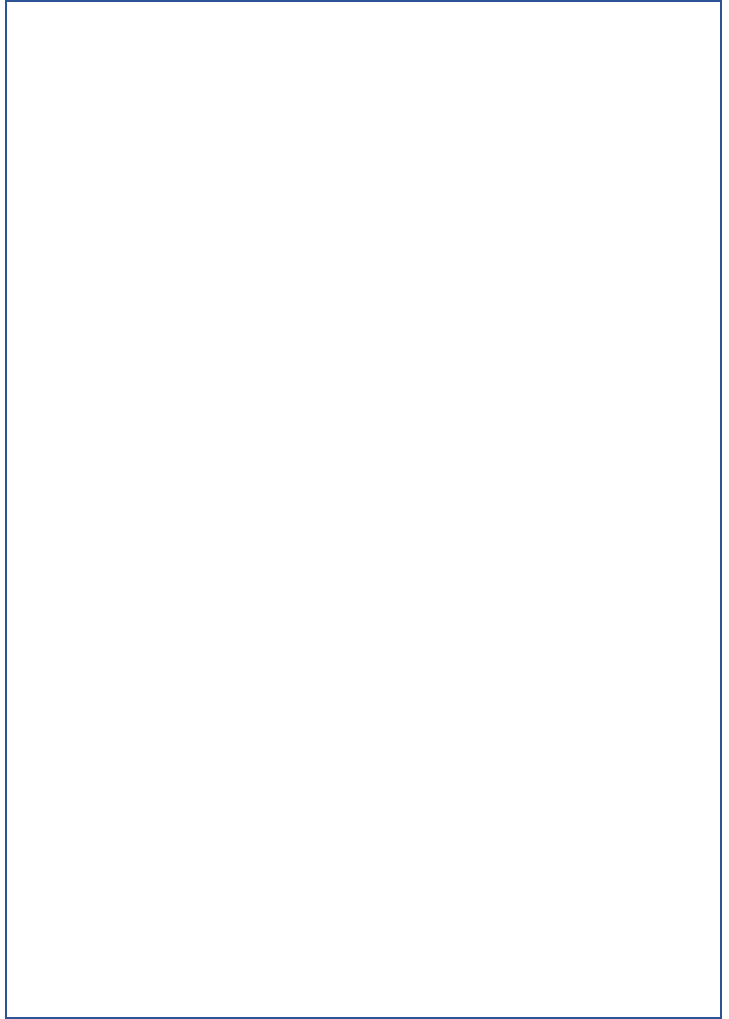
Gentiana pyrenaica

By mid-July on the same slopes, are the subtler lilac of *Gentianella caucasica* and showy *Gentiana septemfida*. Backlight gives a wonderful translucence to the large bells of the latter and sometimes they are enhanced with the liquid gold of *Crocus sharajonii*, the only summer-autumn flowering crocus in Turkey. *Gentiana septemfida* is a widespread species and on the Cam Pass (between Savsat and Ardahan) it grows alongside the similarly-shaped *G. gelida*, the only white gentian in Turkey. Perhaps inevitably, they do sometimes hybridise producing attractive pale blue progeny. *G. gelida* prefers drier areas and is very common to the east and abundant on the way to Kars.

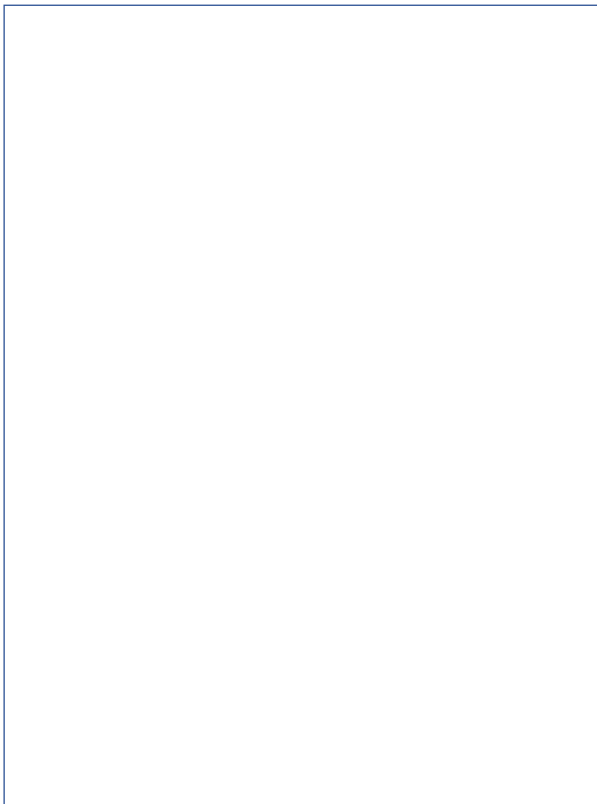
---International Rock Gardener---



Gentiana cruciata



Gentiana caucasica

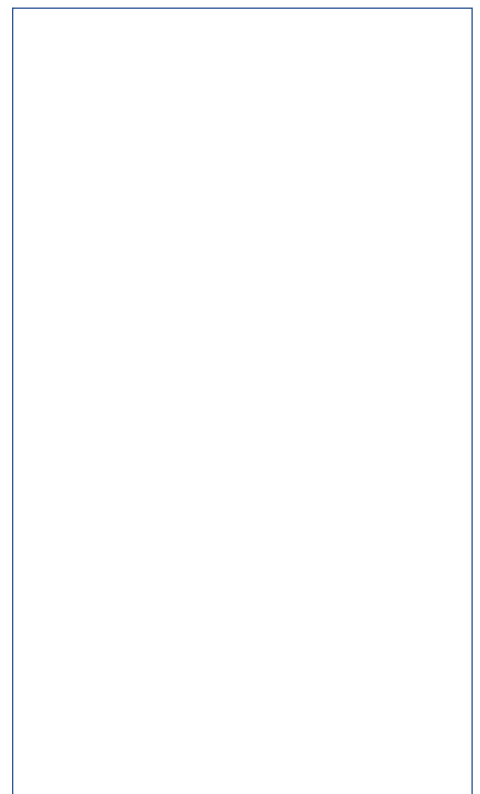


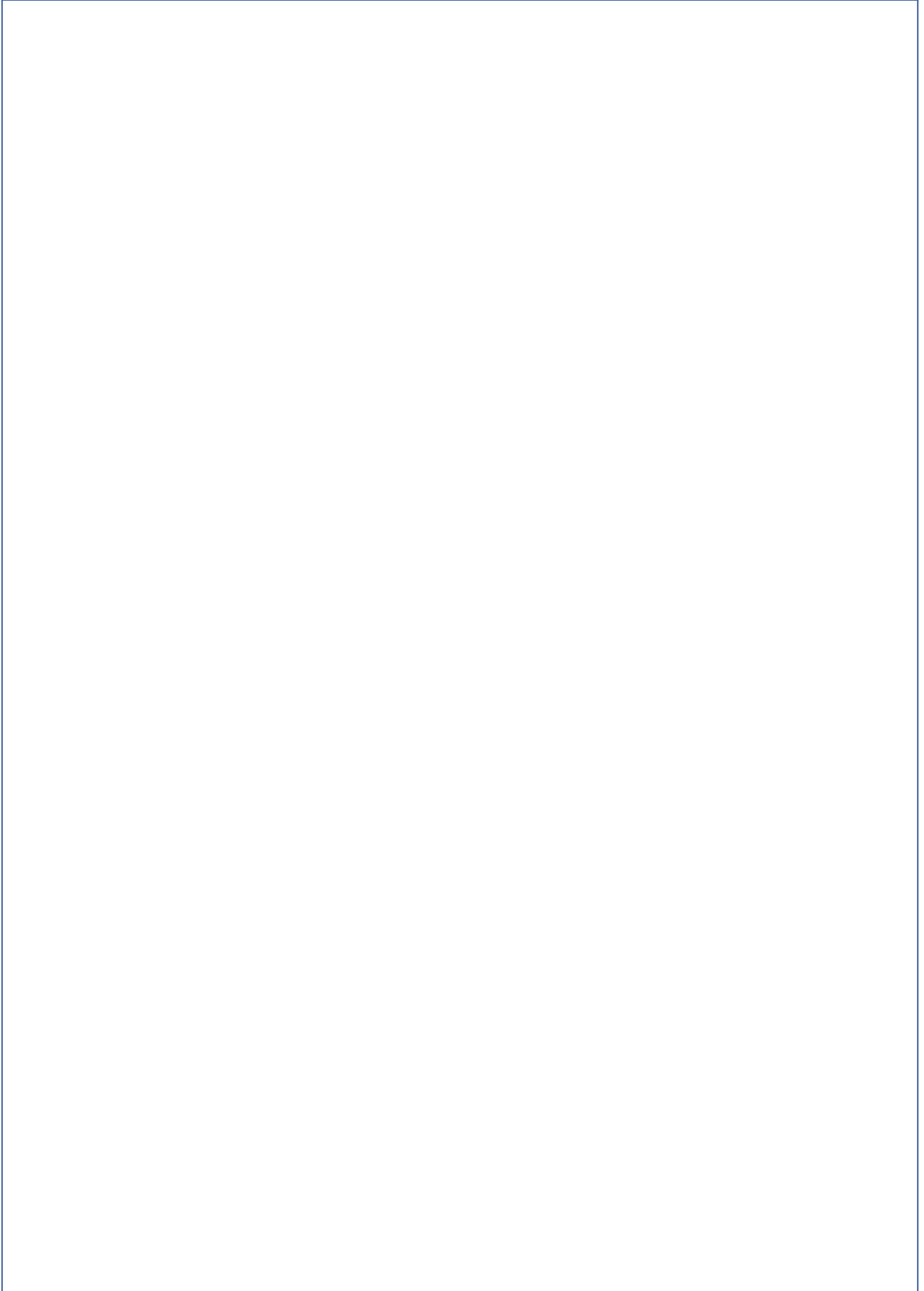
Left:

Gentiana gelida

Right:

Crocus sharajonii



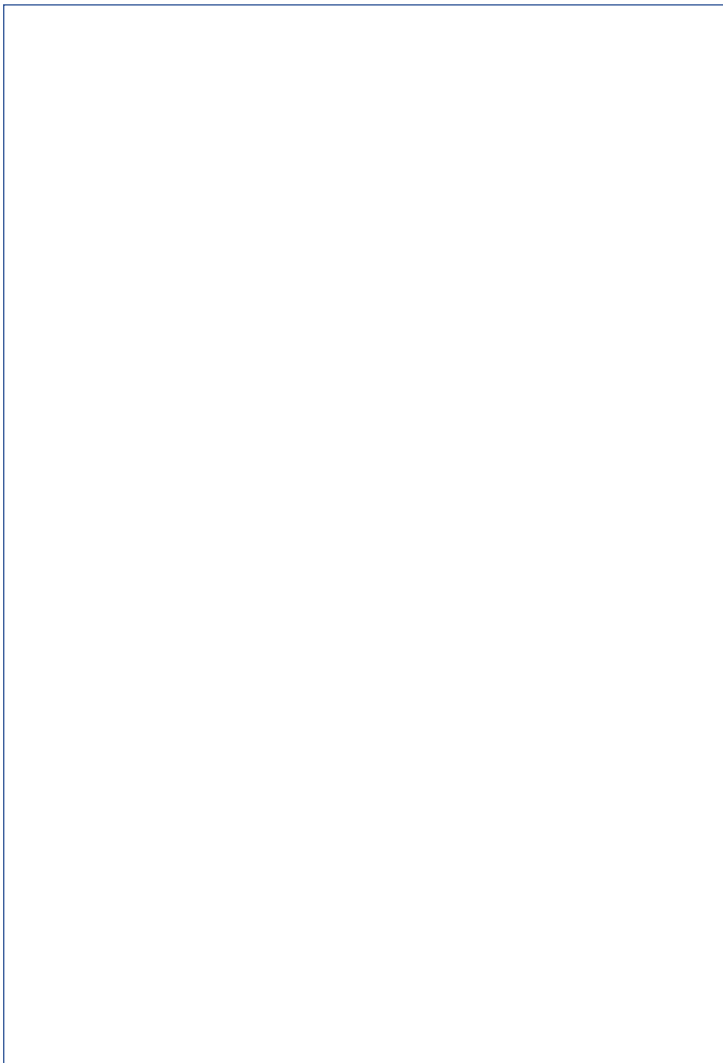
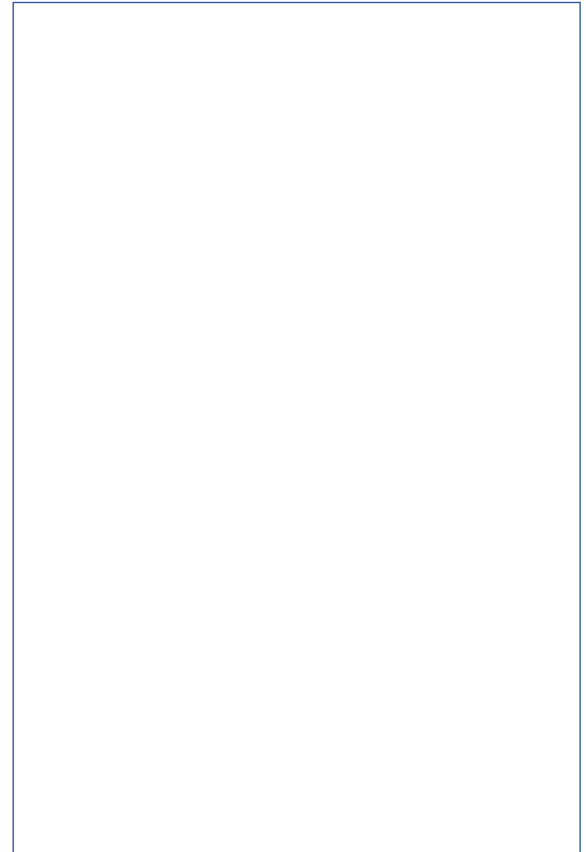


Aconitum orientale

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Aconitum anthora

The Cam Pass in early August hosts several other wonderful blues with monkshoods, delphiniums and scabious. In fact, all the three species of the former can be seen in one location - the rather scarce yellow *Aconitum anthora*, dark blue *A. nasutum* and flamboyant and tall *A. orientale*, which here is often a lovely ivory-white. Soft mauve is the more common colour of this impressive herb. The dark blue spikes of *Delphinium flexuosum* can be seen among (its cousins) the aconitums, together with broad white corymbs of *Tanacetum balsamita* and the powder blue discs of *Scabiosa caucasica*, one of the loveliest of all scabious.



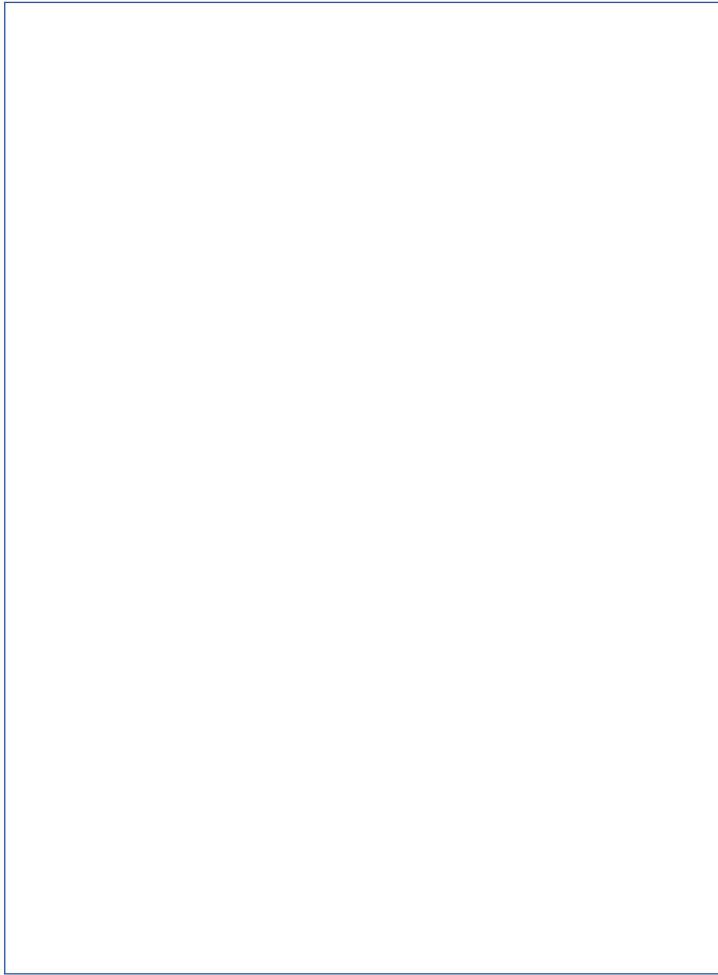
Scabiosa caucasica

There is also one final gentian to enjoy - *G. asclepiadea*, a familiar European species that also thrives here forming sizeable clumps with arching stems that starts to flower now. Yet another widespread European plant also occurs in this area. It is perhaps the most enigmatic of all orchids, rare in many places, locally common in others. Tucked away in a tract of mature spruce forest is reliable colony of ghost orchid - *Epipogium aphyllum* - a most peculiar plant.

They always flower here in the first week in August with up to fifty stems present. It is a saprophyte, gaining all nutrient from

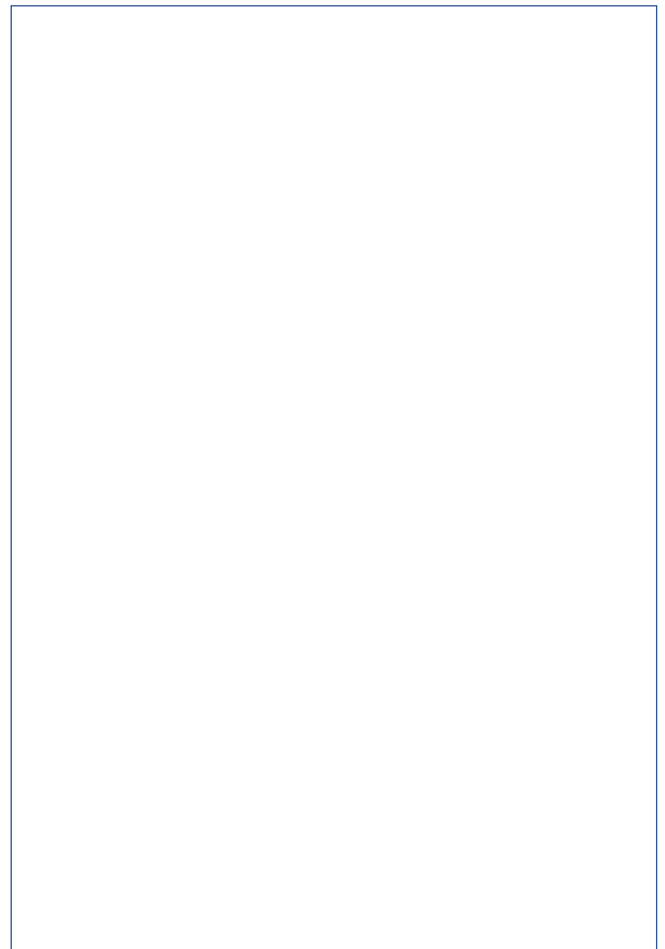
---International Rock Gardener---

decaying plant matter and having no chlorophyll. The flower structure is quite exquisite close-up, the flower inverted and the lip lined with papillae which secrete plentiful nectar to attract pollinators in the dimly lit forest.



Epipogium aphyllum

Soon, bulbs such as *Colchicum speciosum* will be appearing and the floral emphasis will shift back swiftly to the Mediterranean and it's wealth of autumn bulbs. However, the north-east always offers the botanist the chance of an emerald contrast and a chance to cool off from the simmering Med.



Gentiana asclepiadea



ED.: The few wild orchid species in Europe that are considered saprophytic still seem to have a period in their development when there is a relationship with a mycorrhiza fungus; mixing parasitism and saprophytic activity.

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--- Plant Portrait ---

Porcelain - fragile collections: Text: Zdeněk Zvolánek



Cyclamen 'Porcelain' – photo Václav Jošt

Passionate stamp collectors, people madly in love with their collection of cacti or porcelain have always been a target for entertaining that part of the population that never collects anything and stimulates their passions in rum, cigarettes (Master Pleštil called his lovers “stinkers”), TV programmes, pralines, sausages and other products designed for the hobbies of the masses. A more developed rock gardener also falls into the above category, and we do not laugh at him, because we do not know when we suddenly think of collecting all the cultivars of primroses or training carnivores. The romance of collections in full force is the best act of the theatre of life, but the end of collections is sometimes found in mourning. One relatively happy ending was the purchase of Mr. Kraus's collection of Saxifrages and its sale to [Wrightman Alpines Nursery](#) in Canada immediately after the death of the breeder.

A little higher league is collecting all the Cyclamens, because this genus is massive and beautifully different. Recently, sad fate chose a Dutch nursery, specializing in *Cyclamen*, poetically called Green Ice. Its owner Jan Bravenboer (1952 – 2017) had a taste and a sense of increased care along with a desire to sow and select Cyclamens. Václav Jošt from Heřmanův Městec, Czechia remembers: “he was an excellent guy” and continues: “On my business trips to Holland, I met him personally and made a real friendship. Thanks to him, I own such a huge collection of *Cyclamen*. In 2017, he

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constantly invited me to come and pick something out. I had no idea he was in such a bad place; he died of cancer on September 30. In October 2020, I lost another excellent *Cyclamen* man Zdeněk Berger from Prague. Zdeněk was an illustrator of botanical and zoological books. I saved his collection because it was supposed to end up in a dumpster."

Shortly before Jan Bravenboer died, the English king of *Cyclamen*, Peter Moore of Tile Barn Nursery went to the eternal *Cyclamen* hunting grounds. The nursery had closed a few years before Peter died. After his death his plants were distributed amongst a number of his cyclamen-loving friends and seed harvested from them is available through the *Cyclamen* Society seed distribution.

Mieke Bravenboer, the wife of Dutch master Jan, announced the closure of Green Ice Nursery and the sending of its rare collection to England, where it will act as the National Collection in the hands of Mrs. Jo Hynes at Higher Cherubeer, Winkleigh, Devon. Mrs. Hynes particularly loves *cyclamen* and *galanthus*, a combination which is impressive for many who enjoy seeing her garden on [National Garden Society](#) open days.



Cyclamen 'Porcelain' – photo Václav Jošt

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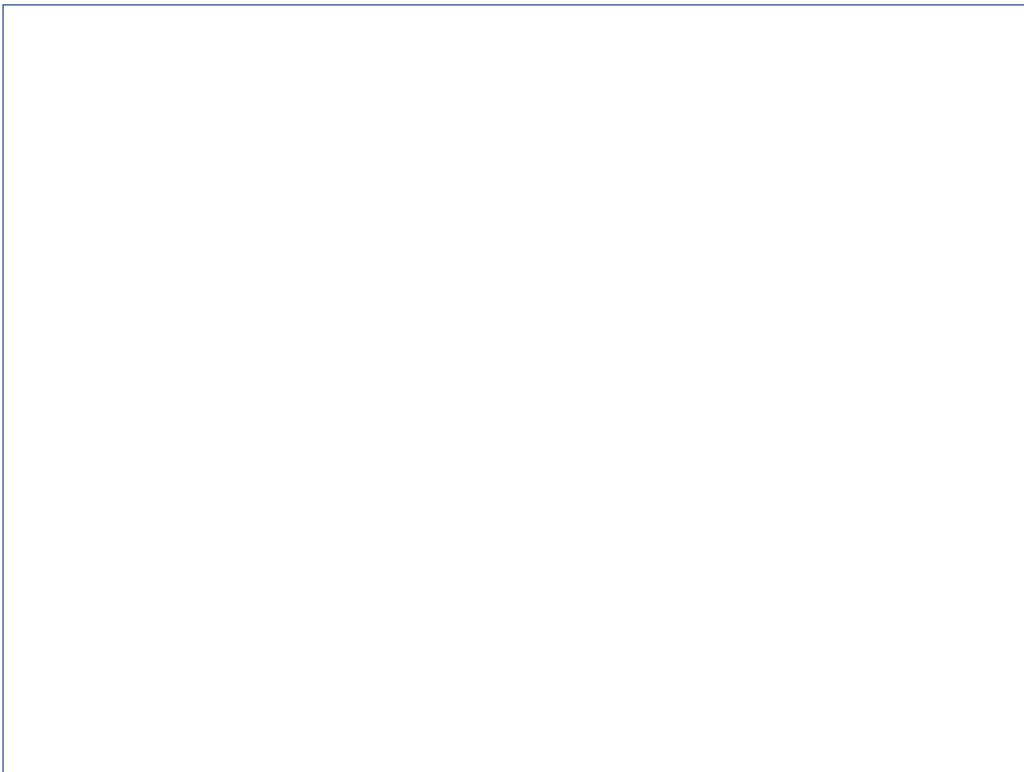
The owner of a proper collection of plants is always a hero in the battle for the allotted time and health of the grower and the collection; after the end of his adventure story, he is usually just barked at by a dog. Of course, a faithful dog can be depressed to death after the death of a master. Perhaps even faithful alpinists often remember their gentle caregivers as grieving people, only with greater intensity.

The most beautiful continuing transformation of the collection is in clearly recognizable cultivars, which the master has preserved for the surviving rock gardeners and which are admired. Jan Bravenboer gave the world, among other things, the unmistakable excellent ***Cyclamen* 'Porcelain'**. [The taxon that 'Porcelain' falls under cannot be *forma pallidum* because the petals would have to be entirely white with a plum coloured nose and by definition, because of the purple veins, they are not entirely white. It would therefore have to be named as *Cyclamen coum* subsp. *coum* f. *coum* 'Porcelain' if one wanted to include the autonyms.]

In the family of the genus *Cyclamen*, which multiplies only generatively (seed), offspring can proudly wear a cultivar name only if they inherit the unique features of a named clone. In the case of the beautiful 'Porcelain', there is a pure green lightly openwork leaf under the flowers with rich purple at the bottom of the petals and unique crimson veins decoration. The original plant was lost but the seeds gave uniform offspring from the mother. Also, the second generation, after manual pollination, gave uniform offspring. Free open pollination can occur and the correct 'Porcelain' must be selected.

Jan Bravenboer said in correspondence with Paul Hendrikx that "...seed from this one plant [i.e. the original plant] gave a 'true to type' rate of 100% in 2013. The second generation of progeny also producing 100% 'true to type' plants in 2014. But this is only the case where plants are hand pollinated. Open pollination gives a much smaller percentage that have the correct veining on the petals and therefore thorough rogueing is necessary."

Martyn Denney of the Cyclamen Society comments that "Most cyclamen enthusiasts think that hardly any true-to-type seedlings are produced – that is just how bad it is if you don't hand pollinate. They just don't realise how crucial this is!"



Open pollinated seedlings from *Cyclamen* 'Porcelain' without veined markings – photo Matt Topsfield.