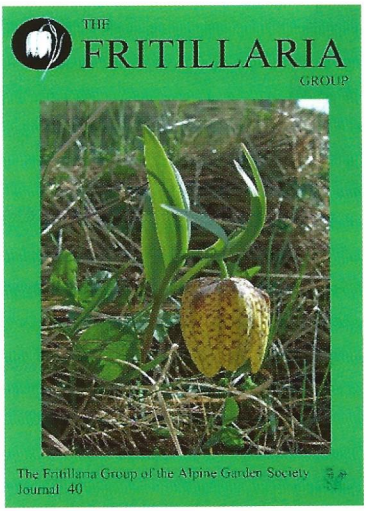
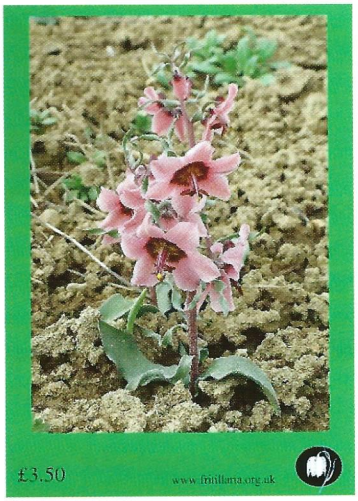
THE FRITILLARIA GROUP

The Fritillaria Group of the Alpine Garden Society
Journal 40

Spring 2017 Contents





Fritillaria collina by Pietro Roseo

3 Chairman's Chatter
By Bob Wallis

4 Variability in a population of *Fritillaria lusitanica* in Andalucía by Matthew Topsfield

10 Notes on the front and back cover
By Pietro Roseo

11 Recent literature
By Bob Wallis

17 *Fritillaria* On The Move
by Colin Everett

Fritillaria Group Spring Meeting at Kew Gardens Sunday 26th March 2017

Meeting to be held in the School of Horticulture

10.00	**Tea and coffee**
10.30	**Lecture by Norman Stevens and Kit Strange: "Fritillarias in the Wild"**
12.00	**Lunch, and free time.**
13.30	**Two tours of the alpine yard and alpine house. The tours will run at the same time with the same content, but start at different places.**
14.45	**Tea in the School of Horticulture**
15.00	**Lectures by Ilia Leitch: "New Insights into Fritillaria from Researchers at Kew" and Laurence Hill: "*Fritillaria kiusiana*: Chronicle of a New Japanese Species"**
16.00	**Questions and comments, and close of meeting**

The meeting will be open to the public as well as members
Entry through doors at the front by the aquatic garden
The School will be open from 8 a.m. for people bringing plants
More details on www.fritillaria .org.uk

Chairman's Chatter

By Bob Wallis

I hope that you enjoy reading the Spring newsletter 2017. We are looking forward to a unique event in Kew on March 26th where we have the use of the School of Horticulture for three talks by various experts, our annual show and a guided tour "round the back" to see the fabulous RBG Kew collections of bulbs and alpines. We will be joined by members of the British Iris Society: Species Group and of the Lily Group, who share our interests. It should be a memorable occasion so please come and join us. The entry fee for Kew will make it all worthwhile because you get to spend the day there as well. The formal programme is attached to this newsletter and everyone is free to do what they want.

As I write this on a drizzly day in early January, the intermittent cold and mild weather has started off several of our fritillaries both from bulbs and some seeds. There are already promising buds showing on some of the low altitude species like *F lusitanica*, the Rif form of *F oranensis* and some *F graeca*. A few of the Californians are poking up some leaves, hopefully to be followed by flower buds and so is *F karelinii* in spite of us delaying the watering until mid December!

Fritillaria karelinii, photograph by Colin Everett (see p.24)

Variability in a population of *Fritillaria lusitanica* in Andalucía

Words and images by Matthew Topsfield

In late March 2016 I undertook a botanical research trip to look for *Narcissus* species and wild hybrids in southeast Spain. During my travels I found many other plants along the way, with the Spanish countryside full of colour and springtime flowers.

At one site I was specifically seeking jonquils, which I found although they were mostly past flowering and in seed, but I also had the good fortune to find a sizeable flowering population of *Fritillaria lusitanica* growing alongside. I found the site using information provided by Margaret and Henry Taylor, but the presence of *F. lusitanica* was not mentioned in the notes I received from them. However, they do state that they found it at another site some 15km further south when they visited on 10 March 2001.

Photo1: *Fritillaria lusitanica* growing amongst rocks

My visit was made on Saturday 26 March 2016. The site is adjacent to the A-6178 through the Parque Natural de la Sierra de Andújar at an altitude of 622 m (2,040 feet). On an approximately east-facing slope, the plants were growing in a gritty, mineral soil in amongst granite boulders. There were some signs of soil erosion by heavy rain or disturbance by foraging animals. The plants were growing in various habitats, including open areas, amongst rocks (photo 1), through shrubs (photo 2) and under *Pinus* (photo 3).

Photo 2: *Fritillaria lusitanica* growing through *Rosmarinus*

A striking feature of these plants was the very high degree of variability in flower colour, pattern and shape. The flowers were most commonly

Photo 3: *Fritillaria lusitanica* growing under *Pinus*

brown-purple with green stripes (photo 4), but plants with green with

Picture 4:
Typical form of
Fritillaia
lusitanoca

Photo 5: green with brown edges

Photo 6: reddish-brown

Photo 7: light green-brown chequered

brown edges (photo 5), reddish-brown (photo 6) and light green-brown chequered (photo 7) flowers were also present. A number of plants had tepals that were more strongly reflexed at the tips, i.e. the flowers appeared to be rather waisted, others less so and more box-shaped. The nectaries were more or less prominent. The flowers of all plants were yellow and chequered inside to varying degrees (photos 8, 9 & 10). Some of these plants presumably resemble those previously described as *F. hispanica*,

which is now 'lumped' with *F. lusitanica*.

Photos 8 – 10: Variations in patterning inside the flowers

Another notable feature was that some plants were of exceptional size, with flowering stems up to approximately 45cm / 18" tall. Most available sources state to 30cm / 12", with only Mathew giving a height of up to 50cm / 16", presumably plants in cultivation?

This was the only flowering population of *F. lusitania* that I found during my eight day trip, although the focus of my research was necessarily on *Narcissus*, with other species only being captured as incidental records. However, I did find leaves of young *Fritillaria* plants at other sites on occasion.

Given the homogeneity generally seen amongst plants in cultivation and selected clones on the show bench, it was refreshing to find such natural variability in wild populations.

Acknowledgements

I am extremely grateful to the numerous supporters who supported my project "Blanchard's Spanish Diary 1986 revisited" through my Crowdfunder page and for a generous contribution from the Scottish Rock Garden Club's Exploration Fund.

Many friends provided encouragement, advice and practical support, including Margaret and Henry Taylor, who provided me with details of many sites of botanical interest in Andalucía. The benefit of their experience was invaluable.

Bibliography

Blamey, M. & Grey-Wilson, C. (2004) Wildflowers of the Mediterranean (2nd ed.) Bloomsbury Publishing, London

Mathew, B. (1987) The Smaller Bulbs. B. T. Batsford Ltd, London

Stocken, C.M. (1969) Andalusian Flowers and Countryside. Stocken, Devon

Polunin, O. & Smythies, B. E. (1973) Flowers of South-West Europe: a Field Guide. Oxford University Press, London

Pratt, K. & Jefferson-Brown, M. (1997) The Gardener's Guide to Growing Fritillaries. David & Charles Publishers, Newton Abbot

Thorogood, C. (2016) Field Guide to the Wild Flowers of the Western Mediterranean. Royal Botanic Gardens, Kew

Notes on the front and back cover images

Words by Pietro Roseo; images by Pietro Roseo and Tamar Galystan

[The information below is based upon a fascinating talk Pietro gave at the Fritillaria Group AGM in October 2016]

Front cover: *Fritillaria collina* (photographed by Pietro Roseo)

The photograph was taken in May 2016 in the Dilijan National park in Armenia. *Fritillaria collina* is a species endemic to the Caucasus. In Armenia it is restricted to a handful of locations and is listed in the country's Red Data Book. A mountain species, it grows at altitudes of between 1700 - 2500 meters in forest glades and forest edges and in sub-alpine dwarf birch scrub. We noted that this species also grows out in the open and does not occur in great numbers where it is found. It favours a limestone soil with added humus and stones, with little competition from other plants. They generally grow as single plants though I have seen clonal clumps with up to six flowers. Its primary pest is, as ever, the lily beetle. In Armenia the plant is endangered due to overgrazing, picking, land development and recreational activities including walking. Its sites are being monitored mainly in its stronghold, the Dilijan National Park.

Back cover: Fritillaria gibbosa (photographed by Tamar Galystan)

The photograph was taken in Armenia in March 2016 in the Khosrov Reserve. *Fritillaria gibbosa* is a species with a varied distribution from Azerbaijan and Georgia in the north to Armenia, Turkmenistan and Iran to the south and east. Its distribution area includes typical habitats such as steppes, stony hills and deserts at an altitude of between 1000 - 2000 metres. In Armenia it prefers semi-desert areas and steppe country, with little competition from other plants around it. Where it is found it occurs in very restricted populations and never in large numbers. Plants are usually about 6-8cm tall. In Armenia it is restricted to the centre of the country though suitable habitat does exist in the south near the

Iranian border. It may warrant further investigation to see if it grows there. It is confined to 3 locations only and is believed to be in decline and is a very rare plant. One would hope that this species will be included in the Red Data Book when it is revised.

Its main pests are rust and the lily beetle. There are a number of factors which are responsible for the decline of this attractive species. Collecting, grazing and, most importantly of all, mining which causes a huge amount of habitat destruction. It would be a great pity for Armenia to lose such an attractive little plant.

Recent Literature

Words by Bob Wallis. Images by Bob Wallis and Mahfouz Adway

Fritillaria walujewii **and** ***F ferganensis***

The Flora of Russia, published in 1935 describes *Fritillaria walujewii* and *F ferganensis* as two separate species, but in 1971 they were surprisingly equated by Pazij and this notion has been propagated in all subsequent reference books. Sennikov and Lazkov (2013) have now provided excellent evidence that this is an error and that they are "strikingly dissimilar", to quote the authors. It seems that the error arose because no herbarium specimen of *F walujewii* was ever made and the only record of it is Regel's illustration accompanying the original description in 1879. This shows the flower to be rather square-belled, greyish on the outside and although white on the inside, it so peppered with red spots as to appear almost reddish pink. It was growing in the open ground in the St Petersburg Imperial Botanic Garden from material said to have been collected by Albert Regel near

Fritillaria walujewii

Tashkent in the autumn of 1877. This looks to be another error of record since Regel did not travel in the Tashkent region that year and Sennikov and Lazkov surmise that it is more likely to have been collected in the Tekes River valley near the town of Tekes in present day SE Kazakstan. Sennikov and Lazkov have examined specimens of both species from all over Kyrgyzstan and have mapped the distribution of *F walujewii* to almost entirely the eastern half of the country. It is also found in adjacent China. Many of us have grown this plant when there was an influx into cultivation from a Chinese nursery that has since ceased trading.

I recall seeing plants of *F ferganensis* many years ago when exhibited by Martyn Rix on a display put up by the RHS Lily Group in the Westminster Hall. Like *F walujewii* it has marked tendrils especially at the tips of the upper leaves which it uses to cling to the small shrubs through which it scrambles but there the similarity ends. The flowers have rather rounded shoulders and were a sort of reddish brown both inside and out. In this respect it is not unlike *F ruthenica*. It was first described by AS Losina-Losinskaya as coming from the confluence of the Airy-Tash and Kandura rivers in western Kyrgyzstan and there are herbarium specimens in Leningrad. The distribution area is, as the name suggests, in the mountains both south and east of the Fergana Valley largely in Kyrgyzstan, separated from *F walujewii* with a gap of approx. 120km where

Fritillaria ferganensis

neither seems to occur. Very few plants of this have ever been brought into cultivation and, to my knowledge, it has not persisted in the UK.

Why is *F ferganensis* not the same as *F ruthenica*? They look surprisingly similar with their round-shouldered bells and tendril-like leaves and the colour is not dissimilar, perhaps a bit redder in the case of the former. The difference is in the capsules: The capsules of *F ferganensis* have slight wings up the outer margin culminating in hook-like elevated ribs on the top. Those of *F ruthenica* are also slightly winged but they do not continue over the top of the capsule, giving an obtuse appearance. Just to complete the comparison: those of *F walujewii* are similar to those of *F ruthenica* i.e. they lack the hooks on the top. Unlike the little experience we have of *F ferganensis, F ruthenica* is quite straightforward to cultivate in the UK.

We have struggled to grow *F walujewii* for any length of time. In the wild it grows amongst low bushes, probably on steep and therefore very free-draining slopes. The climate where all this group occurs is very severe with extremely cold winters and a persistent snow cover, then rapid snow melt, a definite spring followed by a hot summer with a few thundery downpours. Root growth starts very early in autumn or even late summer. Everything then remains dormant through the winter before rapid stem growth in spring. Maybe the intermittent winters which we have in southern UK does not suit them.

Fritillaria ferganensis capsules

Fritillaria avromanica, F. asumaniae **and** ***F. kiusiana***

In the last two years, three new species have been described showing how the subject is still moving forward as new parts of the World get opened up to us ordinary folk who just like wandering in the hills and mountains looking at flowers.

Advay M, Tekşen M & Maroofi H. Nordic J Botany 33(5) 526-531 (2015). *Fritillaria avromanica* sp. nov. (Liliaceae) from Iran and notes on *F melananthera*.

In April 2012, Mahfouz Advay was on a field trip to the Hawraman mountains in western Iran and found some "*unusual specimens of Fritillaria*". The Hawraman is also known as the Avroman Range, hence the name. It is one of the narrowly campanulate species in subgenus Fritillaria which have a very complex taxonomy depending on a variety of characters, such

Fritillaria avromanica, photograph by Mahfouz Advay

as style shape, anther colour, leaf arrangement, shape and dimensions etc., to separate them. The authors compare it with *FF assyriaca* and *melananthera* (in the same paper they raise this name to specific level). It is clearly different from either of these on the basis of its very broad ovate-obovate leaves which are 2.0 – 4.5cm wide (linear and up to only 1.2 cm wide in the other two). The flowers are purplish green with a green or yellow fascia which both *F melananthera* and *F assyriaca* can also have.

Paul Furse collected a very similar plant in fruit in the same area, which is near to Marivan in Kordistan Province in 1962, and these are preserved in spirit in the Kew herbarium. This collection seems to have two species in it. One is *F straussii* and the other Martyn Rix has suggested is *F chlorantha.* In 2005 and again in 2006 a group of us visited what we now call "Eight-Frit" mountain, for obvious reasons! Although this little plant was right at the end of its flowering Arthur Nichols managed to get a photograph and showed it to me. It looks like a striped form of *F chlorantha.* As far as I can see the only difference is that the leaves are bright green in *F chlorantha* and quite glaucous in *F avromanica* but they share the same very broad shape. Somewhat surprisingly the authors do not compare their find with *F chlorantha* or to *F zagrica* both of which are morphologically very similar to it.

On distribution grounds it is at the northern end of that of *F chlorantha* and is possibly an outlying population. This area has been very little visited by botanists as it was largely inaccessible in the 1960 and 1970s being very close to the border with Iraq and has only opened up since 1999. We, and others, have found many interesting plants there, some of which like *Iris zagrica*, are new to science, so expect to hear more about it in the future.

Özhatay N, Wallis R Wallis RB & Koçyiğit. Fl. Medit 25 (special issue) 199-208 (2015). A new *Fritillaria* species from the Mediterranean region of Turkey; *Fritillaria asumaniae.*

It seems strange to be reviewing my own paper but here goes:
In the autumn of 2008, Rannveig and I spent a wonderful morning in the woods around Kemer, near Antalya, walking along a branch of the Lycian

Way admiring the kaleidoscopic variation in the leaves of *Cyclamen graecum* subsp *anatolicum* (now known as *C maritimum*) and wanting to find *Crocus wattiorum* so that we could photograph the flowers. We noticed several tall stems of a *Fritillaria* bearing single dehisced capsules and wondered what they were. Mulling over the possible species which could conceivably be in the area (e.g. *F acmopetala*, *F whittallii*, *F forbesii etc.*), we could not reach a satisfactory answer so we enquired of Peter and Penny Watt. Who else would you ask since their *Crocus* grew nearby! They sent me a slide of black, narrowly tubular flowered plants which were clearly something odd. It had been found previously in the area by Andy Byfield and identified as *F forbesii*. We just had to go back and see it in flower for ourselves and see if the colour was consistent in the population. This we did in 2011 and our walk through the woods revealed a large number of this Frit growing in deep shade and all except one was black flowered.

A more careful look at the flower parts made us realise that this was new. It differs from *F forbesii* in its dark flowers (yellow in *F forbesii*), black anthers and pollen (yellow in *F forbesii*) and stout clavate style (thin and linear in *F forbesii*). The only other possibility is *F elwesii* but the style of this is narrow and normally dived at the tip into three branches and again it has yellow anthers and pollen. So we have a second new species and thank Professor Özhatay for her help in publishing the article and suggesting we name it after Professor Asuman Baytop who sadly passed away in 2015 having added considerably to our knowledge of the Turkish flora.

This article is available online at: http://147.163.105.223/flora/25si-199.pdf and there is a picture of it in Yasemin Konuralp's book: "Wild Flowers of Turkey" p 382 labelled as *F latakiensis* which we now know it is not.

This plant may already be in cultivation because the sadly missed JJA Seeds listed seed from this area as *F forbesii* a few years ago. Did anyone raise it to flowering size?

Laurence Hill. Curtis's Botanical Magazine 33(3): 275-285 (2016). *Fritillaria kiusiana*: Liliaceae.

It is very gratifying to see another new species article published by one of our Fritillaria Group's members. Laurence has worked hard on the Japanese species in the last few years and grows them to perfection as you have seen in our annual shows.

F kiusiana is separated from all the other species in Subgenus Japonica by its dark purple-blue anthers and narrowly campanulate flowers with longitudinal veining. The other species have white, light blue, red-purple or purple-crimson anthers. As the name suggests, it is a native of the island of Kyushu, an island which it shares with the white anthered *F amabilis*. The two species do not overlap in their distribution but come very close to each other in the Aso-san Caldera in the north of the island. Like the others member of the sub-genus, it inhabits deciduous woodland and completes its growth cycle in early spring before the leaf canopy develops. In the article Laurence advises on cultivation in a free-draining, humus-rich, moisture retentive compost with protection from direct sunlight. The excellent photographs and drawings in the article show the characters of this unique species.

Fritillaria On The Move

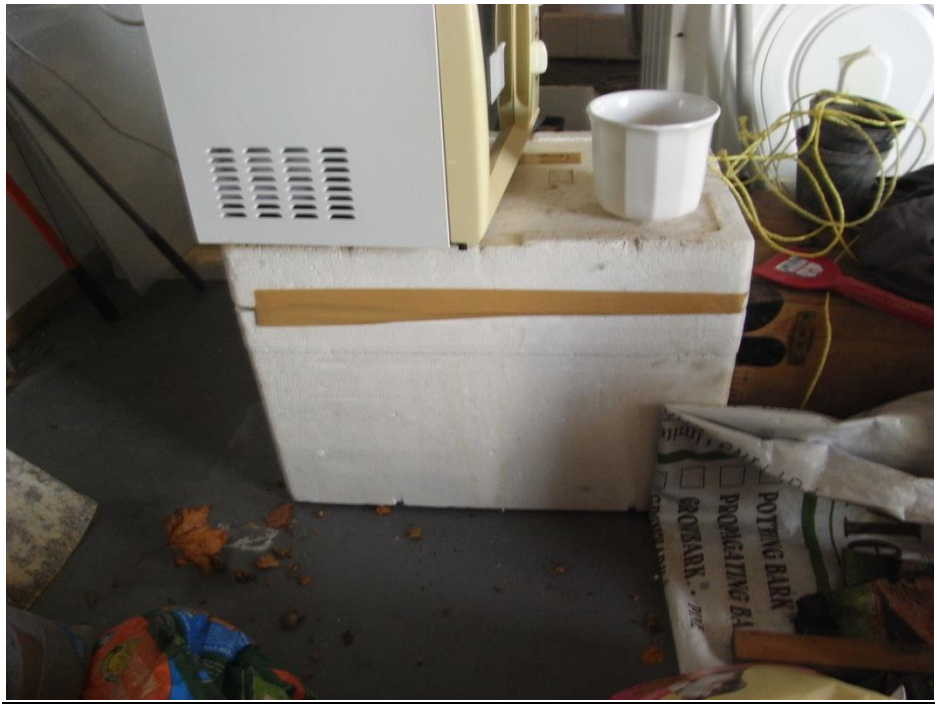
Words and images by Colin Everett

On 12 October 2015 we moved to Somerset. As well as the house contents to move, we had to condense five greenhouses down to three and move three of the greenhouses and more plants than I ever thought possible. In fact it took three trips in a 7.5 tonne lorry just for the plants. This was only possible because the people we were buying from said we could bring the plants down before completion. We should have been in on the 9th of October but complications meant we did not get the keys until 16.45 on the 12th

.

The fritillaries were not too much of a problem in the move because I had unpotted them and put the bulbs, some in composted bark and some in

peat, in open plastic bags (simply what was close to hand). These were kept open until a few days before we moved them. After they were taped down closed, they still filled three large boxes.



One of the boxes - the microwave on top gives a size reference.

Due to time constraints some of the bark and peat was not completely dry; this created some mixed results. If my brain had not had so much to think about I could have cut the losses down to only three or four bulbs – at least so far anyway (I'll have to see how they do this season). The biggest loss looks likely to be the adult *F. striata* because they were in some damp bark. Thankfully I have some 2 and 3 year old seedlings coming along. When I now think about it, the level of moisture in the bark or peat was very important - some bulbs wanting none, some a damp but not wet level. The bulbs were in the taped-down bags for about a week, and even before taping the bags down I had quite a few with live root.

The first thing I wanted to do was pot them up. The first problem was that we had no idea where to get any compost from that would be any good. There was also not a lot of time to find any, good or not. In the end I went with B&Q top soil. This was mixed 50/50 with grit. We did find the type of grit we like in a small garden centre. Paul did the mixing and kept me supplied with it while I potted the bulbs up. This was interesting at times because some of the bulbs now had roots of 5cm or more (most of these came from damp bags) so the only choice I had was to put them in on their sides. The potting up took two days (from 09.00 to 16.00) and the pots had to be stood out in the open on some of the benching we had brought down with us –we had not yet re-erected the greenhouses. One thing to mention is that all the bulbs lost were adult bulbs. If I had any small bulbs in the same bag they seemed to be ok. Ian Young mentioned something similar in a bulb log about *Nomocharis,* in that he found the smaller bulbs hardier than the flowering size bulbs.

Then came the weather (rain). Not only were my *Fritillaria* outside but so were Paul's South African bulbs and others. The *Pleione* fortunately, as they were going dormant, were in boxes in the garage. We did have one big problem with *Rhodohypoxis* which were in a shed - MICE!

Pots stood outside on benching before any greenhouses were erected

So the race was on to get at least one greenhouse up. Where we wanted to put them, the previous owners of the house had had a flower bed, trellis work, a small greenhouse and a vegetable plot.

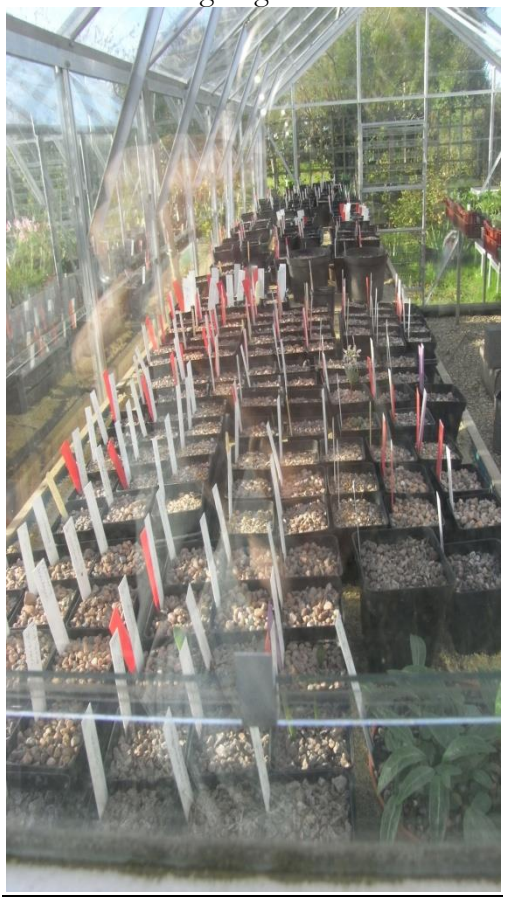
The site for the glasshouses before we started work

As a result, in order to prepare the site we firstly had to go through the flower bed and move anything we thought we may want to keep - and I bet we missed a few. Next we took down the small greenhouse and trellis work! This done, we were able to get one of our greenhouses up in just over a week. This was only possible because where Paul's South African house was going to be was the most level bit of ground. Once it was up and the plunges in (no sand yet) we squashed as many plants in as possible. This still left six crates of Fritillaria pots which had to go in the garage.

First greenhouse erected and plants moved inside

Pots with *Fritillaria* being moved to the garage until their greenhouse is erected

Sod's law ensured that for the time we had to have the potted bulbs outside it rained and rained so you could say that the *Fritillaria* and others had their autumn rain storms. To add insult to injury we also had one night when the temperature went down to -2c. I do not think it did much to the *Fritillaria* but it did upset some of the South African bulbs (the foliage went a bit funny). The second greenhouse, took longer to erect because we had a lot of ground levelling to do. This is where my Fritillaries were going to be housed mainly.



The second house is now up and they are starting To go in!

You think that is all the problems over with but oh no! There is this little phrase "your micro climate". Yes I had heard about it and kind of got it, but was not prepared for just how different it was here. Also there was the potting mix - having not previously used B & Q top soil (if you could call it that - I will not go there because that is another issue!) I did not know how to work with it.

One of the first things that our change of location showed was that things were going to start into growth at very different times. This could have been the year, getting soaked outside or me mucking them about, but I think more likely it is our micro climate (looking back now I would say it was the year). I had a number of things with

green growth above the gravel before Christmas. *Fritillaria karelinii* and *F. gibbosa* were in flower and the *karelinii* had a pod on it by the 18th of December! Once we had more leaf growth one thing became very obvious: how we used to water was not going to work here. I could go through my *Fritillaria* pots and give them a good watering once a week before, but here I was watering two to three times a week! Ok, not all of them, but most. Another thing that caught me on the hop was just how early aphids raised their heads. Putting all of that to one side, in general most things moved ok; if I had a problem with anything it was always with adult bulbs. The ones that come to mind are:- *agrestis, ariana, brandegei, gibbosa, glauca, karelinii, liliacea, minima* and *striata*. The only total disaster was *Fritillaria minima*. I have lost all of them! Of course it had to be one of the hardest to get hold of, didn't it!

I have to say that one advantage to being here is the fact that we do not get so hot as in Wraysbury (so far, at least). This has afforded me two benefits:

1. I only need to use one layer of green shade netting instead of two or three to keep the temperature down. So those that want more light get it.

2. The more moderate temperatures here mean that they grow for a longer period of time before going dormant.

The old site of the greenhouse would get too hot even with the two or three layers of shading and with all eight roof vents open plus the eight louvres and doors wide open. The extra heat probably accounts for why I used to do well with the Rhinopetalum group back in Wraysbury. They would be in growth before most other things and would get a good growing season, before the heat would make everything go dormant.

So on the whole the growing season of 2015/2016 was better than I expected and longer due to the lower temperatures. The issue now is: will I adjust and learn how to treat the bulbs in this new environment fast enough not to have any more losses? It looks like I might, but I have not as yet had what I would call one complete cycle with the *Fritillaria* here.

We have not as yet found a John Innes type compost that we are confident in. So on recommendation we have gone with the Keith Singleton brand. We found that this has a lot of peat in it, but it drains quite well straight out of the bag. So the poor bulbs are going to have to cope with another year of unknowns. The mix used as normal was 50/50 grit and compost, with "Sophisticat Pink" cat litter added for some of the more fussy bulbs.

By the end of October 2016, all the *Fritillaria* were repotted, plunged and watered twice. Growth was starting already - at the last count I had 83 pots with live roots growing out of the bottom. Let's hope that the mix will not cause any insurmountable problems this year and I can get back to normal. I will say that so far this year the bulbs are behaving a bit more like I would expect.

December 6, 2016: I now have 236 pots with roots out of the bottom. *Fritillaria karelinii* is in flower like last year. *Fritillaria gibbosa* on the other hand is only just above the gravel in some of the pots and other *gibbosa* pots have no roots out of the bottom or leaf growth above the gravel. But they are on the move; I checked. So far I only have *davidii, gibbosa, karelinii, striata, tortifolia* and *uva-vulpis* Kew Form above the gravel - a lot fewer than last year!

If you have made it to the end I hope you take one thing from this: there is no magic formula as to how to grow *Fritillaria.* You just have to work with what materials you can get, your micro climate and of course your interpretation of what the bulbs want water, fertilizer etc. .

To finish, all three greenhouses were up in time (or just about in time) for their intended use and this is what it looks like now.

→

All three Greenhouses erected

There are still things to do….

£3.50

www.fritillaria.org.uk