

Crocus Group Bulletin No. 29

Summer 2001

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Editorial

The *Crocus* Group has an e-mail address - thecrocusgroup@hotmail.com. One day I might even get round to a web page. Thanks to all of you who paid the £5 to stay as group members, I do not foresee having to make another appeal for quite a long while. S

Global warming and all that

The note by David Stephens in the last *Crocus* Group newsletter which referred to the current trend towards warmer winters and its effects on *Crocus* flowering times made me think about some data I received a few years ago but have never had the time to look at closely. The data was received along with a selection of *Crocus* corms originally belonging to a Mr G. Larkworthy, who lived for many years in the Amersham area. Clearly, not only did he grow *Crocus* well but he also kept records of his successes and failures. Included in these records was annual data recording the date of first flowering for a range of *Crocus* species. Although the data on most species ends in the early nineties many have records going back to the mid sixties.

I have taken the data from those species on which I have the most records and used my computer to plot the date of flowering against the year. The results for all the species show a large random spread, which makes the elucidation of any trend almost impossible. Not to be disturbed by this fact I forced the computer to draw the "best" straight line through the data points. The slope of these lines should then (in theory) represent the average change in flowering date in terms of days per year.

I have summarised the results below in Table 1. Surprisingly perhaps, not all the species show an obvious trend towards earlier flowering dates. It may be relevant that strongest trend towards earlier flowering is in the winter flowering species like *ochroleucus* and *laevigatus* while the species which most clearly bucks the trend, is *minimus*, often the last species to flower. Taking all the species together the average trend is towards earlier flowering amounting to about half of one day per year. That would equate to an average flowering time almost three weeks in advance of that seen in the mid sixties!

Table 1 - Trend line slopes (1966- 1989)

| | |
|----------------------|-----------------|
| <i>ochroleucus</i> | - 1.22days/year |
| <i>laevigatus</i> | - 1.28days/year |
| <i>minimus</i> | +1.59days/year |
| <i>fleisheri</i> | +0.76days/year |
| <i>imperati</i> | - 0.20days/year |
| <i>tommasinianus</i> | - 1.30days/year |
| <i>etruscus</i> | +0.20days/year |
| <i>speciosus</i> | - 0.43days/year |
| <i>ancyrensis</i> | - 0.39days/year |
| <i>flavus</i> | - 0.65days/year |

| | |
|-------------------------|------------------|
| <i>angustifolius</i> | - 0.14 days/year |
| <i>korolkowii</i> | - 0.10days/year |
| <i>olivieri</i> | +0.39days/year |
| Average for all species | (-0.45days/year) |

It should be remembered that this is just for fun; there are simply too many uncertainties in this data to draw any really scientific conclusions. But to keep the game going a little farther and in the best scientific method, I have used the trend lines from some of the individual species to make predictions about the first flowering dates for the coming years 2002-2006.

Table 2 - Predictions based on some individual trend lines.

| | Average first flowering (1966-1975) | Predicted for 2002-6 |
|----------------------|--|----------------------|
| <i>ochroleucus</i> | 13th Nov | 6th Oct |
| <i>laevigatus</i> | 29th Dec | 19th Nov |
| <i>imperati</i> | 13th Jan | 7th Jan |
| <i>tommasinianus</i> | 5th Feb | 6th Jan |
| <i>speciosus</i> | 26th Sep | 14th Sep |
| <i>ancyrensis</i> | 4th Feb | 23rd Jan |

As with all such studies the quality and quantity of the data is all important. If you have better data than this, preferably on plants known to have been at the same location for many years, you might like to try the same type of calculations and let us know of your results. **R. Skipper**

More and 'Maw'

My contribution entitled - Is there 'Maw' to it than meets the eye! in Bulletin 27 - provoked responses from two members. I have retained their anonymity to safeguard their libraries!

The first reply advised me that they too had a copy of Maw's illustrations in a maroon folder albeit without plate No.17. The second account indicated that the owner had a copy of Maw's complete book together with a further 'near complete set of proofs of the plates' (lucky member!). In both cases without plate No.17. No maroon folder for their separate collection of colour illustrations and which advises 'are clearly colour or colourists proofs'. To further quote their account - 'my theory is that either the author or the printer, were numerically challenged' 'numbering plates or pages was complicated in the days before word processors' 'perhaps that is why there is no list of plates as one might expect in such a book!

So in reality - whilst establishing the existence of at least two complete sets, together with one near complete set of colour plates (separate from the text) - we are really no further forwards in providing an accurate account of the missing plate No.17. Or maybe you know differently?

For those members who do not have the privilege of either owning or having inspected a copy of Maw - may I whet your appetite by quoting from 'The Art of Botanical Illustration' by Wilfrid Blunt and William Stern. 'His (Maw) monograph, the result of ten years of inquiry, was the most complete work (1886) of its kind that had been published on any genus. The plates of this work are marvels of comprehensive detail and put to shame those of many more skilled draughtsmen', and Ruskin, in an unpublished letter in the possession of Stern, described the drawings for it (which are now at Kew) as 'most exquisite and quite beyond criticism.

Any further responses will be collated and passed to future issues of the Newsletter. **John Sanders**

Crocus of Jordan

Jordan is doing its level best to destroy all bulbous habitat. Urbanisation of the environs of all towns and cities has left the flora in a pretty precarious state. *Crocus hermoneus* has nearly gone, hanging on in a few sites on the outskirts of Greater Amman, which are undoubtedly earmarked as building lots. Road widening and industrialisation has destroyed two of the *Crocus moabiticus* sites known to us, it is pretty certain that this *Crocus* is close to extinction, we couldn't find any on the five sites we visited.

Agriculture has always been a threat to bulbs, but the modern use of powerful tractors with western style ploughs is opening up hillsides which were previously relatively safe, at least the old style ploughs left verges and were inefficient.

Crocus aleppicus and *Crocus hyemalis* remain pretty abundant in the south and north respectively, and *Crocus cancellatus damascenus* is thinly dotted around in the south. *Crocus pallasii haussknechtii* grows in reasonable quantities in the south, but only on a small number of sites that could become threatened.

Crocus naqabensis is a new taxa described by Dr El Eisawi. Chris Lovell and Peter Bird know the area of Ras an Naqb pretty well, and they know of no sites for *Crocus* other than *cancellatus damascenus*, *pallasii haussknechtii*, and *aleppicus* in that area. The fact that Dr El Eisawi does not cite *pallasii haussknechtii* for that area probably means that he thinks that the local populations of that taxa are *naqabensis*. We visited *pallasii haussknechtii* populations there and could find no differences to the more northerly populations around Petra and Shaubak.

There are no citations for *cancellatus cancellatus* in Jordan. Brian does not mention it being there in 'The *Crocus*', nor does Al Eisawi include it in his book. We found what is definitely *cancellatus cancellatus* west of the Kerak region, and some strange plants that are either that taxa or an intergrade with *hermoneus*, in the Ajlun hills north of the *hermoneus* sites around Amman. Helmut Kerndorff mentions these plants in his 1994 article in *Herbertia*. S

Autumn activity – Sunday 14th October 2001 – Wisley Gardens

We are going to try something a bit different this year. It is becoming difficult to find days in both autumn and spring to hold an event that does not clash with one of the shows or meetings of other specialist groups. As a lot of our members are also members of some of these other groups, we thought it might be worthwhile to join forces for the day with The *Fritillaria* Group when they hold their autumn gathering at Wisley.

Corm sale and auction

Visit behind the scenes to see the bulb frames at Wisley

See the autumn *Crocus* at Wisley

A display table for member's *Crocus*

So, come along and enjoy the hospitality of the *Fritillaria* Group, and maybe even join if you are not already a member. Please bring flowering *Crocus* for our display table and any surplus corms or seed. **The day begins at 0930 and will be held in the Hillside Events Centre, Wisley Gardens.**

Growing *Crocus* Oz Style

I first started growing *Crocus* some 15 years ago. At that time I lived in a Sydney style climate. Regular rainfall, warm humid summers and mild frost free winters: hardly the ideal climate for *Crocus*. I was fortunate that the first few *Crocus* that I grew were easy ones. *C' speciosus*, *C' pulchellus* and also *C' tommasinianus*. They were successful in this climate. The bug bit and I wanted to try more!! Naturally enough my next selections were commercially available cultivars of *C' chrysanthus* and *C' vernus*. They flowered once, and then dwindled over subsequent years to nothing. I then decided to research a bit and looked for *Crocus* that had been recorded as being successful in warmer areas. *C' imperati* was quoted as needing the "hottest spot possible" in Europe. It was my next experiment, and a very successful one. Slowly it dawned upon me that all the species that were successful in this

warmer climate were from a Mediterranean type climate. More importantly they were autumn and winter flowering. I assumed that because they were so early flowering they had sufficient time to build up the corm for the next season. The later flowering species did not have time to do this and slowly dwindled. So I started to concentrate on the autumnal species and found them to be very rewarding in this warm climate.

I have since moved to the Blue Mountains west of Sydney. The climate here is very different from that found on the coast. I live at over 1000 meters in altitude. Our summers are mild, with reasonable rainfall. The winters can be very cold. Recently we have had several feet of snow. Frosts occur most nights. More importantly though are our light levels. Being this high up the sunlight is intense, even in winter. Also the day length is somewhat longer than that experienced in many parts of northern Europe during the wintertime. Most of the *Crocus* thrive. I do not have any protective structures so all are grown outside in the open garden, whilst pots or a raised bed are used for those that prefer a drier summer rest. They handle our winters admirably. I put this down to the fact that long-term freezes as are experienced in Europe are rare. A night of extreme frost normally means a corresponding day of sunlight. So they are not frozen for long periods of time. The autumnal species that grew so well in Sydney are a little slower up here though. But the selection that I can grow now is much wider. *C' chrysanthus* and *C' vernus* are easy and self sow. I have not had any real problems with any of the others I have attempted thus far. *C' pelistericus* grows fine too. I grow it with my carnivorous plants standing in water over summer. Ones that are reported as needing bulb frames in the UK such as *C' vitellinus* are fine here. A newspaper over the leaves is sufficient for severe frost.

I encourage all to push the boundaries of where *Crocus* can be grown. It is a matter of selecting plants that come from areas most similar to your own. For warmer areas go for the lower altitude forms or autumnal species. They are more likely to be successful. For me it is a challenge, not only to grow *Crocus*, but also just to get hold of them in the first place. There are only a few serious *Crocophiles* here in Oz. Our Quarantine restriction make it expensive and difficult to import them. Thus I rely mostly upon seed. Slow, but as you would all be able to relate to the feeling of seeing a plant you raised from seed flower for the first time, it makes it all worthwhile.

I was not aware of the existence of the *Crocus* Group until a trip to Europe brought me into contact with Ray Cobb who kindly signed me up. The annual seed distribution has enhanced my collection with plants I would not have been able to locate otherwise. The group has also put me into contact with other growers whom I would not have met otherwise. It is my understanding that Primrose Warburg was the instigator of the Group. I thank her memory for having the foresight to do so. I will thank her even more when I finally get my hands on *Crocus longiflorus* "Primrose Warburg"!!!

Mat Murray

***Crocus* on the web**

I have commenced the long process of building a Web Site about *Crocus* by posting a fairly extensive gallery of digital photographs at this web address, www.thealpinehouse.fsnet.co.uk. The site will be developed during the coming winter (I need to develop my HTML skills first!) to include more information and images of relevant botanical details such as corm tunics. The site is intended as an aid to both experienced growers and those new to growing the plants, a reference point for identification, and a notice board for *Crocus* enthusiasts. The redeveloped site will include a page for *Crocus* Group News where I will also be happy to post news, views and requests from Group Members. I would welcome any comments or suggestions and if there is anyone out there with experience of building web sites I'd like to plunder your knowledge too!

The National Collection in Norfolk continues to expand, especially as more seed raisings reach flowering size. The genus is especially worthy of representation on the Internet as the flowers are relatively short lived. The Collection here attracts few visitors. Who wants to come a long way, at a time of year when the weather may be poor, to see the small part of the collection that will look its best on the day? The web user can (or will soon) be able to view many of the plants looking their best from the comfort of their own home, local library, workplace etc.

There are quite a few interesting web sites with *Crocus* related content. Some bulb suppliers include information and images on the plants they sell. Paul Christian has many interesting *Crocus* images, some in wild habitats at <http://www.rareplants.co.uk>. It is also possible to view photo galleries at a huge number of private web sites often developed to reflect an individual's particular passion. Many related genera are covered, although I have yet to find another site with *Crocus* as the main subject. Specialist societies (bulbs, alpines) often have some information but are rarely comprehensive. The Alpine Garden site has a *Crocus* gallery at <http://www.thealpinegarden.com>. For a future newsletter I will produce a review of a much wider selection to ensure that those of you who are not yet Internet users will be unable to put it off any longer! **Tony Goode**

Thanks to the Brickells

The group had a fabulous day out last February 11th when we visited the garden of Chris and Jeanette Brickell down in Sussex. This was probably the largest turn out I have seen for a *Crocus* Group visit, with well over 40 members taking benefit of the invitation. I feel I must mention the overwhelming hospitality shown to us, as well as a truly supreme effort in the catering department. I don't know how she did it, but Jeanette provided a hot three course (with three or more choices of each course) sit down lunch for everyone. Thanks again Chris and Jeanette. **S**

***Crocus* in SE Pennsylvania**

Not native ones, unfortunately. However, the number of species *Crocus* grown in this corner of PA has increased dramatically in the past 6 years, following our move from the UK, in 1995, to Exton, Pennsylvania in the NE USA. Exton is in USDA zone 6b, winter minimum temperatures can reach -5F, and summer maximum is over 100F. Humidity is very low from fall to late spring/early summer but then often reaches 100% in July and August, accompanying temperatures in the 90-100F ranges. Much of the winter can pass without snow cover, approximately 36" being the average total snowfall. Ice storms can be frequent and spectacular. The number of days with abundant sunshine is great and, consequently, the conditions are excellent for growing 'in character' bulbs, in particular. In an average week we can expect at least 5 sunny or partly sunny days. The result is flowers that open as the buds are emerging through the ground. Four defined seasons is the norm, fall colours are spectacular and the growing season is very long, generally from February through November. Indeed, *crocus* are frequently the first plants to bloom in the garden, and also the last.

Our garden covers approximately 1.5 acres and is on three levels. The lower level is generally exposed to the south and hence very sunny, although in places shade is provided by a number of specimen trees. The entire garden is traversed by a 40-degree slope that corresponds to the woodland edge; the slope is some 400 feet in length and around 100ft deep. The top of the garden is native deciduous woodland. The soil is moderately acid and is superbly drained. In many places the ground is very rocky, with large exposed rocks, some pockets tend towards pure sand. With the exception of the raised beds, no attempt has been made to modify the soil, and it appears so far that none is necessary. *Crocus* are, of course, gastronomic delights to the many rodents which frequent these parts and maintenance of an 'unprotected' collection would be almost impossible. However, our five cats do a fine job in reducing the chipmunk, mouse, vole, squirrel and rabbit populations to such a low level that I don't know of any bulbs that have been lost to the wildlife.

Having spent the 10 years prior to our move growing a wide range of alpine plants and bulbs in pots under glass, I wanted to take advantage of our new-found garden and try to make the move to 'proper gardening', keeping in pots only those plants which absolutely need it. Thus, whilst I have two greenhouses, these are used only for raising bulbs from seed prior to introduction into the garden, and for growing plants that may be 'tender', and have not yet been attempted outside. The smaller greenhouse (twin-wall polycarbonate) is used mainly to hold pots of ungerminated seed. Affording protection to seed pots has resulted in a significant increase in success raising *crocus* from seed. Seeds of many *crocus* germinate during fall and winter but it can be a number of weeks before anything above ground can be seen. During this period I have found them to be very susceptible to freezing, especially when wet. Lack of success attributed to germination failure was, in fact, due to death of the immature seedlings. Maintenance of the greenhouse temperature no lower than a few

degrees below freezing has overcome these problems. As soon as germination is evident, the pots are moved into the larger greenhouse. The latter has a twin skin, the outer being acrylic sheet, the inner a ridged acrylic polymer which traps a large air space between the faces. There are no windows but two large exhaust fans and corresponding intakes facilitate excellent air movement and keep the temperature only a few degrees above ambient. The fans are thermostatically controlled and on whenever the temperature rises above 45F. Natural gas heat keeps the minimum temperature just above freezing; the heater switches off around 42F. Seedlings stay in the greenhouse until they are approximately flowering size, being repotted in their 3rd year if necessary. The only *crocus* with a permanent greenhouse home are the tender species such as *Crocus aleppicus* and *Crocus moabiticus*. However, a friend in Oregon reports that the latter has survived (and thrived) in a cold frame in which temperatures have dropped well below zero. Stocks at the moment don't yet permit risking a replication of this feat in PA!

The remainder of my *crocus* are grown outside, either in the ground or raised beds at the woodland edge, or in deep sand beds. *Crocus* grown at the woodland edge include many of the normally recommended candidates for cultivation outside in the UK – for example *banaticus*, *vallicola*, *nudiflorus*, *gargaricus* ssp. *herbertii*, *kotschyanus* ssp. *kotschyanus* and ssp. *suworowianus*, *tournefortii*, *speciosus* forms, *longiflorus* and *goulimyi*. I have tried a very few *C. pelistericus* and *scardicus* in similar positions but these have failed to do well, only the former still lingering. It is likely that the summer heat is the problem; it is very hard to keep them uniformly moist throughout their long growing season.

All other *crocus* are grown in beds of pure sand; results to date have been excellent, with a large number of species thriving. Beds are made from treated landscape timbers (8' long x 5" wide x 3 1/2" high, \$3 each) anchored into the ground with 2' lengths of rebar (concrete reinforcement). Three layers of timbers generates a bed approximately 10" deep, sizes of beds varies from 16' x 8' through 24' x 4' to 24' x 12', the latter in three terraces. They are remarkably easy to make, and very stable and long lasting. The sand I use is a children's play sand, clean and sharp, with an average particle size around 1mm, costing \$25 per ton, delivered. It facilitates excellent drainage, especially when combined with the sandy soil upon which the beds sit, yet does not dry out very quickly either. The secret to extended winter hardiness, in the case of many bulbs, is to avoid rapid freezing in wet conditions, especially pots. The sand beds behave such that many bulbs will survive at temperatures well below the accepted norm, even though they freeze completely through for extended periods (the longest to date is 4 weeks during which the temperature didn't rise above freezing and dropped to around 10F at night). For example, *Iris kirkwoodii*, thrives under these conditions, two clumps this year producing over 20 flowers each. *Crocus imperati* ssp. *suaveolens* was frozen part way through her display and encased in ice for over 2 weeks, but continued as if nothing had happened when the ice thawed. Many of the beds are unprotected; a couple are covered with 8' x 4' twin-wall polycarbonate sheets, 12" above the beds, from June until September. A very wet summer in 2000 caused rotting of a number of *Corydalis* and the protection is intended to guard against this in future. Unlike the *corydalis*, the *crocus* were not affected by the relatively damp dormancy.

Crocus that leaf out in the fall can suffer significant leaf damage over winter, although the corms are fine and vegetative increase is not affected. Perhaps surprisingly, it is not the cold *per se* which causes the damage, rather the effect of snow or ice on the leaves. Although snow is possible as early as late-November, it is rare before Christmas and the majority falls in January and February. Temperatures as low as 5F cause no apparent damage but ice lying on leaves causes yellowing back from the tips; by winter's end as much as two thirds of the leaf can be damaged. *Crocus goulimyi* seems particularly susceptible but I seem to get far more concerned than the plant!

In summary, I have been surprised and delighted at the wide range of *crocus* that thrive outside in the conditions described above. I am sure that *crocus*, like many bulbs, grow better in the open ground or raised beds, than in pots, and it is well worth experimenting to try to find conditions outside to their liking. **John Lonsdale**

***Crocus* 2002**

The Joint Rock Garden Plant Committee proposes to sponsor a one-day conference on *Crocus* on 20th February 2002, 1030 hours – 1700 hours. This conference coincides with the second day of the RHS London show and will be held at the RHS Conference Centre in London.

The *Crocus* Group will have a table at the show and there will be displays of *Crocus* along with paintings, photographs, distribution maps and etc.

The main event of the Conference will be lectures by various persons well known in the *Crocus* world and to date include Brian Mathew, Erich Pasche, Helmut Kerndorff and David Stephens.

There will be a charge to attend the Conference and further details will be published in the December bulletin of the Alpine Garden Society and in 'The Garden'.**S**