THE FRITILLARIA GROUP

The Fritillaria Group of the Alpine Garden Society
Journal 40

Committee members and contact details can be found on our website: www.fritillaria.org.uk

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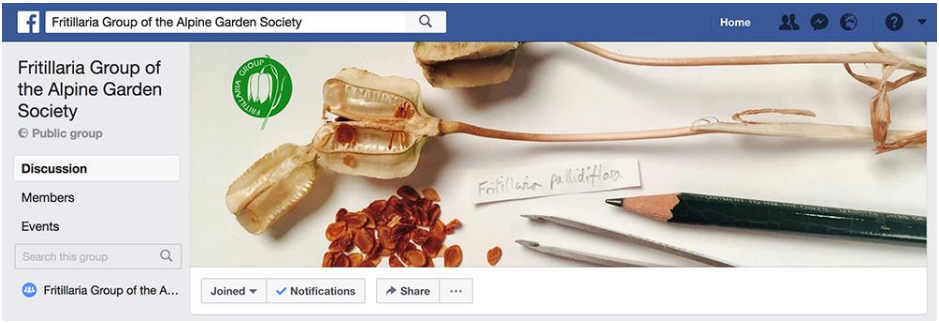
A small specialist journal such as ours relies heavily upon contributions from the members. The Editor welcomes all articles on the genus *Fritillaria*, in cultivation or in the wild, short or long. Please share your thoughts, insights and images with your fellow enthusiasts. The journal won't happen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

Thanks to Laurence Hill, we now have a Facebook page! That won't happen without you, either, so please contribute comments and photos.



Front cover, clockwise from top left: *FF. stenanthera, rixii, sewerzowii, assyriaca* subsp *melananthera*

Autumn 2017 Contents

THE FRITILLARIA GROUP
OF THE ALPINE GARDEN SOCIETY

AGM and Autumn Event: **A Day in Central Asia**

Sunday October 29th 2017 at Hillside Centre, RHS Wisley.

09:30 Doors Open & Coffee. Plants and bulbs will be on sale throughout
10:00 AGM
11:00 Break
11:15 **The Treasures of Tajikistan and Uzbekistan**, Bob Wallis

In their two lectures, Bob & Rannveig will present some of the huge diversity of plants which have evolved in the severe climate of Central Asia. We will visit all the mountain ranges from the border of Afghanistan to that with Russia taking in some of the archaeology and the unbelievable landscapes. If Samarkand, Pamir, Tianshan and Altai conjure your interest then this is definitely a day not to miss.

12:45 Lunch break
14:15 **Plant hunting in Kyrgyzstan & Kazakhstan,** Rannveig Wallis
15:45 Raffle & Close.

Chairman's Chatter

By Bob Wallis

I am writing at the end of July and we have only just collected the last of the seed on our *Fritillaria* as it was rather late in maturing this year. The crop was quite reasonable and we will be sending some into the Group's Seed Distribution. I hope that we can all do this and get as many of the species established in as many places as possible in order to keep the stock going.

In the same vein, I was browsing through our accession list this morning and I am amazed at how many historic collections are still represented as the original clones, having been grown and vegetatively increased by many of us over the years. For example: *Fritillaria hermonis* ACW963 (from 1966), *F poluninii* OP25 (1958), *F elwesii* PD26506 (1957), *F hermonis* PD6130 (1943) and what must be the oldest clone in cultivation: *F amana* EKB1034 from 1934. This latter, the so called "SE Turkey Form" has the biggest flowers of any of the *F amana* that I have seen (and that is a lot!). Most of these are prolific bulbil formers and this provides a ready means of propagation. If you have any of these or other bulbil formers, please send any that you don't want to grow on yourself to the Group's seed distribution. You will get free packets in exchange so it is well worthwhile.

Finally, I have volunteered myself and Rannveig to talk at the Autumn Meeting in Wisley on our four recent trips to various parts of the "…istans" in Central Asia looking for all the species which occur there. We found all but one of them and lots more bulbs and alpines as well. We took thousands of pictures which we will digest into two sessions. There is even a detour into Samarkand and some other cities for those of you of an archaeological bent. I hope to see you in October.

Fritillaria collina in the Caucasus

By Michael J B Almond

Last spring I received a fascinating email from Michael Almond:

Dear Pat

Although I am not myself a member of the Fritillaria Group, I read my wife's copy of the *Fritillaria Group Journal* and I wondered if I might be permitted to comment.

I was interested in the extract from Pietro Roseo's talk about *Fritillaria collina* in Armenia (no 40, spring 2017, page 10). I have seen this species in the Caucasus on 6 occasions (in 5 different locations). In only one of these cases did it appear to be growing on limestone (but I am not a geologist). As far as the question of competition from other plants is concerned, the plants were usually in amongst fairly lush vegetation, and in the location where I saw the greatest number of plants (on two separate occasions) it was coming up through vigorous, tussocky grass. Only one of the locations (number 1 below) is anywhere near any woodland (probably 100m or more away). I have often seen plants close together but never seen any clumps. The details of the sightings are as follows.

1-5 are in Georgia (all in Khevi province): none are on limestone, as far as I am aware—the rock of these areas is volcanic.

1 1999-06-12: above Gergeti at c2100m: in the open in fairly lush vegetation near scrub (only a few flowers seen).

Figure 1: *Fritillaria collina* above Gergeti

2 1999-06-12: above Gergetis Sameba at c2250m: on open hillside in strong-growing, tussocky grass (dozens of flowers seen).

3 2003-06-03: above Jvari Pass at c2600m: on an exposed ridge-top in grass (only a few flowers seen).

4 2004-06-09: above Juta at c2250m: on open hillside in Valley bottom, in grass (probably fewer than a dozen flowers seen).

5 2004-06-10: above Gergetis Sameba, in the same location as 2 above (dozens of flowers seen).

Figure 2: *Fritillaria collina* described in 5 above

6 2012-07-04: Russian Federation (Adygea), Lagonakhi Plateau at c1900m, on open rocky ground among fairly lush vegetation near scrub on limestone. I only saw a few flowers. There is a photograph of one of them on page 12 of *The Rock Garden,* no 131, July 2013.

On 2001-05-12 I also saw what I took to be the same species above the Lagodekhi Gorge in eastern Georgia at c2400m: on opern hillside in grass (probably fewer than a dozen flowers seen), but it turns out that it is more likely to be *Fritillaria lagodechiana.* [See photo below.]

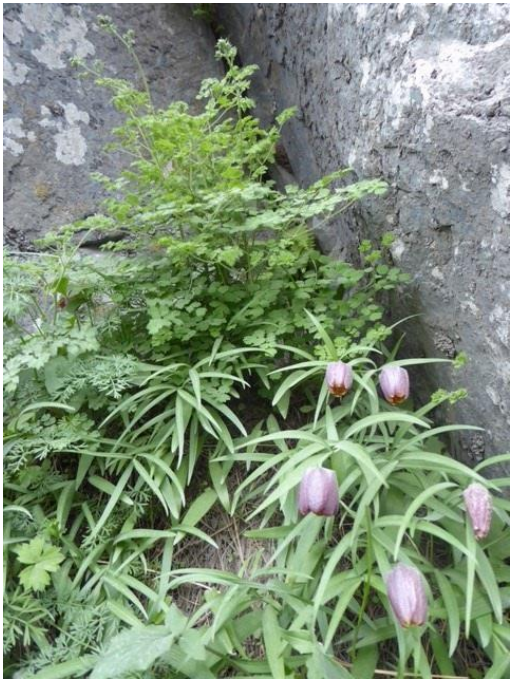
Hell or heaven: the search for *Fritillaria orientalis* on the Georgian-Russian border in May 2016

Words and images by Alice Munsey

The typical location of *Fritillaria orientalis* is shady limestone rock crevices or cliff edges on the north facing slopes of gorges or woods in the foothills of the northern Caucasus at an altitude of about 2000m.

The bulbs are easy to grow in cultivation but due to their typical habitat the flowers are difficult to view in a garden setting as the plants grow almost horizontal to the ground.

On a recent trip to Georgia in May 2016 a group of friends, which I was privileged to join, left Tbilisi, the capital city of Georgia, to travel north on the Military Highway in the search of *Fritillaria orientalis* (amongst other plants). Our guide, Manana, was enthusiastic about the proposed site and described it as a rock garden on the cliffs with *Fritillaria orientalis* performing a star role.



Typical habitat for *Fritillaria orientalis*

"A rock garden on the cliffs"

However, what had not been anticipated was the development of a huge hydro-electric project in the area. As we approached the border, chaos began to loom and we entered a hell of construction, debris and dust causing huge dust-storms in the area. The initial area we had hoped to explore, which was close to the monastery, had been demolished.

Pietro, who had visited the site before, set off back up the road in a determined manner to explore the rock face and, after a short time, news came that the *Fritillaria orientalis* had been found on the cliffs. This was the first time I had seen this *Fritillaria* in its habitat and I was not disappointed!

The 'silver-lining' of the site was that, due to the rubble on the side of the road, we were able to view the fritillaries at eye level.

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Fritillaria orientalis at eye level

Fritillaria in the Matanuska Valley

Words by Catherine Franklin, images by Rebecca Washburn

We live fifty miles north of Anchorage, Alaska (USA) in the Matanuska Valley surrounded by tall mountains that keep their snow into June and even July some years. Some parts of the Matanuska Valley look like Switzerland. The growing season starts in April and ends in late September. The soil is wind-blown acidic silt that dries out quickly and the top soil can vary in depth from four inches to twelve feet. Spring is usually dry (except for melting snow) with summer rain in late July, August, and September. My father used to say that we would be a desert if the ground were not frozen most of the year.

With our short growing season and cool temperatures, we can grow alpines and subalpines in our flower beds with a nice topdressing of grit. Our greenhouses are for tomatoes, transplanting and propagation--no fritillary in pots! [In a subsequent email, dated 3rd April, Rebecca told me "It is very sunny here today; lots of melting snow, we hope to see our driveway soon. I have lovely tomato plants on a heating pad on our sunny front porch and plan to put them in their pots in the greenhouse around May 1st."]

The seed lists of the Fritillaria Society, RHS, AGS, SRGC and Goteburg Botanical Garden are excellent sources of plant material. Trial and error and research help one figure out what to order. The higher up in the mountains the seed source originates from usually is better. The AGS *Encyclopedia of Alpines*, Brian Mathew's *The Larger Bulbs, The Smaller Bulbs* and *The Gardener's Guide to Growing Fritillaries* by K. Pratt and M. Jefferson-Brown are excellent guides. Janis Ruksans deserves much acclaim for his wonderful book *Buried Treasures*, and his website full of beautiful pictures and information.

Fritillaria meleagris alba

Fritillaria pallidiflora

F. michailovskyi with *Corydalis solida*

We find that the first fritillary to bloom here in May are *FF. meleagris* and *meleagris alba* followed by *F. pallidiflora*. They do beautifully in sun or light shade and are watered along with the primroses if we have our usual dry June and July.

Later in May, dwarf *Fritillaria michailovskyi* enchants everyone with its bicolored yellow and burgundy bells in full sun. *Fritillaria meleagroides* has beautiful drooping wide bells that we put in semi-shade. *F. thunbergii* has lovely pale checkered flowers that contrast well with shade lovers like *Corydalis buschii*. *Fritillaria ruthenica* is much admired in a sunnier spot with its two foot or more flower stem and leaf whorls on the top of the flower stem. All are watered if the summer turns out to be dry.

The native fritillary, *F. camtschatcensis*, is the last to bloom here in May. It also wants more water in a dry spring and summer. Ours came from Hatcher Pass to

the north of us in the late 1960's. Its pungent smell is offensive to many and the bulbs shed their rice easily. That habit can make the chocolate lily something of a weed in a flower bed.

F. camtschatcensis, an Alaskan weed

With the long winters, snow, and low temperatures (-25 degrees F /-32 degrees C this January), we do not have any insect pests on *Fritillaria.* We do have moose. They love vegetable gardens and start night-time wanderings in late August. Perennials that are walked upon often never recover. So, it is best to close the gates of the eight-foot-tall moose fences early. If the flower bed is not fenced in, we place metal kitchen shelves or "plant protectors"

F. meleagroides

F. ruthenica

F. thunbergii

on the ground wherever needed. When the "termination dust" (snow) starts to cover the mountains in late September, it is time to cut the flower beds back and cover them for the winter. Early winters can be dry, windy, and cold. Spruce boughs are placed on first, then birch leaves with netting on top. Rocks etc. hold it all down. Hopefully it will snow to give protection from the cold, but some winters the dust just blows around awhile.

Covered for winter

Once bitten by the alpine bug, you always want more and different ones. So, fall and early winter are filled with seed orders to the Fritillaria Society and AGS, SRGC, NARGS among others. But once your seeds arrive, you have to plant them. We check ours, date the envelopes, and put them right into the freezer in several layers of plastic bags. We freeze all our seeds-perennials, shrub, and vegetables. My father purchased hardy Danish Giant asparagus seed from Denmark in 1954. The frozen seed is still viable although Ohlens Enke closed their door many years ago.

We plant our fritillary seed in 3.5-inch square plastic pots or small plastic flats. Our seed mix is 1 soil: 1 sand: 1 Cornell mix (peaty): 1 coarse vermiculite; sterilized one hour at 180 degrees F/82 degrees C. Once the seeds are planted in the pot, firmed in, covered with one cm of sterilized small grit, and put in soaking tray, what do we do with the pot? To answer this question, we consulted many resources. *The Propagation of Alpines* by Lawrence

D. Hills (1959) is superb- but only for dicots. Norman C. Deno's *Seed Germination Theory and Practice* is an education. Professor Deno's work covers almost any alpine anyone could choose and seventeen species of Fritillary! The RHS bulletin Surplus Seed Germination Requirements (2004) and the Jelitto seed catalog have their versions of how best to germinate seeds. For us it works best to take our newly planted seed pots outdoors in January, dig a hole in the snow, mark the spot and recover with snow. In April, shade cloth covers the area. The pots are checked and watered. At the same time in mid-April we uncover our perennial beds and wait for the *Crocus*, *Erythronium*, *Fritillaria*, apples and roses to bloom.

Editor's Note: Fritillaries as weeds and moose as garden pests—it's a far cry from ground elder and muntjac. When I told the sisters how much I envied them their moose, Rebecca emailed back: "I noticed fresh moose tracks in the driveway today; they often come around after dark. We have about 100 apple/crabapple trees and only 1 tree is not fenced in to protect it from moose. We have a vegetable storage for apples and garden storage vegetables. It is a small 2-room building with the apple room closest to the driveway. I have seen moose stop by the door and look at the building like they want to get in. We know they can smell the apples through the door. Quite amazing."

Moose love apples – who knew?

Fritillaria in the Wild

A lecture given by Kit Strange and Norman Stevens
Transcript by Pat Huff
Images by Bob Wallis

Kit Strange began the tour by saying, "We'll start off in Turkey, then move eastwards. At the end we'll have one odd plant from the European Alps. That's the sort of format it will take."

She showed us a map of Turkey, the Lake Van area, specifically the Tahir Pass at 1800m. Three different frits grow there. ("It's a 5-frit mountain", interjected Bob Wallis. The state of the road made it impossible for us to get to the top, explained Norman.) A few *Fritillaria armena* were just coming through the snow, along with *Corydalis oppositifolia* and some *Gageas*. Also, vast amounts of *Fritillaria caucasica*: a little bit taller, with bulbous-shaped flowers and almost metallic, though not as metallic as *armena*. They were growing quite closely together, resulting in a great deal of hybridity. They are about a foot tall, perhaps a bit more depending on how much food they get. Coming down the mountain a bit, they saw some *Fritillaria michailovskyi*—not the form grown in cultivation, but an altogether more select form, with a smaller stature. They were guided to find it by Paul Furse's old notes.

These small forms of *F. michailovskyi* grow on the old Tahir Pass

Fritillaria armena also grew in this location, in amongst the *F. michailovskyi*. They were in separate clumps, but very possibly some hybrids between the two.

Moving on, they went south, onto the Karabel Pass, which also has a significant amount of *Fritillarias* in it They were at 2800m, and the road goes up to 3000m. It was mid-May, and you could still go skiing if you really wanted to. This area is *Fritillaria minima* habitat. Kit reckoned there were 2 or 3 hundred in this one site, growing amidst the rocks at 2800m. It's very difficult to grow in cultivation. Anything over 2800m is difficult, while anything under 2000m is easier to grow in this country. The snow-melt in this area would have been very recent, and they would have come up as the snow was just melting. Also, they seem to flourish in very stony conditions: some of them seem to be growing straight out of the rock.

Fritillaria minima is a very local species on the Karabel Pass

So, moving down the mountain another 2 or 3 hundred meters, there is much less snow. At this level there are an old road and a new road, with a flat area in between. In this spot they found *FF. kurdica* and *minuta.* They spotted *kurdica* first, and there are a few nice colour forms on this mountain: nice stripey ones and nice plain ones. There are lots of other things as well, such as anemones and Oncocyclus irises, which were just coming through. The whole mountain was absolutely covered in species. It's one of the most floriferous places. And then, of course, they got *F. minuta* as well, which has dark bronzy coppery-coloured flowers, with plain green shiny leaves, very different from *kurdica's* glaucous leaves. Even if you were to see the two out of flower, you could tell which was which by the leaves. The flowers are tiny. It's one of the few species in that group, with conical flowers, that have a very split style. In cultivation it's not too difficult, but it needs plenty of water as it grows in the snow-melt.

They then went down to the Palendöken Range at around 2400m, where there are some other very interesting frits. This is *Fritillaria alburyana* country. They grow in little dips in the land, where the snow is the last to melt, so that they get a further chilling when they're actually coming into growth. It also has the biggest flower of all the frits in proportion to its size. It has a most unusual flower for a frit. Kath Dryden used to keep these in her fridge, keeping them dormant for as long as possible, a strategy shared by all successful growers of this particular species. At Gothenburg Botanic Garden they are able to grow 12-inch pans of *F. alburyana*, but it is much more difficult in the south of England, even at Kew. It needs long hard winters really to thrive, and a great deal of light.

Fritillaria alburyana grows in the cold mountains around the city of Erzurum

Also up there was a population of *Fritillaria pinardii,* covering quite a big area. Bob Wallis suggested that these particular plants were actually *F. armena*, but added that it didn't really matter "because some Turkish botanists have stuck them both together anyway". These plants have a dark inside, which makes them *armena,* whereas *pinardii* have a yellow interior. In any case, both species are found on that mountain. The leaves are also bright green in *armena* and tend to be glaucous in *pinardii.* Since some of the individuals have a yellowish interior, they could in fact be a mixed population.

Over on the Çat Pass, Norman saw *Fritillaria caucasica*, which is all over eastern Turkey. The style is entire, as opposed to those in *FF. pinardii* and *armena,* where the style is divided into three. That's an easy way of telling them apart. In this same area there is also *F. pinardii*, which tend to be quite dark in eastern Turkey, and grow

lighter further west. There is a form with little yellow tips, which has confused people in the past as they thought they had found *F. zagrica* in there. Right through Turkey there are so many forms of *F. pinardii.* Eventually someone is bound to take a look at them and start dividing them up, a little bit like what is happening to *Crocus* at the moment.

In the South West *Fritillaria carica* was also seen. It's a very similar plant, but gives off lots of stolons and rice grains. When he found it up on the mountain, there were lots of little bulbils lying around on the surface since the wild boar had just been digging them up. There was some discussion as to whether or not *F. carica* was just a yellow form of *F. pinardii*, but you could argue that they're all just clines of genetic variation as you go from the northeast with *F. caucasica* to the southwest with *F. carica* and indeed all the way into Iran with *F. zagrica.* That's what evolution is all about.

Fritillaria aurea from southern Turkey always grows on limestone, and is very small. If anyone saw them at the early spring show, they were Dutch-bred ones, quite tall. They'd been stuffed full of fertilizer and were gradually losing their shape. There were some very good exhibits at the AGS show in Harlow, but without the tessellation. The wild form is very good, but difficult to breed.
The wild *Fritillaria hermonis* is much shorter than the usual form in cultivation, and a better colour. It is, however, much slower to propagate and doesn't produce bulbils like the cultivated form does. He showed examples from a John Watson collection from the Cedars of Lebanon, ACW 963. He introduced them as *F. crassifolia*, though they are actually *F. elwesii.* Some have shiny leaves and some grey-green.

Fritillaria imperialis right in the southeast corner of Turkey produces a very nice scarlet colour form. The brilliant red fades after a day or two, but the red ones always have black stems. The yellow ones have green stems.

In the 1970s Norman went up Gelyansin, the second-highest mountain in Turkey. There are eternal snows there. They say there are glaciers as well, but he didn't get up that far, just to the snow line. There are actually snow finches there, their most southerly location: it's a great place for bird-watching as well as botanizing. You can't live up here during the winter since the snow is waist-deep, with the plants tucked up beneath it. He found *Fritillaria straussii*, which always has opposite leaves. This is an interesting plant, but not very easy to grow. In the wild it grows on mudstone.

Now into Azerbaijan and Iran. The first frit was *F. olivieri*, quite leafy big plants and growing with their feet in water. Finding it in Azerbaijan was an extension of its range. It had formerly been believed to grow exclusively in Iran. There's also a form of *F. kurdica*, rather greenish. Although only a short distance from the *F. olivieri* site, the habitat was very different. Further up the hillside it was very dry rather than lush and damp. The army then came up and told us we were getting too near the Iranian border. It was all very friendly, hand-shakes all round, but they were quite firm in warning us off.

Moving on to Iran, he found *Fritillaria kotschyana* at the very eastern edge of its range. There are a number of forms, all of which are pleasing. Some are more square-shouldered than others. There are also populations of *F. kurdica,* some of them better forms than the ones in Azerbaijan. Although usually bearing only one or two flowers, Norman has had 8 flowers on one of his *F. kurdica.* The flowers on the multi-flowered plants are always a bit smaller.

Fritillaria persica in Iran is quite variable in colour, from a rather brownish-yellow to a good bright yellow. The Iranian forms seem a bit more difficult to grow than the traditional *F. persica*, a little more challenging. In the same area was *F. straussii*, usually with opposite leaves and a topknot of three leaves. Once again, it's very variable, with some forms shorter than others, and some of them

are probably hybrids. It grows from eastern Turkey all the way down to Isfahan, all along the border with Iraq.

We were shown what is probably a new species. Few people have found it. It's completely black in and out. Bob Wallis added that that's where the confusion with *F. chlororhabdota* comes in: the type specimen looks exactly the same, and was collected in that same region, but the description is completely different. "We call that an LBJ—little brown job." Norman then turned to a newly described species, *F. avromanica,* named after the mountain. It's quite small, and fairly challenging to grow. Some forms are yellow: "in fact I had one yellow one come up this year".

This little brown species may be what has been described as *F. chlororhabdota*

Kit then introduced us to Central Asia, starting with Tajikistan then moving on to Kyrgyzstan. She found *Fritillaria bucarica* up near Torvil Dara on the top of the ridge at about 2500m. Forms up here are very small, the cold and the dryness dwarfing them. In other places, where the loam is better and they may be protected

by shrubs, they can get much bigger. These are better forms than the earlier ones that Paul Furse brought in, added Norman. In an ancient walnut forest, they found *Fritillaria eduardii.* The plants were very big, with roots and bulbs going down a foot or more. They are basically woodland growers. Most of them are a plain orange colour, but there were a few red ones and a few stripey ones, so there is a bit of variation in the population. The whole feeling of the habitat is that of an English woodland –with different plants. The depth of the bulbs is some protection against predation by wild boars, which have a real taste for frit bulbs.

The next plant found was *Fritillaria olgae*, which was growing in a granitic scree. It was a little bit challenging to climb up there. The species has tendrils which enable them to clamber through shrubs and hang on to other plants and, of course, those beautiful bells. They were growing in undergrowth beneath overhanging trees, looking for a bit of shade rather than totally exposed on the open slopes.

In Kyrgyzstan they found *Fritillaria sewerzowii.* There were thousands in a scree that had tumbled down from further up the mountain. It was a natural repotting that seemed to do them no harm. They all seemed to be one colour, a very dark brownish shade. There were no greens there. They almost looked clonal, but Kit was sure they were not. In Kazakhstan, Norman pointed out, there are yellow forms of *F. sewerzowii.*

And finally, Norman talked about *Fritillaria tubiformis* from the maritime Alps. He got his seed from Jim Archibald originally. The seed was probably 10 years old, but 80% of it germinated.

Back cover photographs:

1. ***Fritillaria michailovskyi***
2. ***Fritillaria sewerzowii***
3. ***Fritillaria caucasica***
4. ***Fritillaria kurdica***
5. ***Fritillaria gibbosa***
6. ***Fritillaria graeca***
7. ***Fritillaria rixii***
8. ***Fritillaria Ariana***
9. ***Fritillaria bucharica***

£3.50

www.fritillaria.org.uk