



THE

FRITILLARIA

GROUP



JOURNAL 49

SUMMER 2021

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www.fritillaria.org.uk

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A small specialist journal such as ours relies heavily upon contributions from the members. The Editor welcomes all articles on the genus *Fritillaria*, in cultivation or in the wild, short or long. Please share your thoughts, insights and images with your fellow enthusiasts. The journal won't happen without you.

Front cover picture: Our author searched for, but failed to find, *Fritillaria gibbosa* during his trips in Armenia but thankfully his Armenian guide knew where it grew. It flowers in late March in the semi-deserts around Dvin city of Ararat province. (photo: Tamar Galstyan)

Back cover picture: *Fritillaria frankiorum* has established itself in a corner of our garden from bulbils in discarded potted compost. (photo: Bob Wallis)

Journal 49 Summer 2021

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Chairman's Chatter

At last, it looks like we can have a meeting with real rather than virtual attendees for our AGM and autumn meeting. While the quarantine has been in operation, the RHS have completed the fantastic new facility at Wisley and we are able to return there on November 21st (unless the situation changes again!). The meeting will be open to the public and it will be wonderful to see lots of you there.

It also marks the beginning of our 25^h year. The journal after this one will be number 50 and I would like to make it a bumper issue so I am going with the theme of members' favourites. I want everyone to write a something about their favourite species and why it is so favoured. It may be one that you have grown well or would like to grow better; one that you have seen or; sought and not found in the wild; one that you have coveted in someone else's exhibit or garden etc. If lots of you can select up to 5 species, then I can avoid duplication. If you can supply high resolution photographs then that would be a bonus but I can usually find a photo from my or another member's library if you cannot. The idea is to create something memorable for all of you who have gained interest from the Group since its inception in 1997.



Fritillaria Group Autumn Meeting and AGM

Sunday November 21st 2021

Hillside Auditorium

RHS Garden Wisley

08:00 Set Up

09:30 Arrival, Tea & Coffee

10:00 AGM of the Fritillaria Group

11:15 “Experiments with growing bulbs from around the World”.

Adrian Cooper

12:30 Lunch Break and chance to view the Garden

14:15 "Fritillaria subgenus Liliorhiza: Arizona to West Sayan.”

Laurence Hill

16:00 Raffle & Close

The meeting is open to the public from 11:00

The Flora & Historical Treasures of Armenia

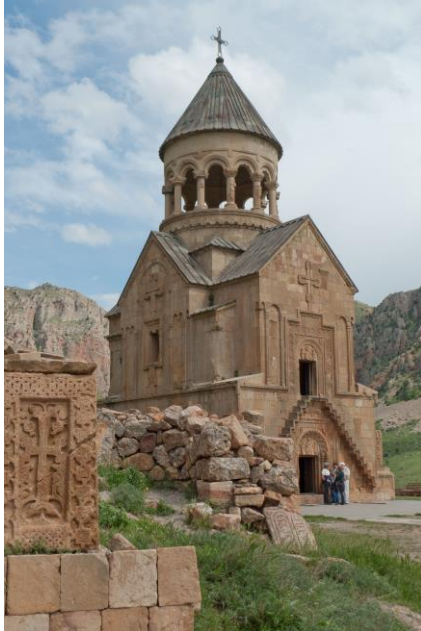
(Part 2)

Pietro Roseo

In part 1, I covered the area in the South of Armenia and now we will work our way northwards. Moving on from the Sisan area we decided to make our base for the next few days in the village of Hermon where, situated on the outskirts of the town there is a wonderful new eco hotel complex powered by its own hydroelectric plant. It made a great base to explore the surrounding area. One cannot stay here and not visit the ancient Armenian church at Noravank, situated in a superb red sandstone valley. Around the ancient site one can find *Allium akaka* and *Allium siculum* plus wild pomegranates.

The nearby road between Vyak and Jermuk is flanked on one side by the limestone grassland and scrub and on the other by a river. *Iris paradoxa* grows in profusion here, even growing in moss under the trees. The first time we visited we found one clump with about 30 flowers. Whilst taking our photographs, a car pulled up, two local men got out, opened the boot and took out a spade. They removed the whole plant in front of our very eyes us and drove off, no doubt to give to a loved one. Let's just say it left us all shocked and speechless. Here one can also see *Campanula armena*, *Gundelia tournefortii*, *Muscari tenuifolium* and superb clumps of purple *Gladiolus tenuis*. *Iris caucasica* subsp *atropatana*, a member of the Juno section, also dotted the scree areas accompanied by a few *Fritillaria crassifolia* subsp *kurdica* (Ed: the name is compressed to *F kurdica* in the rest of this article). In the wet slopes by the river, *F hajastanica* flowered with *Tulipa julia* in both red and yellow forms.

The whole area is a magnet for ornithologists with bee eaters and wall creepers being of particular interest. Particularly worthy of a visit is the area surrounding the reservoir near Herher. The road is something of a challenge so it's not easy to get to but once there, the views of the surrounding countryside and mountains are amazing. *Fritillaria kurdica* is very common on the slopes growing both in limestone scree, schist and clay-like soil. The colour form here is what one can describe as that of the “*grossheimiana*” form with the flowers primarily a sort of yellowish green with faint dark maroon and black



One cannot stay here and not visit the ancient Armenian church at Noravank.



Iris paradoxa sports these lovely purple standards in Armenia.

lines and a little tessellation. The plants are quite small, 2-5 cm tall and generally have a single flower. There is no real variation in colour from one to the next. The gear lever-like seed pods of last year's growth were still evident with at least one with seeds still in it. The plants are visited by solitary bees, midges, flower chafers and ants any of which may facilitate pollination. Many plants had evidence of leaf beetle attack and I did find a couple of lily beetles.

Other plants in the surrounding area were yet again more *Iris paradoxa*, dwarf forms of *Tulipa julia*, *Orobanche anatolica*, *Moltkia* sp, large forms of *Allium matercule* and *Gladiolus atroviolaceus*. The star of the show was undoubtedly *Phelypaea tournefortii*, with its crushed red velvet fuzz in considerable numbers. This is a wonderful parasitic plant which, once seen is never forgotten. The sight of a silver-striped hawk moth flitting amongst its flowers was an additional treat.

Leaving Hermon we now move northwards, first ascending the dizzy heights of the Selim Pass. Near the top there is a complete and near intact caravanserai. The beautiful wall carvings are a particular feature of this remnant of Armenia's past links with the silk road. The grassy areas and screes nearby have some wonderful flowers. Blue and purple forms of *Iris reticulata*, pale blue and occasional white forms of *Crocus adamii*, *Primula (veris subsp) macrocalyx*, *Colchicum ninae* (now thought to be a synonym of *C szovitsii*), *Ornithogalum hajastanum*, *Puschkinia scilloides*, *Corydalis nariniana* and the delightful diminutive *Anemone caucasica*, again in both blue and white forms. We also found *Iris caucasica* subsp *atropatana* with its yellow, white and dusky brown flowers and the tiny pink and white, yellow centred flowers of *Tulipa bifolia*, no more than 5 -8 cm tall. In some of the wet flushes we found yet more *Fritillaria hajastanica* with its deep maroon flowers on stems no more 10 - 12 cm tall, relishing the wet limestone clay-like soil in the greener areas between dwarf shrub and short turf. It seemed to be visited by midges and flower chafers and I wondered if these could be the pollinators.

In the higher more exposed areas again we can find *Fritillaria kurdica* in the "grossheimiana" form. Lily beetles were evident here too, even at this high altitude and with snow still on the ground. While photographing the fritillaries,

I had the shock of my life while whilst lying on the ground taking a close-up. A huge sun spider put in a dramatic appearance with this hair covered body, bug eyes and huge mandibles - a fearsome-looking beast but totally harmless.



This form of *Fritillaria kurdica* grows on the Selim Pass

Once over the pass we take a brief stop to see the lovely white forms of *Puschkinia scilloides* and yet more *Colchicum* and *Corydalis*. Descending the pass we see the village of Martuni and the enormous Lake Sevan beyond. This is one of the world's highest altitude lakes and being in a bowl encircled by mountains, temperatures in winter can get down to -30 degrees. "Sevan" means new Lake Van as the Armenian people were displaced from the Lake Van area which used to belong to them but is now part of Turkey,

There are fish in the lake but these were introduced. An endemic species is now extinct in Armenia but fortunately, during the USSR time, some were taken to lakes in Kazakhstan and it is hoped that in the future it will be reintroduced to Lake Sevan. The area around the lake is well populated and heavily grazed by sheep and goats. Consequently, there are few flowers of

note here so we continue northwards along the west shore, past Sevan city before gaining height again on to the Sevan Pass.

At the summit yellow flowers of both *Caltha polysepala* and *Trollius patulus* dominate the wet meadows together with *Colchicum szovitsii*, *Myosotis alpestris* and the lovely purple flowered *Pulsatilla armena*. Once over the pass and into the tree line we enter the Dilijan National Park. It is a deciduous woodland primarily of dwarf birch, beech and hornbeam. Here one can find *Daphne mezereum*, *Anemone caucasica*, *Iris furcata*, *Veratrum lobelianum*, *Trollius patulus* and the yellow flowered *Corydalis angustifolia*. Also, in these wooded areas are the striking yellow *Lilium armenum* and the superb dainty orange-flowered *Anemone ranunculoides*. We also found an *Allium* species with glaucous twisted leaves which we have yet to identify. The area around Dilijan National Park is described as Armenia's Switzerland. One of the reasons to come here was to look for the local rarity which I was particularly keen to see. It took me three attempts to locate it and fortunately I finally managed it on the last trip. On previous attempts, both the weather and the GPS had let us down. Having done research I'd known for some time that *Fritillaria collina* grew in Armenia and although I had seen plants in Georgia, I thought it would be great to get some images of the Armenian form for the Fritillaria Group Journal. From what I understand from the Armenian red data book, it is a rare plant being confined now to only eight locations with the Dilijan National Park being one of its last strongholds. It is sadly in decline due to grazing of animals and destruction of its habitats for housing and for agriculture. Being attractive is also picked by the local people.

It was growing on a West facing slope above the tree line (>1800m) in quite open grassland interspersed with dwarf birch scrub. Companion plants in the vicinity were *Pulsatilla armena*, *Trollius patulus*, *Primula macrocalyx*, *P. (veris) subsp. pallasii* and *P. amoena* to name but a few. *Fritillaria collina* was scattered across the area but not in any great numbers. The plants were generally between 7 – 10 cm tall, usually as single plants with a single flower although we did find one or two clonal plants, one with five flowers and another with six. The snow had only recently melted, and the site was quite exposed. The flowers varied in the intensity of the yellow and also in the amount of tessellation. The nectaries are set quite well back inside the bells and the reddish maroon markings inside are particularly attractive. Some

plants which were growing in tall grass were rather spindly. The Dilijan plants were paler in colour than those I had seen in Georgia where they are much richer and more orange. It was a sunny day and a few insects were around and I saw a few small solitary bees visiting the flowers.



Fritillaria collina hangs on in the Dilijan Nature Reserve

Later in the summer sheep come up to these higher elevations, where the fritillary is growing, to graze the pastures and no doubt their droppings provide a natural fertiliser but the downside of this is that sheep have a particular taste for fritillary seed pods so the balance is a delicate one. It would be a great shame if Armenia lost this attractive and interesting species.



Fritillaria collina grows in open alpine grassland with a few dwarf *Betula* sp

Leaving Dilijan, our next location is the Debed Canyon, a wonderful limestone canyon carved by erosion from the last Ice Age and by the Debed river that cuts through it. The walls on either side of it are quite steep but it is one of the last areas where one may encounter another Caucasian speciality the delightful and highly scented *Muscari pallens*. This is a relict population on its southernmost limit here growing with moonwort, a very primitive species of fern, *Onosma armena* and *Orchis caucasica*.

Returning to Vanadzor, we drive towards Spitak, duly admiring grassy roadside slopes which are the home of multi-coloured *Iris pumila*. The occasional *Iris paradoxa* puts in an appearance, as well as *Arnebia pulchra*, *Papaver orientalis*, *Ornithogalum balansae*, *Nigella oxypetala* and *Muscari neglectum*. The elevation increases as we progress towards Gumry with steep grassy slopes and screes and we start to see *Iris caucasica*, *Adonis flammula* and large mats of *Androsace villosa* growing in the more open areas near the road. Here too are a few scattered *Fritillaria kurdica*.

A monument to those Armenians who were killed in the major earthquake which devastated Armenia in 1988 and cost so many lives, has been built here. Steep limestone scree slopes nearby are dotted with dwarf shrubs including some delightful *Prunus* with creamy yellow flowers. Both *Androsace villosa* and *A armena* are here and, in amongst the scree and rocks, we encounter the wonderful dwarf dusky pink flowers of *Allium struzlianum*, a local speciality.



A very dark form of *Fritillaria kurdica* grows near the Earthquake Monument

In between the scrub and the constantly moving scree is another colour form of *Fritillaria kurdica* growing and indeed thriving in considerable numbers. It is a super little plant with glaucous foliage and large deep maroon flowers showing little or no tessellation. This is an incredibly windswept area and the first time we visited this area, we encountered heavy rain and thunderstorms. There were lots of the feeder leaves of immature plants and the fact that the plants appeared to flow in colonies down the scree indicates they may reproduce not just by seed but by small bulbils, which were in evidence, in the mobile stone slides.

The rich provincial town of Gumry (formally Leninakhan) bears the scars of the tragic and devastating earthquake which rocked the area on the 7th of December 1988. 60% of the buildings were destroyed, others were badly damaged. 25,000 people lost their lives, and 500,000 people were made homeless. Gumry was the original capital of Armenia, and it is well worth a visit with its soviet architecture and wonderful central square which is lit up in the evening. Here too is a monument and statue to Charles Aznavour who worked tirelessly to raise donations to help the people after the earthquake.

Leaving Gumry, we now move northwards towards the Georgian border along the main road. Again, the landscape here is flat grassland interspersed with small hills, but it is very little disturbed by habitation. One or two stops along the way revealed a very compact form of *Fritillaria caucasica* with its lovely maroon bell with the usual greyish blush on the outside.

We turned off the main road towards the other of Armenia's lakes, Lake Arpi. The road is rough and not maintained at all so it is very difficult to get by in a minibus. Should you decide to go, I would strongly advise a Jeep or a 4x4 vehicle as some of the potholes are huge and the road surface is very badly broken up. Before getting to the lake, the road drops down and follows the course of the Akhurian river, it then returns to the high Javakhq-shirak plateau, a volcanic area of sub-alpine grassland and wetlands shared between Armenia, Turkey and Georgia. The area opens out to reveal the lake surrounded by scattered reedbeds amongst the hills. The Arpi National Park was set up as recently as 2009 in conjunction with the Armenian government and the World Wildlife Fund because Dalmatian pelicans, storks and Armenian gulls frequent the lake and some 650 plant species have been

recorded around it. Specialties include *Scilla rosenii* which has only one or two locations in Armenia, the very rare and endangered, *Gladiolus dzavakheticus*, can be found here as well as the *G. caucasicus*. Here too is *Iris reticulata*, *Primula algida*, *Caltha polypetala* and the yellow *Iris caucasica* to name but a few. It is also the only place in the World where Darevsky's viper survives. We wanted to confirm if *Fritillaria latifolia* still occurred here. I had seen a couple of past records of it on the internet but we could not locate it. All that I can confirm is it that the form which may grow in this region is very similar to that which I have encountered over the nearby border in Turkey. With its superb large bells of reddish maroon chequered with a darker maroon and yellow splash inside. I have included a few images taken on the other side of the border to show what this delightful plant looks like.



Fritillaria latifolia grows commonly in adjacent Turkey but is difficult to find in Armenia

Leaving the delights of Arpi we return to Gumry before heading southwards again towards Yerevan making just a few stops before the return flights home. The first being the Alphabet Monument with its carved Armenian letters and sculptures, one of which looks like the actor, Brian Blessed. On our last visit a flycatcher had chosen to make its nest on his lap. In the distance there are views of the fabled Mount Aragats. Here at the monument, there are more flowers: *Iris demetrii* (*I spuria*), *Muscari armeniacum*, prostrate cherry and *Iris reticulata*. The Aparan bakery is also worth a stop for its superb bread and cakes, the best in Armenia and to see how the bakers dive into the oven with their feet off the ground. How they don't fall I don't know, but I did note that none of them had any eyebrows or hair left!



Fritillaria caucasica on the Pambak Pass

At the last stop before Yeravan, the snow has just gone revealing the short alpine grassland; at least that which has not been compromised by the conifer plantations near the road. Clambering up onto the slopes is fairly easy and,

plant wise, it is a great place to end our tour. With a very dwarf form of the dark blue *Bellevalia pycnantha*, small mounds of *Androsace*, *Primula macrocalyx*, *Anemone caucasica*, *Muscari caucasicum*, *Scilla armena*, *Iris reticulata*, *Anemone fasciculata*, *Pedicularis comosa* and *Puschkinia scilloides*. One more surprise was to find *Pulsatilla albana* in a huge array of colours including: maroon, red, yellow, terracotta, purple, blue, light blue, green and even white forms. Scattered amongst them were more *Fritillaria kurdica* but in the normal greenish form not like the maroon ones we had encountered earlier in the trip. Typical *Fritillaria caucasica* is also here again in localised populations but in considerable numbers. It grows in the grass with the Pulsatillas.



Fritillaria caucasica – note the characteristic, narrow, undivided style

If there is time, a worthwhile trip from Yerevan is in the volcanic-influenced steppe to the east of the city towards the Garni Nature Reserve. A brief stop at the viewpoint is a must, as it overlooks the steppe country and has an amazing view of the landscape with both Big and Little Ararat in the distance. By the viewpoint one can find the striking flowers of *Iris ibirica* subsp *elegantissima* with its white standards looking like tissue paper blowing in the wind

As one drives on, these plants continue to dot the landscape. From the steppe country we now enter a small gorge. Being spring, the almond trees are in bloom and, at the end of the gorge, is the Geghard Monastery, a UNESCO World Heritage Site. The main building was built in the 12th century, though parts of the complex date to the 5th century. It is a “must see” place for anyone. We were lucky on more than one occasion to be there when international choirs were singing in the church, making for a wonderful experience. At this time of the year the flower sellers are selling locally collected flowers in posies which include bunches of the red *Tulipa julia*. The woodland and grassland areas around the monastery are home to a wealth of plants: *Tulipa julia*, *Campanula armena*, *Gagea chrysantha*, also nice groups of *Gladiolus atroviolaceus* with its purple flowers and *Muscari neglecta*. A walk in the woodland reveals *Corydalis angustifolia* and the remains of long since flowered, *Crocus speciosus*. Leaving Geghard and driving southward through the steppe country there are large colonies of *Iris ibirica* subsp *elegantissima* in a variety of colours, the falls ranging from orange to pinks and some plants here resemble *I lycotis* in colour. Here also one can encounter the European Glass Lizard which resembles a giant slow worm and is perfectly harmless. Being over a metre long and can easily be mistaken for a snake. A visit on route is made to the Temple of Garni, a complete Greco Roman temple from 175 AD and certainly worth it. The views across the valley here are geologically interesting as the volcanic activity in the past has produced some wonderful basalt pillars and structures akin to those of the Giants Causeway. It is also a good place to spot migratory birds like European Bee Eaters and Rollers. Leaving Garni and moving on we passed the vineyards near Ararat, famous for their wines and Armenian brandy. Slowly the scenery changes from steppe to semidesert. To the East of the main road lies the Khosrov State Reserve, set aside in Soviet times for hunting. A permit

is required to visit this reserve. Worryingly, it is one of the last refuges of the Caucasian Leopard and until recently, the now extinct Striped Hyena.

Having done a bit of detective work, I had discovered that our next location was one of the three locations in Armenia for the endangered *Rhinopetalum*, *Fritillaria gibbosa*. Other locations being near Garni and in the Khosrov Reserve. We decided to stop in the semidesert area near Gorovan, part of which is marked as a reserve. A walk proved very interesting with delightful *Allium matercule* with its twisted leaves and shuttlecock head of flowers in the usual mauve maroon, but also in a variety of other colours from white and green. Another familiar plant here is *Moltkia caerulea* with its sky-blue flowers in profusion. *Muscari caucasicum* comes in considerable numbers but beware of scorpions which are common here. As we made our way to the *Fritillaria gibbosa* location, we were asked to leave the site by two men in authority. It was a great shame, but the Russians have a large goldmine in the area which leaves me wondering what the future holds for both the *F gibbosa* colony and the endemic reptile species. It is interesting to note that there were no signs saying that you could not walk in the area.

Armenia it is a country of extreme contrast in both habitat and scenery with some outstanding landscapes, a great diversity in flora and fauna and some superb architecture and historical sites. Friendly local people and good food making any visit an enjoyable and interesting experience. What with all of the above, our knowledgeable local guide and wonderful travelling companions it made for an amazing place to visit. At some point in the not-too-distant future I would love to return again as there is still more to see and discover. With regards to *Fritillaria* which we encountered; when we did find them, they were in good numbers. Most commonly encountered species were *F caucasica* and *F kurdica* the most common in southern Armenia. *F gibbosa* is very rare and endangered due to both grazing and mining. *F collina* is also in decline we can only hope that Armenia does not lose these last two species. There are areas still to explore in the country and who knows what might turn up. I hope to return some day to search for *F latifolia*.

What is *Fritillaria hajastanica* Gabrielian?

Bob Wallis

In the Flora of Armenia of 2001, Armenian Professor Eleonora Gabrielian described a new taxon of fritillary found in southern Armenia as *F pinardii* subsp *hajastanica* after Hajastan, the Armenian name for their country. In 2016, this was raised to specific level owing to the considerable differences between it and *F pinardii* so *Fritillaria hajastanica* was born. As we have seen in the excellent article and photographs by Pietro Roseo in the last issue (no 48) of this journal, it has small, brown conical-campanulate flowers on stems which normally bear 3 leaves. So let's explore the science behind this...

I have summarised the description in the attached table – and compared it with that of two similar species.

	<i>F hajastanica</i>	<i>F pinardii</i>	<i>F caucasica</i>
Bulb	6-8(10)mm diameter	Up to 30mm diam	Up to 20mm
Bulblet	absent	Usually with bulblets	absent
Stem	15-40 cm slender	6-20cm, thick	10-20 cm
Leaves	Always 3 alternate	3 – 8 (13), crowded above	2 -4 (6) alternate
Bracts	1	1	1
Flowers	solitary	1-2(4)	solitary
Perianth	Conical-campanulate	Narrowly campanulate	Rounded campanulate
Segments	16-20mm long	15-25mm long	22 – 30(37)mm
External colour	Glaucous pinkish-purplish	Purplish - greyish	Purplish black
Internal colour	Pinkish or pale greyish lilac	Yellow or greenish	dark purple or greenish-orange
Base of Segments	Not gibbose	Dimly gibbose	Not gibbose
Tips of segments	Revolute, whitish, finely papillose	Straight, glabrous	tips spreading (i.e. revolute), finely hairy
Nectary	3-4 x 0.3mm	3-5 x 1 – 1.5mm broad	4.5 x 1 mm
Filaments	10 – 15 mm long	6-11mm long, swollen,	10- 18 mm long

	Densely glandulose	densely glandulose	smooth or sparsely papillose, usually purplish
Style	11-17 mm long always slender	7-10 mm long slender to stout	9–17mm, slender, smooth or sparsely papillose
Tip of style	Indistinctly incised	Undivided or 3-fid, branches 1-2mm	Slightly trifurcate but undivided

Key:

Green text: overlap with *F hajastanica* so very similar

Red text: little or no overlap so clearly different

Relationship with *F pinardii*

Clearly the two taxa are very closely related in this very complex group of species but there are differences. If we compare *F hajastanica* with *F pinardii* in table 2, the descriptors in red show that:

- *F hajastanica* normally has smaller bulbs than *F pinardii* without any bulblets. Given that these are both very variable characters in the very variable *F pinardii*, it is not what we might call a “good” difference.
- Although there is a small overlap, *F hajastanica* has fewer leaves than *F pinardii* and so, given that it is normally much taller, it appears much less leafy.
- There is a small but noticeable difference in the perianth shape: In *F hajastanica* the flowers are conical shaped with no protrusion where the nectary is whereas in *F pinardii*, there is a barely discernible (“dimly” in the description) protrusion (= gibbose) which makes the perianth appear more tubular. In addition, the outer tepals, are often flared in *F pinardii* which we don’t see in *F hajastanica*.
- The difference in the style is quite marked being long, narrow and undivided in *F hajastanica* but shorter, stouter and often slightly branched at the apex in *F pinardii* (Figure 1).

So it is a reasonable conclusion that *F hajastanica* is different from the very variable *F pinardii* and on this basis should not be categorised as a subspecies.

Relationship with *F caucasica*

The abundance of similarities that a quick glance at the fourth column in the table will reveal, shows that the difference between *F hajastanica* and *F*

caucasica is extremely small. The leaf numbers are the same, the perianth shape is the same and the style has the same long thin undivided structure. There is only one difference:

- The tepal segments of *F hajastanica* are quite a bit shorter than those of *F caucasica*. One can argue that this also caused the nectary to be smaller in order to maintain the proportion.

I think that most botanists would conclude that *F hajastanica* is just a small flowered form of *F caucasica*. It is just a matter of opinion whether to call it a species, a subspecies of *F caucasica* or just to include it within *F caucasica*.



Figure 1: styles of *F pinardii* and *F caucasica*

What else looks like this?

Being no resisters of political boundaries, identical plants are often found in adjacent countries whereas the names bestowed on them by us humans do not necessarily follow. In 2005, my wife and I lead an Alpine Garden Society tour to eastern Turkey, starting in Trabzon and ending up 14 days later in Van. On the route, we investigated a small mountain pass over Köse Dağ. Our objective was to find and photograph *Fritillaria latifolia* which grew on a small summit there. This we duly achieved. On wandering around the area, we found a second fritillary which we identified as a small form of *F*

caucasica (Figure 2). It had three leaves on tall stems and brown conical flowers with a long narrow style which was undivided. So it fits precisely with the description of *F. hajastanica*. What are we to call it?



Figure 2: A small form of *Fritillaria caucasica* on Köse Dağ, NE Turkey (Pat Craven).

This made me think that maybe the same plant may occur in Iran and a trawl of the literature, and of our old photographs, revealed the very similar *Fritillaria chlororhabdota* Bakhshi Khanishi published in 1997. Although the type (GBK 084) was growing rather far away in the Zagros range, other specimens (GBK064) were from west of Lake Urumiyeh from where it had also been introduced as BSBE 1433. Fortunately, both of the Khanishi collections are still maintained by Gothenburg Botanic Garden (Figure 3). They are superficially similar to *F. hajastanica* but there is one key difference, the style although long and thin, is distinctly trifid at the tip, a character that is not found in *F. hajastanica* so we can conclude that *F. chlororhabdota* is a separate taxon (Figure 3).

Conclusion

Natural things vary, so drawing a hypothetical boundary around a set of characters is not always possible and often the said boundary between one thing and another is blurred. We should therefore recognise the fact that naming things is a matter of opinion as to the distinctness of one entity from another. In addition, there is some value in splitting things for conservation purposes. A narrow endemic is hopefully treated with greater respect than the commonplace.

Having said this, my conclusion is that *F hajastanica* is insufficiently different from *F caucasica* to warrant a new name and should be treated as a synonym, so *F hajastanica* becomes *F caucasica* Adams 1805. *F chlororhabdota* fights on for another day!



Figure 3: *Fritillaria chlororhabdota* GBK 084 (Johan Nilson)



Sexual parts of *Fritillaria chlororhabdota* GBK 084. Note the slightly divided style tip.

The Seed Distribution 2021



In 2019 new Plant Health regulations stated that all plants and seed entering the UK would need to be accompanied by Phytosanitary Certificates. The UK Government recently extended the date and announced that Phytosanitary Certificates for seed be required only from January 2022. This means that we can accept donations from the UK and any overseas country for this year's distribution.

For members in countries outside the EU and Japan there is no change from previous years. You will be able to donate and receive seed in the same way as you have in the past.

Seed entering Northern Ireland, and the EU must now be accompanied by a Phytosanitary Certificate, for which the cost is prohibitive, and not feasible for our distribution.

We are currently engaged in discussion with the RHS and other Plant Societies who have international seed exchanges, to try to find a route through this legislation that will be acceptable and manageable for Plant Societies. Realistically this will not happen this year and we will be working for a change in the future. We will therefore be unable to send seed to Northern Ireland or EU member states.

The above is based on an announcement in the June 2021 AGS News about the AGS Seed Exchange.

Details of this year's distribution are on the Group's website and will be emailed to all members for whom we have an email address. If you don't have online access and wish to receive the information and/or the seed list in printed form, **please contact me by email, phone or letter.**

If you are unsure that we have your email address, or have changed it in the last year, please email patcraven24@gmail.com

We request that all donors of wild collected seed comply with the conservation laws of the countries they visit. For more information about the Nagoya Protocol, CITES and the CBD, please see the Conservation section on the AGS website: <http://www.alpinegardensociety.net/plants/conservation/>

KEY DATES

Deadline for donations: Wednesday 25th August 2021 (If your donation will be later than this, please send details of species and whether it is seed or bulblets).

List publication: 30th August 2021 (If you want a list but have not received one by 4th September please inform Pat Craven).

Seed Manager: Pat Craven, 24 Leven Road, Yarm, TS15 9JE, UK
Email: patcraven24@gmail.com Tel: 01642 780109



Iris caucasica subsp. *atropatana* accompanies the fritillaries in southern Armenia



Phelypaea tournefortii is parasitic on *Artemisia* roots



www.fritillaria.org.uk