# THE FRITILLARIA GROUP

The Fritillaria Group of the Alpine Garden Society
Journal 33 Autumn 2013

## Seed Exchange

Last year's seed exchange was probably the poorest since the Group's inception. The number and variety of donations were down, there were fewer donors, and fewer requests for seed, resulting in less income for the Group. Two hard winters had taken their toll on bulbs, but also on pollinators, and so fewer flowers than normal were produced and fewer of these produced seeds. Many members are hoping to rebuild their stocks after two bad years, so all donations to the exchange will be very welcome.

**This year it is proposed that:**

Information about the exchange and the seed list will be sent out by email to all members for whom I have an email address. Members who wish to receive printed information by post are asked to contact me by letter, phone or email – printed lists are available only on request. It is important that I have up to date email addresses. If you are in any doubt, or have changed your email address since last year please inform me of your current email address as soon as possible.

Seed requests no longer require a stamped addressed envelope; I provide padded envelopes and add the cost of packing and postage to the cost of seed (probably £1 for UK, and £1.50 overseas). I will notify members of the cost of their seed, and when I receive payment, I will post out the seed.

Please send seed donations to arrive no later than 22nd August 2012, or let me know what you intend to donate if it will arrive later. I will send out the list the following week, and ask for requests to reach me within two weeks after that. If these arrangements are a problem, please let me know.

If you have not received a list by Friday 30th (email lists should arrive by 27 Aug, and printed lists will be posted on 24 Aug) please contact me so that a second list can be sent. Several members used PayPal last year and there will be the same facility this year. For overseas members it is a very convenient way of paying, and several home members also used it. All you need is a PayPal account, which is very easy to set up and use.

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

# Contents Autumn 2013

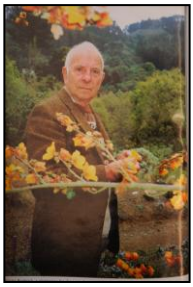

*Fritillaria pyrenaica,* cover photograph by Bob Charman












# THE FRITILLARIA GROUP OF THE ALPINE GARDEN SOCIETY

## AGM and Autumn Meeting

## 29 September 2013 at the Hillside Events Centre, RHS Garden, Wisley, Surrey

## PROGRAMME

| | |
|---|---|
| 9.00 | Doors Open and Coffee. Plants and Bulbs will be on sale during the day. |
| 10.00 | Annual General Meeting |
| 11.00 | Speaker: Laurence Hill<br>"Fritillaria bulbs – Unearthing the truth" |
| 12.30 | Lunch Break |
| 14.00 | Speaker: Ron Mudd<br>"The Fritillaria Fields of East Yorkshire – Part 1" |
| 14.20 | Speaker: John Amand<br>"The Dutch bulb fields" |
| 15.20 | Raffle |
| 16.00 | End of Meeting |

All Visitors Welcome
Photographic display in the Main Hall.
Membership details are available inside the Main Hall. Subscriptions: £8.00 per annum single membership and £10.00 per annum for family, €10.00 for European membership and £10.00 for world-wide membership. Two newsletters are published each year in February and August and a seed exchange takes place.
Further information can be found on our website www.fritillaria.org.uk

# The Subgenus *Liliorhiza* (an Amateur Hobbyist's View )

*Words by Ron Mudd. Images by Ron Mudd, Tony Willis and John V.*

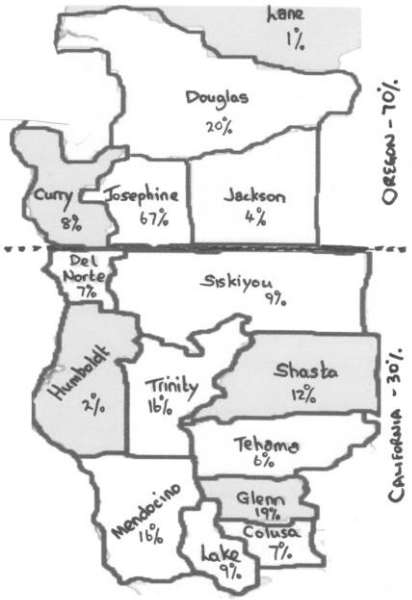
[Ron began his series on the Subgenus *Liliorhiza* in the Spring 2013 number of the Journal with an overview of the entire Subgenus: "I use this name, in what I believe is the common understanding, to cover all of the Northern American species, plus *Fritillaria dagana* and *Fritillaria maximowiczii*".]

## 1. *Fritillaria glauca*

*Fritillaria glauca* was described in 1893 by the noted American botanist Edward Lee Greene Ph.D. (1843 – 1915 ), in Erythea, a botanical journal of which he was co-founder. Greene produced over 500 original papers and described over 4,000 new species during his career (including *Fritillaria agrestis*). He joined the Union Army at age 19 and, in three years of service, began collecting specimens as the troops moved around. In 1873 he became ordained in the Episcopal Church, (he later converted to Catholicism), and travelled widely throughout the South-western States, spending much of his time in California. His academic career, which began in 1882 at the University of California, was well respected, if sometimes controversial, and may be said to have concluded with the posthumously published two part work, Landmarks of Botanical History. Greene died in hospital, on November 10th 1915.

Commonly known as the Siskiyou Fritillary, *F. glauca* is found growing in 10 counties of Northern California, and 5 counties of Southern Oregon. The type locality is in fact near Waldo, Josephine County, Oregon. Waldo is only a few miles from the California border and was first settled as a gold mining camp. Certainly participants in the 'Gold Rush' would have been familiar with this little golden coloured flower, as the finding of nuggets in 1851 brought thousands of prospectors up the Siskiyou Trail, (modern day route I-5).

Analysis of commonly known sites reveals the following distribution, by State and County, for some of the records of this species.




Distribution map of *Fritillaria glauca*

Many new, informal and amateur, records are constantly being added as photographs are posted on internet networking and social group sites.

*F.glauca* is a 'snow melt' plant, growing at altitudes of 600m to 2100m. Depending on altitude, snow may be on the ground for 6 months, November to April, with the majority falling December to March. On the northern side of ridges or peaks, where this plant is often found, depth and shadow can prevent the snow from melting until June, or sometimes into July. The plants need to stay 'dormant' under the deep cover, until one day the snow is gone and the mountains become a hot and dry environment. Conditions are now full sun and 25°C heat. The bulbs are not, of course, exposed to these temperatures, growing at the necessary depth to maintain consistency. Often the substrate is serpentine in nature (an extreme, unique and rather hostile environment discussed in more detail in my later article concerning *F. purdyi*) and the bulbs are found in the soil beneath deep loose talus, or scree, which must act as a 'mulch'.

*Fritillaria glauca,* bronze form. Photograph by John V

Figure 2 above is the classic view of this species, but this is not always the case.

In this picture, taken at the end of June 2011 by Mr. Tony Willis, we can see *F.glauca* flowering in a much more exposed environment "amongst *Phlox diffusa* on open slopes". He wrote at the time, "I am in Northern California at the moment and saw this *Fritillaria* yesterday growing at 6000 ft on the Mendocino Pass north of Willits. There were lots of them, very uniform in colour, and they were growing alongside *Fritillaria purdyi*."

Flowering time is, in the main, June and July, but May has been recorded at the lower altitudes. The plants are from 10 to 15 cm tall (sometimes cultivated plants are seen much taller than this, but these are 'stretched' due to being grown in poor light). In some populations the flower colour is a rich bronze brown, in others a bright golden yellow. The degree of markings on the flowers varies tremendously.

This variation, between plain and heavily mottled, is apparent in both 'colour forms'. Flowers number between one and four per stem, rarely more. The paired silvery green-grey glaucous foliage remains constant, hence the name. The seed capsule is broadly winged. Unfortunately, the natural pollinators are unknown to me. In cultivation here in UK, bumble bees (*Bombus* sp.) find the flowers irresistible and often sleep within them overnight.

Despite growing almost alongside *Fritillaria purdyi* in some locations, and superficially resembling this species somewhat (at first glance and particularly when not flowering), it is likely that *F.glauca* is more closely related to *F.affinis* than it is to *F.purdyi*.

**Cultivation [in North East UK].** A plant for a covered area. All of my plants of *F.glauca* are grown in plastic 2 litre extra deep 'rose' pots, or more lately large 30 cm. deep plastic boxes. The compost used for this species is, by volume, three parts commercial heavy loam to seven parts smooth grit. Seed is sown, in November, on the surface of this medium, with a fine covering of vermiculite. The plants remain 'in situ' until they have flowered and beyond. The bulbs are only disturbed if I wish to remove some of the (few) small bulbs that form around the base of the mature bulbs. When fully grown the bulbs are only a couple of cm across and usually consist of fewer than ten scales. Watering takes place once in late November or early December (depending on my local temperatures), again when the first green shows through the surface (usually mid February ), and a final time when the first flowers begin to open on the mature plants (late March / early April) . I use this same regime for all ages of bulb. Root growth can be seen on the bulbs as early as September, and despite a very dry growing medium, these will

continue to grow and become more numerous from that point. I do not take this as a sign that they require watering, only that they are preparing themselves for when the November rains arrive, and of course later when the snow melts.

The difference between the flowering time with me, and that in nature, is almost certainly explained by my inability to keep the bulbs at a constant low temperature for the period that they would normally be under snow. The mature flowering bulbs get a sprinkling of a powder of high potash content fertiliser on the surface of the pot prior to the second watering. The pots are allowed to dry out naturally after the third watering. The plants of this species are all grown in south facing glasshouses which have a heavy coating of shade paint applied all year round to the south side. None of the pots are plunged. After the plants die back the pots are covered with thick insulating blankets to prevent temperature increase. This remains in place until the first watering. The growing area is kept very dry throughout the winter and the pots are never allowed to freeze.

*Fritillaria glauca* in cultivation

My thanks to Mr. Tony Willis and Mr. John V for allowing me to use their pictures of *Fritillaria glauca* in nature.

# Fritillaria of the Eastern Aegean and Beyond: Part I

*Words and image by Marcus Harvey*

Fritillaria occur on all of the large Aegean islands that skirt the western coastline of Turkey. While a number of species are endemic to a particular place, a few are more widely represented on the Turkish mainland. Two examples of the latter group are *Fritillaria carica* and *Fritillaria bithynica*, which both occur on the higher slopes of Mount Ambelos on the island of Samos. *F. bithynica* favours sheltered grassy breaks in the pine woodland below the bare, sun-blasted limestone rock slabs that are the home of *F. carica*. It grows in there along with *Galanthus gracilis* and a range of crocus including *C. biflorus* ssp *nubigena* and *C. cancellatus* ssp *mazziaricus* and I think their pink and green winged capsules make even more of a visual impact than their sweet blue-green blossoms.

Seedheads of *Fritillaria bithynica*

I have also found *Fritillaria bithynica* around Mugla and Goke Tepe in South western Turkey and in some of these populations, particularly around Kizilcaboluk, the fruiting capsules are unwinged. Both Rix and Davis treated these as the same species but in a recent survey these have been reclassified as a new species, *Fritillaria milasense*. There are other minor difference in the leaves, and its tepal shape and colour.

*F. carica* grows in great numbers on Mount Ambelos in very exposed sites often following cracks and channels in the limestone slabs. It has the very beautiful *Colchicum variegatum* , *Crocus olivierii* ssp *balansae*, *C. pallassii* ssp *pallassii* as well as the other previously cited crocus for companions on these dry and barren tops. There is another small tufted, sage-like plant (*Sideritis* sp.) growing here which is of great interest to the local Greek population and which only grows at above 1000 metres all around the Aegean. This is known locally as "Chai Temoros" or Tea of the Mountains and so valued are its dried leaves for their health-giving and restorative powers that grazing is not permitted in some areas until the plant has been harvested. *Fritillaria carica* is widely spread in Western Turkey being found as far eastwards as the ancient site of Termessos and to Honaz Dag in the north. In between exist many populations the identities of which have been hotly disputed over the years and three in particular deserve special mention.

At the Dermil Pass near Atanyala grows a very fine plant that was discovered quite recently by the late Ole Sonderhousen and later described by Martyn Rix as a subspecies of *F. carica*, much to the chagrin of the discoverer who swore that it was a new species. This is of course the subspecies *serpenticola* or as some would still argue, *F. serpenticola*, and as the name suggests it grows along with *Crocus baytopiorum*, *C. cancellatus* ssp *lycius, Muscari mirum* and *Merendera trygynum* on the brown earth derived from serpentine rock. The lower side of the pass is covered in managed forest plantations and there the fritillaria thrive behind fences on exposed north western slopes. On the opposite side however its numbers are the subject of much attention from grazing goats and have been reduced to just a few scattered groups cowering under thorny bushes. As a postscript I believe this plant has been elevated to the species level, as *F. serpenticola* so now dear Ole has his wish and can rest in peace!

Further to the north on scrubby banks alongside the beautiful lapis blue Lake Salda grows another population on serpentine. These plants are brick

red to orange in flower colour and are so unlike any others that some have proposed the name *F. saldensis*. It is unlikely however that the prevailing approach of treating it as just another variant in what appears to be a variable and intergrading species will change. As always the greatest density of plants are found where the goats are the least. On the pass leading down into the lake plants are sparse and it takes a keen eye to spot solitary individuals growing in the scree or hidden in the thorny bushes. But further along the lake shore in little pockets of open ground protected by palisades of dense scrub they are everywhere amongst the boulders and rocks. Their chief companion bulb is a fine form of *Muscari muscarimi* with yellowish flowers instead of the more often found dirty white.

Much further eastward at the Sinekcebeli Pass near Elmali just on the rim of the Cappadocian Plateau can be found the last of the trio. It has been given species status as *F. kittanae* but many dispute this and argue that it is just another example of the variable *F. carica* or a hybrid between it and *F. elwesii*. Its populations do show considerable variation in flower markings from rusty yellow through to boldly striped brown on yellow as well as in stem height, some being quite dwarf to others over 25 cm. I cannot pass any comment on the argument over status but I can say that I have had a devil of a job locating this plant. On my only attempt I spent a very hot frustrating day wandering over hill and dale in search of it with my 17 year old son who I had to cajole with promises of chilly ice creams and luscious drinks just to keep him (and me) on the job. Eventually I was forced into local teahouses to interrupt its uninterested non-English speaking patrons with crude hand-drawn pictures and amateurish mime routines for some advice. Whatever good advice given went straight over my head, the only information I could glean was a vaguely waved hand to the north accompanied by a statement that sounded something like "in the mountains" – but we were ALREADY in the mountains! Alex and I did eventually find a few seeds most of which blew out of the back window of the car when he opened it on our way back to where we were staying – but that's another story for another time.

Congratulations to the Group's past Secretary, Chris Birchall, on winning a Gold Medal at Hampton Court Flower Show! He and his wife, Lorraine, run Tale Valley Nursery in Devon and specialise in *Rhodohypoxis* and alpine plants: www.talevalleynursery.co.uk

# *Fritillaria camschatcensis* in South Central Alaska

*Words and images by Clay Koplin*

At 60 degrees North Latitude, 146 West Longitude, in my home town of Cordova, a region locals refer to as "South Central" Alaska, there is only one wild *Fritillaria*. He roams as that black sheep of the family – *Fritillaria camschatcensis.* In dark contrast to the primarily pendant, arid, sometimes colorful, and often localized nature of the others in the genus, the moisture loving, continent roving, upturned face of *F. camschatcensis* greets us at every turn from late May to late July. He ranges from the edge of saltwater, in moist glacial silt, to mountain meadows in slate screes or tundra bogs. His stature ranges from two feet (60cm) with up to 18 blossoms on the mineral rich glacial flats at sea level to a diminutive 6" with a single blossom in boggy upland meadows. The robust sea level bulbs can approach 3 inches (7 cm) in diameter with as many as four separate flower shoots, while the nutrient starved mountaineers are often the size of a small pea or marble. Flower color ranges from a dark chocolate with no trace of green much in keeping with the stoloniferous Asian Pacific *F. camschatcensis*, to a 50/50 green-brown mix reminiscent of a greenish *F. cirrhosa.* Some forms can be heavily tessellated, almost entirely checkered with a very fine ½ mm grid, about one quarter the size of *F. meleagris* checkering, to uniform coloring.

My fascination with *F. camschatcensis* is what initially fueled my interest in rock gardening 10 years ago. As I researched the many beautiful wildflowers I encountered on mountain hikes and hunting forays in coastal Alaska, I was particularly drawn to this dark fellow and his fascinating rice grain bulbs. As I researched him on the internet, I was introduced to the others in the genus and joined the SRGC and Fritillaria Group

*[continued on p 14]*

# The 2013 Spring Show – *Images by Bob Charman*

## The 2013 Spring Show - *Images by Pietro Roseo*

## *Fritillaria camschatcensis* (continued)

primarily to access seed of other Fritillaria through the seed exchanges, and build a rock gardening educational network. I sporadically donated *camschatcensis* seed in return. In my general research, I learned that other names for *F. camschatcensis* include *F. sarana*, Indian rice-grain lily, or chocolate lily (the local moniker). In addition to the tradition of Alaskan native tribes using the bulbs as a food stock, Captain James Cook was rumored to have laid in healthy stocks of the starchy bulbs in his explorations of coastal Alaska in the 1700s. *F. camschatcensis* lack the poisonous alkaloids common to others in the genus.

The full range of *F. camschatcensis*, primarily coastal, reaches from Washington State in the US, around the North Pacific rim along Alaska and Russia and south to Japan, inhabiting islands including the Aleutians, Kurils, and others in the North Pacific. I have seen them throughout coastal Alaska, and with rice grains included, estimate their number in the tens or hundreds of billions. While they are prolific seeders, and can somehow set and ripen copious quantities of seed despite the constant rainfall that often accumulates to over 200 inches (500cm) a year, there is another secret to their distribution. The high spirited red back vole, an easily domesticated, affable rodent, is both nemesis and propagator of *F. camschatcensis*. The voles tunnel vigorously in the top few inches of soil, often digging from bulb to bulb during the winter months, following the mat of dead grass and vegetation just under the snow blanket, plundering large, moist, fritillaria bulbs and *Iris setosa* rhizomes. In spring, before plant growth emerges, one can see the tunnels and diggings of the voles, who turn the ground as efficiently as roto-tillers. Upon close inspection, one notes that their tunnels are freely scattered all along their lengths with fritillaria rice grains. The shallow, tilled soil is the perfect medium for the fritillaries to launch their careers. Thanks to the helping hand of the vole, the Alaska form have, perhaps, lost their need for stoloniferous habit and I have yet to observe stolons amongst the Alaska forms. What I have noted is that the bulbs tend to develop a thin membrane underneath that somewhat isolates them from groundwater. This membrane is more pronounced on the older bulbs in boggier conditions. The bulbs tend to hang just below the surface, where in fall their shoots can sometimes be seen just proud of the surface, waiting for snow to cover them through the winter months in anticipation of spring. In

early July, one can note the decomposing former bulb, which is mostly absorbed by the new bulb, leaving behind the gelatinous membrane.

In addition to voles, another key predator is the large black slug, reputedly imported around 1900 by immigrant Chinese salmon cannery workers. As the slugs have spread across the Copper River Delta near Cordova, one of their favorite spring delicacies is tender *F. camschatcensis* shoots. At fritillaria densities approaching hundreds per square meter in many locations, however, slugs pose little threat to the overall population. The glacial streams and sloughs continuously erode the stream banks (there was 3 meters of uplift during the 1964 earthquake epicentered 90 km from Cordova, and the Copper River Delta is still adjusting).

Characteristics of the *Fritillaria camschatcensis* in and around Cordova, the Copper River Delta, and nearby islands, are an extremely vigorous growth habit to heights in excess of 30" (75cm), blossoms approaching 20 (I have counted 18), multiple shoots per bulb (I have counted as many as four sprouts from a bulb), and a clumping habit. (See picture of clump of 8 bulbs dug tonight).

The primary local pollinator is a small fly, drawn to the decaying-meat smell of *F. camschatcensis*. Watch for seeds from this vigorous stock in the seed exchange this fall; bulbs are available commercially from Janis Ruksans, who has successfully propagated the Cordova stock to blooming size. There may still also be some growing on display at the Royal Gardens at Kew, or Royal Botanic Gardens at Edinburgh, donated by Laurence Hill some years ago.

# *Fritillaria*: Commemorative Epithets and Those Who Named Them, Part 2

*Words and images by Brian Mathew*

[This article is based on talk to The Fritillaria Group in October 2012. The first part of the article appeared in the Spring 2013 Journal.]

We now move on to some of the more recently named species (the last half century or so!).

***F. poluninii***, described as a subspecies of *F. crassifolia* by Martyn Rix in 1975, commemorates **Oleg Vladimirovitch Polunin** (1914-1985), botanist and master at Charterhouse School near Godalming, Surrey. He was granted sabbaticals to travel widely: to Nepal, Karakoram, Iraq, Kashmir and Turkey with Peter Davis. His field guide books are essential travel companions for many botanists and holidaymakers: *Flowers of the Mediterranean* (with Anthony Huxley, etc.).

Oleg Polunin

Sidney Albury travelled with John Watson and Martin Cheese to Turkey in 1966. One of the major excitements was the discovery of a pink-flowered frit which was named, also by Martyn Rix, as ***F. alburyana*** in 1971. Sadly Sidney died at an early age while travelling in the Himalaya.

*Fritillaria alburyana* Rix (1971)

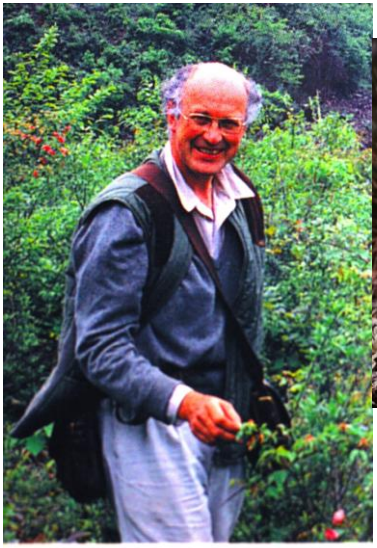
It is fitting that the Norwegian botanist **Per Wendelbo** is remembered in ***F. acmopetala*** subsp. ***wendelboi*** as he was involved so much in extending the knowledge of plants of, in particular, Iran and Afghanistan. Specialisms were *Dionysia* and *Eremurus* but he had very wide interests and described many species, notably in connection with *Flora Iranica*. While in Iran, he was instrumental in building up the then new Botanic Garden in Tehran. He worked at Göteborg Botanic Garden and it is appropriate that there is a memorial bulb garden there in his honour.

*Fritillaria acmopetala* subsp, *wendelboi* Rix (1983)

**Andy Byfield** was a conservationist who travelled and collected widely in Turkey. Neriman Özhatay and Martyn Rix combined to describe and name ***F. byfieldii*** after him.

In turn, Byfield and Özhatay joined forces to describe ***F. sibthorpiana*** subsp. ***enginii*** after Engin Özhatay, Neriman's botanist husband.

Which brings us to **Martyn Rix**, protégé of Paul Furse in the genus *Fritillaria* and avid bulb enthusiast, now Editor of the prestigious *Curtis's Botanical Magazine*. Martyn has for many years been accumulating knowledge of frits in the wild and cultivation and his monograph is eagerly awaited. Appropriately there is a ***F. rixii***, described by Evgenia Zaharof in 1986.



*Fritillaria rixii* Zaharov (1986)

Martyn Rix: "Be patient, it's coming!"

Kit Tan is a botanist, formerly associated with *Flora of Turkey* and Peter Davis in Edinburgh but now working in Copenhagen and particularly on the Greek flora. Her *Endemic Flora of Greece: Peloponnese* is a magnificent work which includes a fine colour plate of fritillaries; ***F. kittaniae*** from Lycia was named in 1988 by Sorger.

A greatly loved couple, particularly in the Fritillaria Group, the Alpine Garden Society and the Cyclamen Society, are remembered in ***F. frankiorum***, described by Rannveig and Bob Wallis in *The Plantsman* in 2003. Erna and Ronald Frank were great travellers and added much to our knowledge of plants, particularly of the 'bulbous' kind. Related to *F. assyriaca*, this is a robust species up to 45 cm in height.

Erna and Ronald Frank

The 11-volume *Flora of Turkey* (1965-2010) owes much of its existence to the enthusiasm of **Peter Davis** (1918-1992) and his team of researchers at Edinburgh University and Botanic Garden. Several of the contributors were young Turkish botanists training under him and are now taxonomists in Turkey. The later volumes were increasingly prepared by Turkish researchers. Davis' early botanical work took place in the late 1930s and 1940s and my photo helps to locate us back in Europe, on the Mani Peninsula where PD found the frit that was to become ***F. davisii***.

Mini in Mani, 1966

In the mid 1960s it appeared to me that the species was not in cultivation, so I took a month off to drive to Greece with the intention of remedying this and to collect more generally. The species was in fruit at the time and I must say that I was not highly impressed when it flowered back at home the next year! It was William Turrill, a Kew botanist and Keeper of the Herbarium who described the species in 1940.

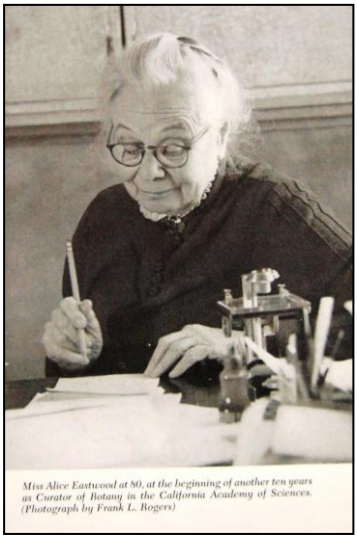
Other species seen on the 'Mini to Mani' trip were ***F. gussichiae***, named presumably after Gussichi, but little seems to have been recorded about him, and *F. ehrhartii*, already mentioned and illustrated in connection with Boissier. Other European species bearing commemorative names include *F. tuntasia* after Basilios Tuntas (b. 1871) who collected in Greece between 1895 and 1913. Alexander Drenovsky was honoured by Degen and Dörfler in ***F. drenovskyi*** for his collecting work in the early 19th century in the Balkans and a volume about the Bulgarian mountain Ali Botush.

*Fritillaria tuntasia* Heldreich ex Halacsy (1904)

We cross now to North America and meet with **Asa Gray** (1810-1888) who is considered to be the most influential contributor to American botany in the 19th century. There is a Gray Herbarium at Harvard University and Gray's *Manual of Botany* is still a standard work. He collaborated with Darwin and the Hookers of Kew, William and Joseph, and travelled with the latter on a famous expedition to the Rockies. There is a ***Fritillaria grayana***, named jointly by the German botanist Heinrich Gustav Reichenbach and John Gilbert Baker of Kew in 1878. A rather similar frit named *F. roderickii* commemorates **Wayne Roderick** who helped and befriended so many visitors to his beloved California. His knowledge of the flora, and of *Fritillaria* in particular, made it particularly apt that one should be named after him. Sadly, it is now thought that *F. grayana* and *F. roderickii* are one and the same and that in reality the plant is a variant of *F.*

*biflora*. It seems that *F. biflora* var. *ineziana* refers also to the same thing, published in his Jepson's Manual of the Flora of California; *ineziana* refers to Inez Smith who collected the type specimen of this variety and funded Jepson's publication. For enthusiasts, Wayne Roderick's frit in the form that has been given the clonal cultivar name *F. biflora* 'Martha Roderick' is a must-have plant.

Another commemorative species from California is ***F. brandegeei***, named by Alice Eastwood in 1903 after **Townshend Brandegee** (1843-1925) who worked as a botanist at the Californian Academy of Sciences in San Francisco; his wife Mary became the Curator of the Herbarium. It is recounted that for their honeymoon they walked from San Diego to San Francisco collecting plants as they went along. They took up posts in the Academy just after the disastrous earthquake and fire of 1906 when most of the building and its collections were destroyed, so they were very influential in building up the new collections from scratch. The all-important type specimens had, however, been saved by **Alice Eastwood**, already working there at the time of the 'quake. She and a helper reportedly scrambled up the ruined staircase using the rungs of the banisters as a ladder to retrieve the type specimens which, fortunately, were kept all together in one place rather than scattered through the herbarium collections. Alice Eastwood also



Miss Alice Eastwood at 80, at the beginning of another ten years as Curator of Botany in the California Academy of Sciences. (Photograph by Frank L. Rogers)

Alice Eastwood and her eponymous *Fritillaria*

described *F. striata* and ***F. purdyi***, the latter named after **Carl Purdy** who from 1896 onwards catalogued the bulbs of the Pacific States, notably California. It is fitting that there is *a F. eastwoodiae*, named by Roger Macfarlane in 1978. Although it has been proposed that this is a hybrid between *F. micrantha* and *F. recurva* it is treated as a species in Jepson's *Manual* and perhaps should be regarded as a 'species in the making'.

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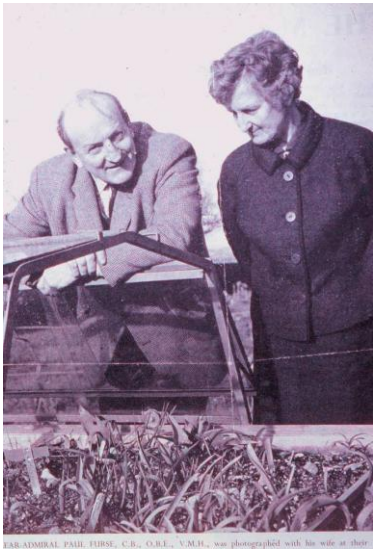
To draw to a close, I will just mention a few people who have contributed much to the study of *Fritillaria* but whose names have not been perpetuated in a species epithet:

**Dorothy Beetle**: *Monograph of the North American species of Fritillaria* (1944).

**Christabel Beck**: whose book *A Gardener's introduction to the genus Fritillaria* (1953) is still much sought-after.

Christabel Beck



REAR-ADMIRAL PAUL FURSE, C.B., O.B.E., V.M.H., was photographed with his wife at their

Paul and Polly Furse

**William Turrill** (1890-1961) and the **Kew Herbarium**: Keeper of the Herbarium, was working on a monograph of *Fritillaria* when he died; his

uncompleted work was published in *Hooker's Icones Plantarum* by J.R. Sealy, also of Kew, with drawings by Stella Ross-Craig, a superb botanical illustrator and wife of J.R. Sealy. The **Kew Herbarium** has a large and important collection of dried specimens, including many type specimens, of the genus; includes specimens from many of those mentioned including more recent researchers such as P.Furse and P.Davis.

**Rear-Admiral Paul Furse** (1904-1978): enthused many young botanists/plant collectors of the time (1960s); studied *Fritillaria* over a long period, travelled widely in search of them, cultivated them and painted them. The RHS Lindley Library and Kew hold hundreds of his paintings. He was acquainted with Christabel Beck.

Finally, as we have made the naval connection: a photo of ***HMS Fritillary***, a 'Flower Class' U-boat chaser from WWII!

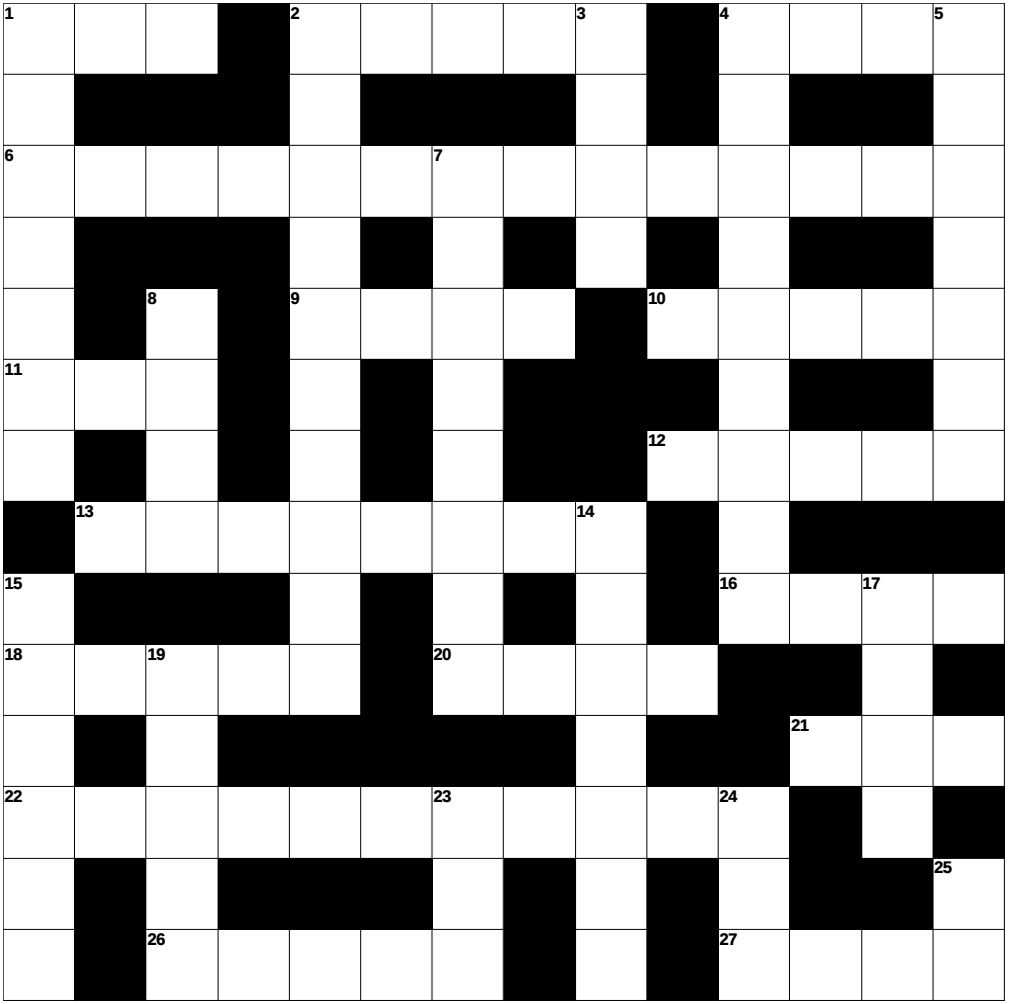
# Ron Mudd's Fritillaria Crossword

**Across :**

1. Flower colour of 1. down (3)
2. Growth is this when conditions are optimum (5)
4. Flower colour of *F. alburyana* and *F. pluriflora* (4)
6. Species sometimes called Sarana Lily (14)
9. Could also include 11. across, he painted 'Crown Imperial Fritillaries in a Copper Vase 'c. 1887 (4)
10. The first _____ of the year is often said to trigger root growth (5)
11. A species rich area in Turkey (3)
12. A _____ soil is required by most species in Summer (5)
13. Some Chinese species appear to have these at their leaf ends (7)
16. Weather phenomenon, famously around the San Francisco Bay Area, home of many species (4)
18. See 14. down
20. and 21. across, Good for growing Pineapples, but probably not for your *Fritillaria* !!(1,3,3)
21. see 20. across
22. European species, does well in the garden (11)
26. Few species possess a pleasant one! (5)
27. The bulbs of *F. davidii* are "tres mangeables" according to _____ Armand David ! (4)

**Down :**

1. Species said to be pollinated by Anna's Hummingbird, *Calypte anna* (7)
2. Feature suitable for some species (4,6)
3. The Latin word Fritillus describes a box for holding _____ (4)
4. Davidsons Fritillary (9)
5. 'Heaven on Earth', N.W. Region of Indian Subcontinent, where *F. imperialis* can be found. (7)
7. A subspecies of *F. rhodocanakis*? (8)
8. Mount Hermon is in the _____ - Lebanon range of mountains (4)
14. and 18. across A bulb is often said to be this (7, 5)
15. Small, yellow flowered, species described by Pierre Edmond Boissier in 1846 (6)
17. see 19. down
19. and 17. down Donates potential for new plants (hopefully to Pat!) (5,4)
23. Some growers prefer to sow their seed in _____ litter ! (3)
24. Just one of many, you may find 22. across here (3)
25. I have the beginning of the only British species (2)



£3.50

www.fritillaria.org.uk