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The IRG Team is excited to introduce three new Crocus descriptions in this issue. As studies continue it is interesting to see how further observations are affecting the perceptions of the genus.

Even outside the world of plant descriptions, we stay with the world of bulbs as we return to a garden setting as the inspiration for a poem by the multi-talented Lydia Muijen. Lydia was the recent Poet in Residence at the National Trust for Scotland's garden of Inverewe, on the west coast of Scotland. The poem was written for the recent Festival of Erythroniums held at Inverewe. Erythronium photos to accompany the piece are by J. Ian Young whose e-book on the cultivation of these popular garden plants is available free from the SRGC website.

Cover photo: *Erythronium revolutum* at Inverewe, photo by J. Ian Young.

NEW CROCUS SPECIES FROM THE SOUTH-EASTERN AEGEAN, KARPATHOS ISLAND, GREECE

Dr. Dimitri Zubov: email zoubov77@yahoo.com

During recent years I have visited the Greek islands regularly, together with some friends. My main interest is the study of snowdrop species (*Galanthus* L.) and I had as my focus to visit nearly all the more or less significant islands. On most of them no snowdrops are distributed (or were not found).

In February 2016 I visited Karpathos Island with a couple of friends. It is the second largest of the Greek Dodecanese islands, lying in the south-eastern Aegean Sea and located to the south-west of the largest island of this group – Rhodes. There is no record of any *Galanthus* species growing there in the wild; but everything has to be found once for the first time. A good example of this is *Crocus rhodensis* Ruksans, recently found on Symi Island, where no spring blooming crocus species was registered before (Ruksans, 2017). Thus I included Karpathos Island in my travel schedule and visited it in 2016.



Paeonia clusii in Kew Gardens, photo by Matt Topsfield.

Karpathos is a quite isolated island from where several endemics are known and one of the most ornamental is *Paeonia clusii* Stern subsp. *clusii*; a strongly protected plant which blooms mostly from March to May. It is known only from 2 islands - Crete and Karpathos but on Rhodes it is *P. clusii* subsp. *rhodia* (Stearn) Tzanoudakis with much more dissected leaves and is widely distributed there.

Karpathos is much less visited than other islands although it has beautiful beaches, nice harbours, excellent restaurants and cafes, and of course – mountains. It is easily accessible both from Athens and from its much larger and more famous neighbour – Rhodes. In the airport there

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are two car-rent companies but many guest houses and hotels rent cars too and will come to pick you up at the airport when your flight arrives. There are not so many ancient monuments, but the nature of the Mediterranean, the scrubland mountains, local architecture and the beaches are really fantastic and of course worthy of a visit. Although for us in 2016 it was far too early in the season for trying the beaches, later in summer and in autumn they must be wonderful.



Typical phrygana scrubland habitat where *Crocus ruksansii* sp.nova was observed on Kali Limni, Karpathos.

As it turned out, we did not find snowdrops on Karpathos, although there were only few small localities where conditions were such that they could be inhabited by some mesophytic plants, incl. snowdrops. Actually the explored habitats turned out to be forestless (at least in the areas visited by us), dry and hot. It is represented by typical phrygana scrubland with domination of arborescent *Sarcopoterium spinosum* (L.) Spach and *Salvia fruticosa* Mill., but we found some bulb plants and orchids there. Almost everywhere we spotted leaves of *Drimia maritima* (L.) Stearn, *Crocus tournefortii* J.Gay and *Colchicum pusillum* Sieber, all are of autumn bloomers. From the spring flowering plants at lower altitudes and in more sunny spots, the very beautiful *Romulea bulbocodium* (L.) Sebast. & Mauri and some *Ornithogalum collinum* Guss., *Muscari commutatum* Guss. had begun to bloom. There were plenty of *Anemone coronaria* L. and *A. hortensis* L. flowers, mostly in a blue colour. My target was to visit Kali Limni - the highest mountain on the island where some forested areas were marked on my map. Unfortunately along my way there were only few small pine-wood spots where no snowdrop could hide, and, hardly worthy of repeating - not one was found. At the bottom, where the

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foot-pass to hilltop starts, a beautiful café with a very friendly owner is located. We took coffee, morning omelette and, although weather was sunny (but with strong and very cold wind, offering clouds and rain or even snow) the ascent was not very promising, so my friends decided to stay in the café with some drops of homemade Greek brandy (Rakia) and excellent hot Greek coffee. Regardless of that, I started my way up.

The foot-pass up is not very difficult; it is quite well marked and not extremely steep. It goes up through a wide depression and only on the sides and at the top becomes much steeper and sometimes changes to smaller or larger cliffs. There was nothing special almost up to very top where still some fast melting snow-slips remained and just there, on small clearings between extremely spiny dwarf half-shrubs of *Sarcopoterium spinosum*, I noticed for the first time some small, beautiful, quite variable in colour, spring blooming crocus. There were not many individuals seen, but sufficient to make some herbarium specimens and to fix some flowers for later more detailed research at home. The weather quickly changed and heavy clouds (as deep fog) came, so I was forced to go back.



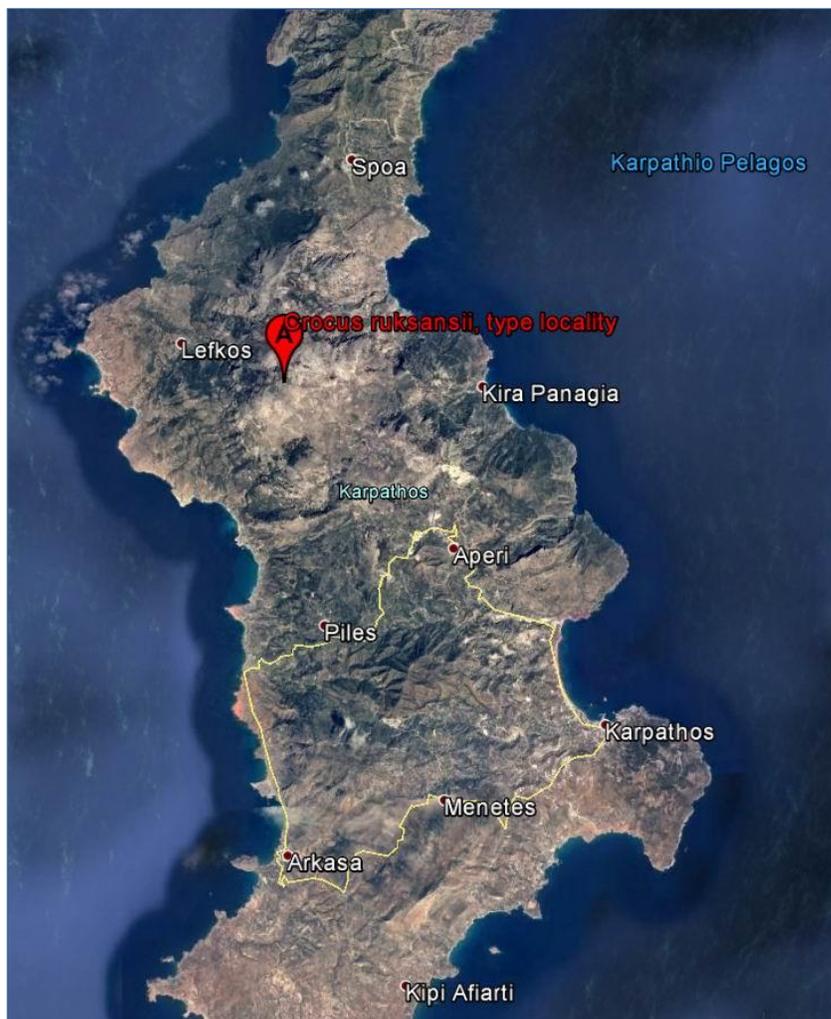
The clouds descend on Kali Limni

My first idea was that it was *Crocus nubigena* Herb. due to its partly black anthers, but I was confused by the huge distance from the localities where typical *C. nubigena* is distributed – Lesvos island (Greece) and NW coast of Turkey (Balıkesir Province) - these are more than 400 km distant. I know that isolation on islands stimulates accelerated evolution events termed *peripatric*, or *quantum speciation* (Mayr, 1954; Grant, 1963), which results in forming of different sister-species. So, most likely the spring blooming crocus from Karpathos Island can be regarded as a new species.

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The peripatric speciation pattern is just as this new Karpathos *Crocus ruksansii* case, as it is known that reconstructions of the late Quaternary paleogeography of Greece and the Aegean Sea showed that at 18000 years B.P. (Before the Present – number of years before the 1950) the northern Aegean and northern Adriatic formed large coastal plains traversed by multiple rivers. Many islands, e.g. Kerkira, Euboea, Northern Sporades, were connected with the mainland, and most of the Cycladic islands were joined together in a Cycladic semi-peninsula. The post-glacial rise of sea level beginning near 15000 B.P. made, at around 9000 years B.P., the coastal geography to near its present configuration (van Andel & Shackleton, 1982). Such ancient geology events most likely triggered the insular isolation of primary ancestral mainland *Crocus biflorus* Mill. group into separate sister-races, then sister-species.

These very considerations forced me, regardless of fast changing weather, to collect some flowers and some bulbs for herbarium records, which I successfully brought down to the same café where I warmed up with a small cup of Raki and hot coffee, I pressed the collected plant in herbarium, measured flower details of collected flowers, fixing some on sticky tape. There I checked leaf morphology, too. Having such narrow leaves, they must be fresh for checking of their cross-sections (number of ribs in lateral channels). I learnt a lot on observing crocuses in the wild and the features which must be explored during common trips with Jānis Rukšāns in mountains of Crimea, Eastern Carpathians, Caucasus, Alborz, etc.



Crocus ruksansii sp.nova - locality on a map of Karpathos.

When I got the excellent monograph (or may be it is even better even to name it Encyclopaedia) on Crocuses from Dr. Jānis Rukšāns which was published this spring, I found that this crocus was already observed and pictured by him, but for some reasons he had not published it as a new one (as well as some other affinities of *C. nubigena* from adjacent Greek islands), although he regarded them as sufficiently distinct to be published as a new taxon. Having good material - herbarium and pressed flowers, I decided to publish this crocus and to name it after Dr. Jānis Rukšāns, who, although not the first one who observed it in nature (herbarium of this crocus was for the first time collected by Thomas Raus in 1983, who labelled his gathering as *C. nubigena*) he, Jānis, was the first who regarded it as a distinct one. For description of this crocus I used the form proposed by Dr. Rukšāns in his book (named by him as “matrix”) and used by

him for characterising of *Crocus* species. Such a uniform attitude makes it easier to compare different species and to find features which separate them from the cryptic ones. Due to very strong wind and bad weather I didn't succeed to make printing quality macro-pictures of the new crocus, only the type habitat was pictured on Kali Limni, so I've asked kind permission from Jānis Rukšāns to use his pictures from the cultivated plants here in this paper.

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Really it is not easy to find this crocus, especially when it is out of flower, regardless of opinion of the local people, who tell that it blooms everywhere. I spotted it only in small clearings within phrygana scrubland of Kali Limni at quite a high altitude. The flowers were seen only sparsely. According to Jānis, he visited Karpathos three times - at his first visit the mountains were still covered in deep snow, at his second visit he found a few spots where he collected some plants by their leaves and sometimes leaves of *Crocus tournefortii* looked very similar to those of *biflorus* type. At his third visit he found nothing but only *C. tournefortii* along ascent to the top of Kali Limni. I was very lucky to be there in more or less the correct time.

The variability of *Crocus ruksansii* sp.nova, cultivated and photographed by Jānis Rukšāns, are shown below.



Crocus ruksansii sp.nova, variations.



Flower details of *Crocus ruksansii* sp.nova

Crocus ruksansii Zubov, species nova

Holotype: Greece, Dodecanese, Karpathos Island, alt. 1120 m., 35 35.259' N 27 07.535' E, between tops of Kali Limni and Stroumboulas. Leg. D. Zubov, 15-02-2016 [Gothenburg, GB, Sweden].

Habitat and distribution – On rocky chalk-stone soil, in small grassy clearings within phrygana scrubland (*Sarcopoterium spinosum*, *Salvia fruticosa*) together with *Crocus tournefortii*, at altitudes around 1100 m, but according to information from local people it also grows at lower altitudes and up almost to the very top of Kali Limni (1215 m).

Flowering time – (January) February (sometimes extending into March - information from local people).

Corm – almost globose, up to 10 mm in diameter.

Tunics – hard, but quite thin, something papery, deeply split into 2-4 mm wide segments and with a few shallow subsplits.

Tunic's neck - up to 3 mm long, formed by wider or narrower based triangular splits of main tunic.

Basal rings - distinctly toothed, mostly with up to 1 mm long tooth and occasional sparsely placed up to 3 mm long tooth on the upper ring, lower rings without such prolongations, but toothed +/- evenly.

Prophyll – absent.

Cataphylls – (3)-4, white, upper one slightly greenish toned or entirely white.

Leaves – 4, dark green, sparsely papillose to hairy on surface, around 1 mm or slightly more in width, linear edged (abruptly narrowing at top) with 1 (very rarely 2 - observed in 1 from 20 individuals observed) rib in each of lateral channels, white stripe 1/5 - 1/4 of leaf width, mostly positioned below flowers but occasionally overtopping them at anthesis.

Bract and bracteole – silvery, sometimes light green at tips, well developed and ending well below flower, occasionally (in 2 of 21 observed plants) reaching flower, bracteole much narrower, but of same length.

Perianth tube – white, distinctly striped dark dirty lilac.

Throat – nude, pure yellow to slightly orange shaded, without any trace of black or deep lilac deep in the throat.

Filaments – glabrous, yellow, 4-5.8-9 mm long (n=21).

Anthers – yellow, 8-9.1-10 mm long (n=21).

Connective – whitish to pale yellow with greyish or blackish margins, occasionally throughout black (in 3 from 24 observed flowers) or throughout yellow (in 1 from 24).

Style – yellow, at top turns reddish, split into 4-5.2-6 mm long, deep red branches, gradually widening in direction to top, upper edge uneven, occasionally with very shallow subsplits, mostly slightly fringed. The tips of style branches are positioned slightly over tips of anthers (in 13 individuals) or are even with them (in 11 individuals from 24 observed).

Flower segments - subovate, with subacute or rounded tips, mostly lighter or darker blue, seen 1 albino between 24 observed individuals. Albino had distinctly yellowish toned segments outside and pure yellow anthers inclusive yellow connective.

Outer segments – 18-24.1-30 mm long and 5-6.8-9 mm wide, outside whitish to very light blue, occasionally buff shaded with 3-5 feathered dark stripes along all length of segment, at base slightly translucent inner yellow throat colour; inside more or less bluish toned with translucent outer stripes;

Inner segments – 16-21.1-27 mm long and 7-7.8-10 mm wide, lighter or darker blue with narrow, pointed basal blotch, sometimes edged with whitish diffused zone and shortly prolonged dark middle “peak”, inside of the same lighter or darker bluish shade as outside.

Capsule and seeds – not observed

2n = unknown

Etymology – named after the author of fundamental work on the Genus *Crocus* - “The World of Crocuses” – Dr Jānis Rukšāns, who was the first person to publish a brief characterisation of this beautiful species and noted its special status.

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The new species could belong to the *C. nubigena* complex but it is easily separable by absence of any lilac to black coloured zone deep in the flower's throat, which is characteristic for typical *C. nubigena*. Rukšāns J. (2017) gives a very good key for the separation of this crocus from other affinities.



Crocus ruksansii sp.nova, holotype housed at Herbarium GB, Sweden

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Crocus ruksansii sp.nova - corm tunics and basal rings



Sarcopoterium spinosum and *Salvia fruticosa* are the essential semi-shrubs within phrygana scrubland, Kali Limni, Karpathos



Anemone coronaria on Kali Limni, Karpathos

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Variability of *Romulea bulbocodium* on Kali Limni, Karpathos





Ornithogalum collinum on Kali Limni, Karpathos

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Dimitri Zubov and Jānis Rukšāns beside *Crocus puringii* in Baydar valley forests of Ukraine, Crimea - in October 2013.



Dimitri Zubov with Jānis and Guna Rukšāns and Vasyi Colomyichuc, surrounded by *Leucojum* in the Carpathians – in March 2015.

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TWO NEW CROCUS SPECIES ALLIED TO *Crocus nubigena* FROM THE EASTERN AEGEAN Islands

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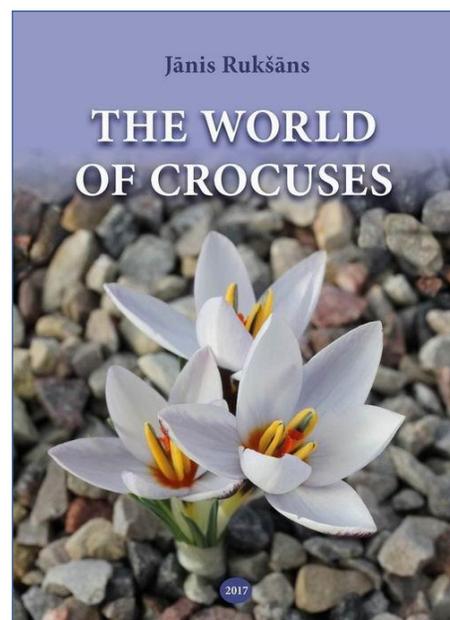
Abstract: Two new crocus species from the East Aegean Islands are described.

Key words: *Crocus harveyi*, *C. nubigena*, *C. seisumsiana*, Greece, Turkey.

My newest book on crocuses “The World of Crocuses” was published just a few months ago. It contains 235 species, but since then several new species have been published – *Crocus heilbronniorum* by Osman Erol (from Turkey) and *C. inghamii* from Iran by me (*C. ruksansii* (from Greece) by Dimitri Zubov is published here). Naturally a question arises – why these were not included in the monograph? The reply is very simple – the exploration of nature never stops, all the time new species are discovered and this process is never-ending. When starting a project like my book, a deadline has to be designated; otherwise the manuscript will never be finished. We have had a bad experience waiting for decades for monographs on Juno irises or the genus *Fritillaria* and others to be published while the authors all the time are adding new information to make the review more complete. But such a review can never be complete in principle. To avoid a similar situation, for my book I elected to have the 1st of December 2016 as the date when the incorporation of any new discoveries had to be stopped. The species last included (and published for the first time) in the book was the autumn-blooming *C. zubovii* from Iran.

Several insufficiently researched species were only briefly mentioned in my book, but because of the scarce data they remained without specific names and detailed descriptions. This spring I made three trips to investigate some of them. The first trip was to Portugal where I checked the correctness of my observations on *Crocus duncanii* which had been put under doubt by Kerndorff et al (2016); later on I visited 3 eastern Aegean Islands of Greece: Rhodes, Ikaria and Samos; and the most recent visit was to several mountainous regions in Iran. I found crocuses everywhere and collected good material for further studies. I called on the island of Rhodes only to get more data on *C. rhodensis*, criticized by Kerndorff et al in the same article. On Ikaria and Samos I observed several populations of two still unpublished species, both already known long ago, but erroneously regarded as conspecific with *C. nubigena* from the island of Lesbos (Greece) and Balıkesir Province in Turkey. The main features separating these two from the typical *C. nubigena* were already mentioned in my monograph (see key on p. 369), but now I checked the correctness of my earlier information and got additional data for complete and detailed descriptions and gathered good material for the type herbarium specimen. The third new crocus species from this group, which occurs on Karpathos Island, is published here by Dimitri Zubov and named by him as *C. ruksansii*.

Many thousands of years ago all these Aegean Islands had been mountaintops amidst large plains. With the rising of the world's oceans, the lower altitudes were covered by water, the hilltops with crocuses on them became isolated and each population started its own evolution line, which has resulted in the emergence of new species. This process is explained by Dimitri Zubov in his article on *Crocus ruksansii*. Similar processes took place on Rhodes, Ikaria, Samos, Chios, Lesbos, and on other islands as well. Something analogous happened with the diversification of snakes on the Australian islands formerly joined to that continent and separated by the same processes and now on each island different species of the same initial ancestry reside.



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Short rest used for fixation of flower details, Rhodos – February 2017



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I decided to name one of these new crocus after the popular Australian gardener Marcus Harvey who had just recently died from cancer. Marcus visited the Mediterranean searching for plant seeds nearly every season. Many of the seeds he gathered he later sent to me, too, and from them I grew nice stocks of Greek fritillary species, as well as crocuses. His Tasmanian nursery, [Hillview Rare Plants](#), was very well known in Australia and his passing is a great loss for Australian gardeners in particular, as well as all those around the world who enjoyed his [“Notes and Ramblings”](#). In Australia he was amicably called “the King of Bulbs”.

Marcus Harvey – pictured at the home of another Bulb Maven in Australia, Otto Fauser.

The island of Ikaria is situated in the N. Aegean region and is located around 18km to the southwest of its much larger neighbour Samos. It is believed that it derives its name from [Icarus](#), the son of [Daedalus](#) in the Greek mythology, who, a legend tells, had fallen into the sea nearby.

The island is mountainous for the most part and its varied terrain comprises deep forest gorges, dangerous rocky hills and

hidden beaches. The roads are narrow and winding around the slopes, although during the last years the state of the main roads has greatly improved. There are plenty of hotels and rest houses and it is possible to rent a car, but alternatively you can even use a taxi, as the distances are not very long.

Although the island of Samos is located only 18 km from Ikaria, the *Crocus* species growing there are completely different from those on Ikaria. On Ikaria 2 autumn-blooming species were observed – the ubiquitous *Crocus laevigatus* and only once collected *C. cartwrightianus* (not found by me), and the presently described **spring-blooming *C. harveyi***. On Samos one can often spot the autumn-blooming *C. mazziaricus* s.l. (quite different from the mainland populations) and somewhat less often *C. pallasii* s.l. ($2n=14$); the spring-blooming crocuses are represented by 3 species – *C. balansae*, *C. fleischeri* (not seen by me) and another member of the *C. nubigena* “group” published here below as ***Crocus seisumsiana***, which is easily separable from the typical *C. nubigena* and its closest neighbours - *C. harveyi* from Ikaria and more distant *C. ruksansii* from Karpathos. Ecological conditions and plant associations where crocuses occur are quite different on these three islands, which explains the different directions of speciation after their populations were isolated by the rising water level of the global ocean after the end of the last Ice Age.

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Even though the two islands (Ikaria and Samos) lie not too far from each other, crocuses of the *C. nubigena* "group" on both of them vary considerably in several features and are well separable from typical *Crocus nubigena* which seems to be the closest relative to both researched species. *C. nubigena* from the moment of its discovery and first description was a somewhat enigmatic plant and its story is very well clarified by B. L. Burt (1954) in Curtis's Botanical Magazine and by B. Mathew (1982) in his monograph. Not long ago almost all the crocuses from the E. Aegean islands were regarded as belonging to *C. nubigena*. The other two "neighbours" on Rhodes (*C. rhodensis*) and Karpathos (*C. ruksansii*) belong to different groups – *C. rhodensis* is a close ally of *C. biflorus* from Italy (although occasionally was labelled as *C. nubigena*, too), but *C. ruksansii* more resembles a typical *C. nubigena* (although is the most dissimilar of all these species).

One of the features that are very characteristic of a typical *Crocus nubigena* is the dark purple colouring deep in the throat, below the yellow zone, well observable even without dissecting the flower. I have several gatherings from Lesvos and the adjacent Turkish region and all of them have this trait in their flowers. But the most important feature that separates the Ikarian plants from other "*nubigenas*" is the absence of teeth on the basal rings, so characteristic of other related species. My first plants from Ikaria originally were collected by Marcus Harvey; he sent me a good portion of wild collected seed and a few corms. They were gathered at seed ripening time, so no colour preferences had any effect; they all drew my attention with the very bright lilac colour, although the outside was lighter lilac, whitish to buff with deep purple stripes along the backs of the flower segments. The plants from Ikaria were pictured in *Annales Musei Goulandris*, 6:63-86, Fig. 3, in 1983 (as *Crocus biflorus* subsp. *melantherus*, but on the printout of B. Mathew's article presented to me by the author, he by his own hand corrected the name to subsp. *nubigena*) and the smooth edges of the corm tunics can be seen there, too.



Crocus harveyi habitat on Plagia Pass. Photo Marcus Harvey.

Crocus harveyi Rukšāns *species nova*

Type: Greece, Ikaria Island, Plagia Pass 37°34.724' N, 26°09.877' E, at alt. 540 m. Leg. J. Rukšāns 16GRS-015, 07-03-2016. Holo GAT, Iso: GB. Ic: B. Mathew, Ann. Musei Goulandris: 6, Fig. 3; J. Rukšāns, The World of Crocuses, p. 372.

Habitat and distribution – growing on sandy-stony schistose ground with low shrubs and *Pteridium aquilinum*, on rocky garrigue and under trees in grassy, stony clearings, in open spots and between deciduous trees and shrubs together with *Crocus laevigatus* along central part of the main ridge from Mavrato to Pezi, at an altitudes of 400 - 650 m.

Flowering time – February-March

Corm – flattened globose 10-12 mm in diameter (in the wild), in cultivation up to 16 mm.

Tunics – hard, with a few deep or shallow basal splits, subsplits not observed.

Tunics neck – 6-10 mm long, formed by wide based, gradually narrowing into sharp points deep splits of the main tunic.

Basal rings - smooth edged, without prominent teeth or if present, then very small and sparsely placed.

Prophyll – absent.

Cataphylls – 3, white, slightly greenish shaded especially at top.

Leaves – 3-4(5), in average 3.8, dark green, glabrous to slightly papillose on surface, linear, 1.5 - 2 mm wide, with 1 rib in each of lateral channels, occasionally in one of channels 2 ribs (observed in 3 from 20 checked individuals), usually reaching tips of flower segments or even overtopping them at anthesis.

Perianth tube – white with narrower or wider dirty purple stripes.

Bract and bracteole – silvery, ending below flowers at anthesis, approximately of same length but bracteole much narrower.

Throat – glabrous, prominent, bright orange red (deep in throat dark yellow) with narrow, diffused yellowish edge.

Filaments – nude, 5-6-8 mm long (n=20), dark yellow turning deep orange below anthers.

Anthers – 9-10-11 mm long, with up to 2 mm long basal lobes, black, when open the colour is hidden by deep yellow pollens (n=20).

Connective – black throughout, occasionally greyish black.

Style – deep orange red, mostly overtopping anthers, in 2 from 20 observed plants ended slightly below the tips of anthers, in one significantly below, in 4 was equal with anther tips, divided into 3-7-8 mm long branches (n=18), gradually widening in the direction to the top and with slightly fringed edge.

Flower segments - lanceolate with obtuse to subacute tips.

Outer segments – (15-)24-25(-32) mm long and (4-)7-8(-10) mm wide (n=20), the outside light bluish, whitish to slightly buff becoming light lilac towards the edges, with three very dark, even blackish purple prominent stripes up to the tips of the segments, feathered at the edges and without a distinct basal blotch, only with a slightly translucent yellow shade from the inner throat; the inside lighter to darker lilac with somewhat translucent outer stripes.

Inner segments – 13-23-28 mm long and (4-)8-9(-10) mm wide (n=19); of the same colour on both sides and the same as the inside of the outer segments. At the outside base a very dark, narrowly rhomboid basal blotch narrowly pointed at the tip and ending slightly below the middle of the segment.

Capsule – up to 10 mm long and 3-4 mm wide, buff-coloured, carried up to 1 cm above ground at maturity.

Seeds – 3-3.5 mm long and 1 mm wide, dark reddish purple, slightly rugose, with a prominent darker caruncle and an almost indistinct raphe of the same colour.

2n = unknown.

Etymology – named after Marcus Harvey, Australian nurseryman and a great friend of mine, who sent me the first seeds and corms of this species together with detailed information about the localities where it could be found.

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Crocus nubigena from Lesvos



Above: *Crocus harveyi* from Plagia Pass, in cultivation and below; in habitat at Plagia Pass.

Photos
Jānis Rukšāns



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Crocus harveyi and habitat near Koskinou. Photos Stefan Hertel.



Crocus harveyi details, shown on a 5mm grid. Photo Jānis Rukšāns.

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Crocus seisumsiana habitat in 2011, when it was found under pine trees. Photo Jānis Rukšāns.

Samos Island not so long ago suffered from huge forest fires and many pine forests burned down. In 2011, when I visited it for the first time, there still could be seen charred trunks of large pines everywhere. I was there in mid-April and of course no crocus flowers were seen, but I found several populations of the “*nubigena*” type under large pines and even side by side with pine trunks in spots the fires had not destroyed or just at the edges where the fire had stopped. Autumn-blooming species were found in more open places, not touched by fire.

Six years later the situation was completely different. There were still plenty of half-rotten remnants of trunks, but everywhere leafy shrubs were flourishing and trees and young pine seedlings had started to grow. The soil had been well fertilised by the ash from the fires and the vegetation, including crocuses and other bulbous plants, was quickly restoring in numbers. Our team was there in the first weekend of March, when, on the top of Mt. Ambelos, *Galanthus graecus*, *Scilla andria*, *Crocus balansae* were in full bloom, *C. seisumsiana* was approaching the end of blooming, but near sea level the meadows were covered with the white flowers of *Narcissus tazetta*.



Left: *Crocus seisumsiana* with *Galanthus graecus*. Right: *Narcissus tazetta* which blooms on Samos almost at sea level. Photos Dimitri Zubov.

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Crocus balansae on Samos. Photos Jānis Rukšāns.

There are two main mountain ranges on Samos – the highest one is at the western end of the island, but, alas, the surroundings of Mt. Kerkis with its tallest peak Mt. Vighia (1434m) is very difficult to explore as there are practically no inner roads and even footpaths are absent. The mountain range Ambelos with the highest peak Mt. Karvouni (1145m) in the central part of the island is slightly lower. There are many dirt roads criss-crossing and winding around and within the mountains; albeit narrow and quite rugged, they are passable by a jeep in more or less favourable weather. Locally roads are very steep and the driver must be very careful, but you can reach almost every spot on its slopes on foot without walking too long from your car.

Our small group was very fortuitous, as we happened to be there at the very last suitable moment.



Although the weather forecast for that day predicted heavy rains, we encountered only dark clouds in the form of dense fog and the roads were still passable with our small Suzuki jeep. But the following day such strong winds, thunderstorms and heavy showers began that going up into the mountains would have been equal to an attempted suicide. In rainy weather the inner roads become slippery and not drivable even by a jeep. But we were lucky – we got all what we were looking for, except the pictures of the landscapes. The fog at times was so thick that the visibility was only a few metres.

Crocus seisumsiana habitat - mountain slopes after forest fire in deep fog, 2017. Photo Dimitri Zubov.

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Galanthus graecus, inner segment colour variations on Samos Island. Photo Dimitri Zubov.

Crocus seisumsiana on Samos.
Photo Dimitri Zubov.

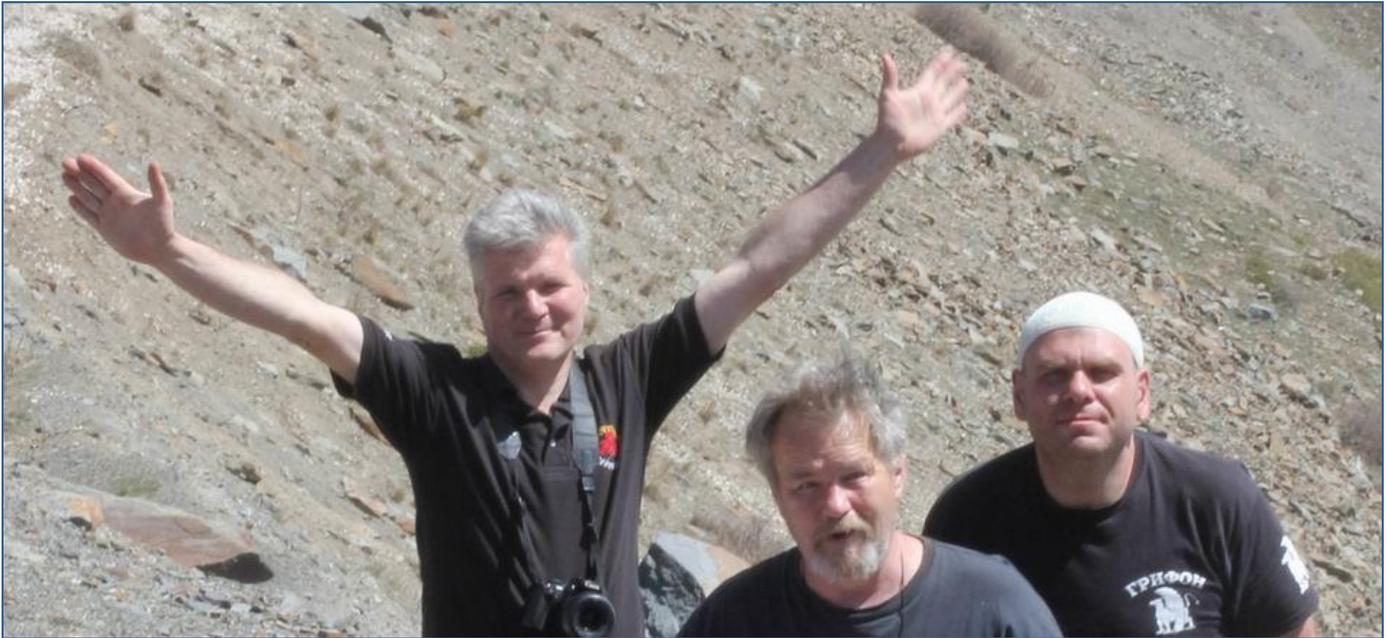
The aim of visiting Samos was to get a good, well-representative material to characterise the crocus from the “*nubigena*” group growing there and to gather the type herbarium for a possible publication as a new species. Frankly speaking, I had no doubts that it was a different, new species because it was growing and blooming with me for several years and clearly showed several features separating it from the allied *Crocus nubigena* from Lesvos, but after the critical remarks by Kerndorff et al. (2016) about my use of cultivated



samples to characterise new species, and taking into account the rather easy access to Samos, I wanted to get hold of a representative material *in situ*. Although we visited localities where this crocus occurs comparatively late in season, in more shade and on more northerly faced slopes it still was in full bloom. Thus it was not very difficult to collect the necessary number of flowers. In total around 50 flowers were collected, but when we reached a protected, windless spot for a quiet work, only 40 still had their segments in the condition to be fixed on the sticky tape, somewhat less were usable for measuring the filaments, anthers, stigmatic branches and their position against the anther tips.

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After having returned home and carefully studied the gathered material I eventually decided to publish this crocus and to name it after my long-time travel partner Dr. Arnis Seisums of the [National Botanic Garden of Latvia](#). We have together criss-crossed Central Asia, Turkey, Iran, etc. When travelling alone, each will always bear in mind the specific interests of the other – Arnis collects crocuses for me, I collect Juno irises and alliums for him.



Arnis Seisums, Henrik Zetterlund and Dimitri Zubov in Iran 2016.



Crocus seisumsiana on Samos. Photo Dimitri Zubov.

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Crocus seisumsiana corms. Photos Janis Rukšāns.

Although the newly described *Crocus seisumsiana* is more similar to the typical *C. nubigena* on Lesvos, it is easily separable from the latter by the anther colour. If *C. nubigena* has invariably black anthers, those of *C. seisumsiana* mostly are yellow and only the connective for the most part or at least in the upper half is dirty bluish grey to blackish, only rarely were observed individuals with entirely yellow anthers, never seen in the plants on Lesvos. Anthers in general are slightly longer comparing to

the filaments than is the case with the Lesvos plants and they usually are more arrow-shaped, gradually tapering towards the tips. Style branches in the Samos plants are shorter and they more often overtop the anthers. Also different are the basal rings of the corm tunic. But, as in the plants from Lesvos, those on Samos usually have an intense purple zone deep in the throat, although it is somewhat less prominent.



Crocus seisumsiana details shown on a 5mm grid. Photo Jānis Rukšāns.

Crocus seisumsiana Rukšāns *species nova*

Type: Greece, Samos Island, near the top of Mt. Karvounis, 37°44.589' N, 26°50.774' E, alt. 900 m. Leg. J. Rukšāns 17GRS-008, 07-03-2017 (Holo: GB, Iso: GAT). Ic.: J. Rukšāns, The World of Crocuses, p. 371-372.

Habitat and distribution – observed on rocky slopes covered by low shrubs, together with *Crocus balansae* and the autumn-blooming *C. pallasii* s.l. and *C. mazziaricus* s.l., under pine trees and on slopes that are recovering from the forest fires, at the altitudes from 450 to 1100 m. Known only from Samos where it was observed at several localities around Mt. Ambelos.

Flowering time – February - March.

Corm – roundish, in the wild 10-15 mm in diameter, in cultivation can reach 20 mm.

Tunics – hard, brown, deeply split from the base into 3-4 mm wide-ribbed segments, but mostly without subsplits, occasionally some short and sparse subsplits observed in cultivated plants.

Tunic neck – 4-5 mm long, formed by wide-based splits of the main tunic, with numerous narrow-based subsplits that end in sharp points.

Basal rings - hard, upper ring with up to 2-4 mm long, well developed densely spaced teeth, sometimes each long one interspaced with shorter one, but can be of similar length, too, then teeth are of something different length. Lower rings are with shorter teeth.

Prophyll – absent.

Cataphylls – 3(4), silvery, veined slightly greenish in the upper part.

Leaves – 3-5-7, on average 4.9 (n=44), dark to slightly greyish green, glabrous or very sparsely papillose on the upper surface, 1.5-2.5 mm wide, linear, with 2 ribs in lateral channels, occasionally 2 in one channel and 3 in the other (the third rib weakly expressed), the white stripe around 1/4 of the leaf width; mostly ending below the flowers at anthesis, but occasionally reach the segment tips or even overtop them.

Perianth tube – very variable – more or less striped lilac on a whitish ground, the stripes continue lengthways on the outside of the outer segments, sometimes entirely purple in the upper part.

Bract and bracteole – silvery, of the same length, only the bracteole slightly narrower, usually ending around 1 cm below the flower, occasionally reaching the base of the segments.

Throat – glabrous, bright orange, with a diffused, narrow upper edge, deep in the throat dark purple to blackish purple, mostly visible from the top, but better in a dissected flower.

Filaments – (4-)5-6(-8) mm long (on average 5.6, n=30), glabrous, deep yellow to orange-yellow, in one of the observed specimens they were tinted brownish.

Anthers – (6-)8-9(-12) mm long (on average 8.5 mm, n=31), yellow, with long (around 2 mm) basal lobes. The ratio of the anthers/filament length is 1.43.

Connective – mostly black throughout or blackish to dirty greyish lilac, sometimes in the basal part becomes dirty whitish, very rarely whitish throughout or whitish with blackish edges.

Style – divided into three (4-)6-7(-11) mm long (on average 6.5, n=39) branches, gradually widening towards the apex, with a slightly lobed and fringed top, branches deep orange to reddish, very occasionally (in 2 out of 39 specimens observed) striped dark brownish, mostly overtopping the anthers (23), less often equal to them (11), rarely (5) ends below the tips of the anthers.

Flower segments – lanceolate to obovate, with pointed to rounded tips.

Outer segments – 17-24-33 mm long (on average 23.9 mm) and 5-8-13 mm wide (on average 8.2 mm) (n=40), the outside light lilac, rarely buff, without a basal blotch, but with 3-5 dark purplish blue feathered stripes extending the middle of the segments or even to the segment tips, the inside lighter to darker lilac with a somewhat translucent outside striping. Rarely the stripes at the outside base confluent, looking like a dark basal blotch. Length to width ratio 2.91.

Inner segments – 16-22-31 mm long (on average 22.3 mm) and (6-)9-10(-14) mm wide (on average 9.4 mm), of the same colour on both sides and slightly darker than the inside of the outer segments, at the outer base a dark, comparatively small basal blotch with a somewhat pointed or rounded top. Length to width ratio 2.37 (n=40).

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Capsule –12-15 mm long and up to 5 mm wide, slightly tinted purplish to deep purple throughout or only in upper half, positioned around 1 cm above ground at maturity.

Seeds – elongated to slightly angular, up to 3-3.5 mm long, dark purplish brown, with a small caruncle of the same colour and a poorly developed minor raphe.

2n = unknown.

Etymology – named after Dr. Arnis Seisums, my frequent travel partner and an authority in the taxonomy of Juno irises and alliums.

Left: *Crocus seisumsiana* albino form on Samos. Photo Dimitri Zubov.

Crocus seisumsiana is the most similar of all the three newly published “*nubigena*” group species to the typical *C. nubigena* from Lesbos, but it is very easily separable from it just by the colour of the anthers. Having observed hundreds of flowers in spring 2017 I saw no one with black anthers, the black colour in *C. seisumsiana* anthers is exclusively present in the connective, whilst in a typical *C. nubigena* all the flowers seen by me had entirely black anthers – black were both the connective and the pollen sacks. Although both species have toothed basal rings, the teeth in the Lesbos plants are shorter and more triangular, whilst those in the plants on Samos are longer and more needle-like.



Crocus seisumsiana ex Chios – KJGR collections 080, 080-1, 073, 076 Photos Jānis Rukšāns.

In the materials on the Greek crocus flora sent to me by Prof. Arne Strid are two reports about a *nubigena*-like crocus on Chios Island, too. In 2011, in company with the Dutch nature lover [Kees Jan van Zwiener](#), I criss-crossed the island along almost every road. Everywhere I searched for crocuses with annulate tunics and without any exception in every habitat – under pine trees, in rocky open plains, etc. I found only the autumn-blooming *Crocus pulchellus*. One of the gatherings (Strid-56513) was collected by A. Strid himself and plants under this number are still grown in the Gothenburg Botanical Garden, but they represent *C. pulchellus*. My searches at the same locality also yielded only *C. pulchellus*, but I was there in April, so it was very easy to overlook the leaves, although I found and

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collected there several corms. There remains one more locality from where "*C. biflorus*" was reported by P. Saliaris (according to A. Strid). Confusing though is the date when this crocus was reported – 23rd November, 1994. At that time no "*nubigena*"-type crocus could be in bloom. In any case, to solve this enigma I am planning a new trip to Chios at the end of February when most likely spring annulate crocuses must be flowering. It is usually a stroke of luck to be in the right place at the right time.



Crocus seisumsiana on Samos. Photos by Dimitri Zubov.

Acknowledgments

I want to express my greatest thanks to my long-time travel partners Václav Jošt and Jiří Bydžovský, (from the Czech Republic) to Dimitri Zubov (Ukraine) who has accompanied me in search of many new crocuses; to Prof. Arne Strid who shared with me all the information amassed by him of all the reports on Greek crocuses what helped me to discover many new species; to Arnis Seisums and Reinhard Fritsch for the many advices and recommendations which have all helped to improve the quality of my publications, and also to H. Kerndorff et al. whose critical remarks have aided to raise the level of the descriptions of the species published by me. Of course, my thanks go to my permanent language corrector Mārtiņš Erminas. And I am especially thankful to my family and my wife Guna in particular, for the hard work at the nursery during my absence while in the mountains. J.R.

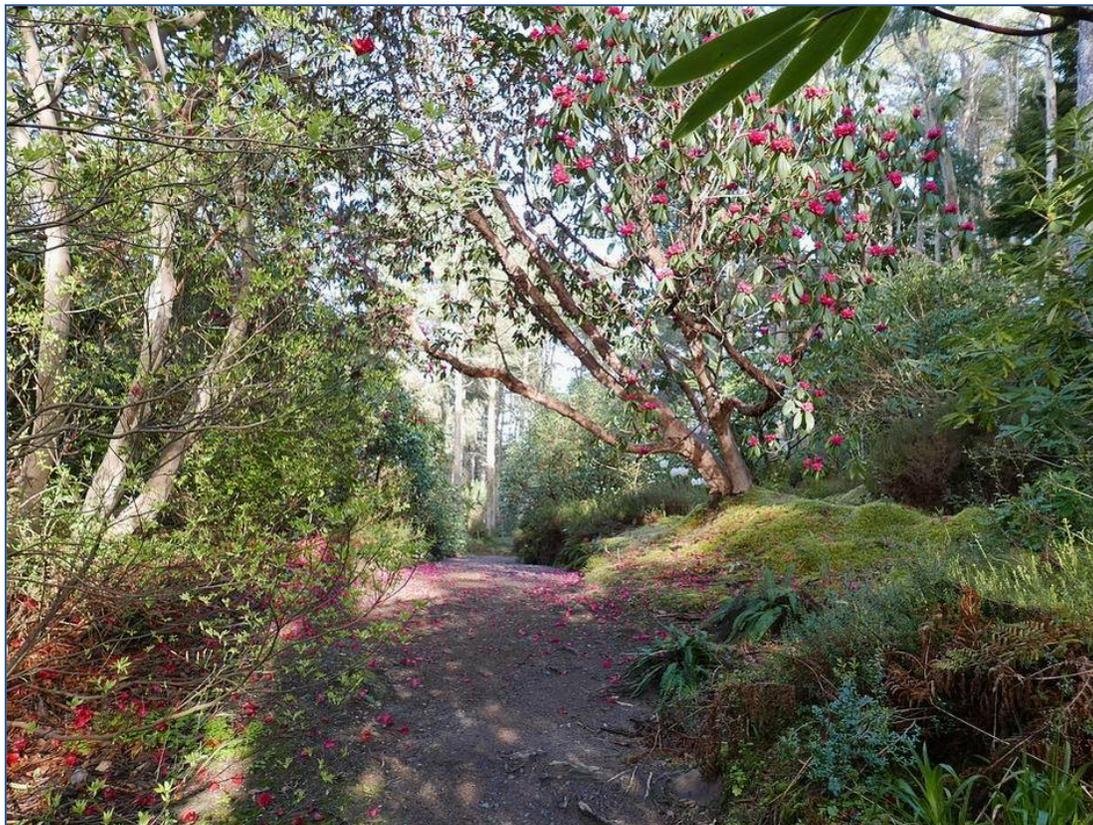
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Inverewe Erythronium Festival and Artists in Residence: J. Ian Young

[Inverewe Garden, near Poolewe](#), is one of the most beautiful gardens in Scotland - it was created from a barren windswept peninsula on Loch Ewe when, in the 19th century, the visionary [Osgood Mackenzie](#) planted thousands of trees to provide shelter from the strong Atlantic winds that batter the west of Scotland. Once the shelter belt was established he set about creating an inspirational garden landscape with plants from around the world. His commitment was shared by his daughter [Mairi Sawyer](#) who continued to develop the garden until it passed into the care of the National Trust for Scotland in 1952.



It is not hard to understand why this is among the most visited gardens in Scotland - here you can wander through large mature trees and shrubs where you can walk through a forest of the tallest Rhododendrons I have seen while also being surrounded by the most magnificent scenery of the west coast.

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Views from Inverewe



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I have a great interest in the genus *Erythronium* and have shared my book - [Erythroniums in Cultivation - free, online.](#) I was invited to Inverewe to take part in their first *Erythronium* Festival, where thousands of pink *Erythronium revolutum* carpeted the ground. I was encouraged by the enthusiasm and drive of the management, gardeners and staff not only to continue the good work of the past but also to expand the outreach and use of the garden.

The use of the word culture usually refers to various disciplines of the arts such as music, dance, painting and sculpture that inspire, give us pleasure and provide an output for our creative tendencies however I would also include horticulture because I see the process of making and tending a garden as a creative process and that is very obvious at Inverewe.

Art has always been part of Inverewe with artists being among the many guests of the Mackenzies so it is wonderful to see that tradition continuing with inspiration and creativity being fully explored at Inverewe with a dynamic Artist in



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Residence programme covering all art forms. A recent development was the opening of Sawyer Gallery attached to Inverewe house where artists can display their work in a modern well-lit space where at the time of my visit there was an exhibition of botanical paintings with the artists leading a [weekend workshop](#) in botanical art using plants of the garden as subjects.



Above left: Lydia Muijen, sketching the erythroniums among the ferns.

Above right: Lydia watercolour of an Erythronium, after taking the class.

I met [Lynn Bennett-Mackenzie](#) the Visual Artist in Residence at the time whose work was inspired by and to be found in the garden including the gallery. I also met Poet in Residence **Lydia Muijen** who wrote a poem inspired by the Erythronium Festival which is shared in this IRG. Click [here](#) to listen to Lydia reading part of her poem.

The second Erythronium Festival is planned for 9th to 15th April 2018 but there will be much to see at Inverewe House and Gardens at all times until then.



Lydia and Magnolia at Inverewe.

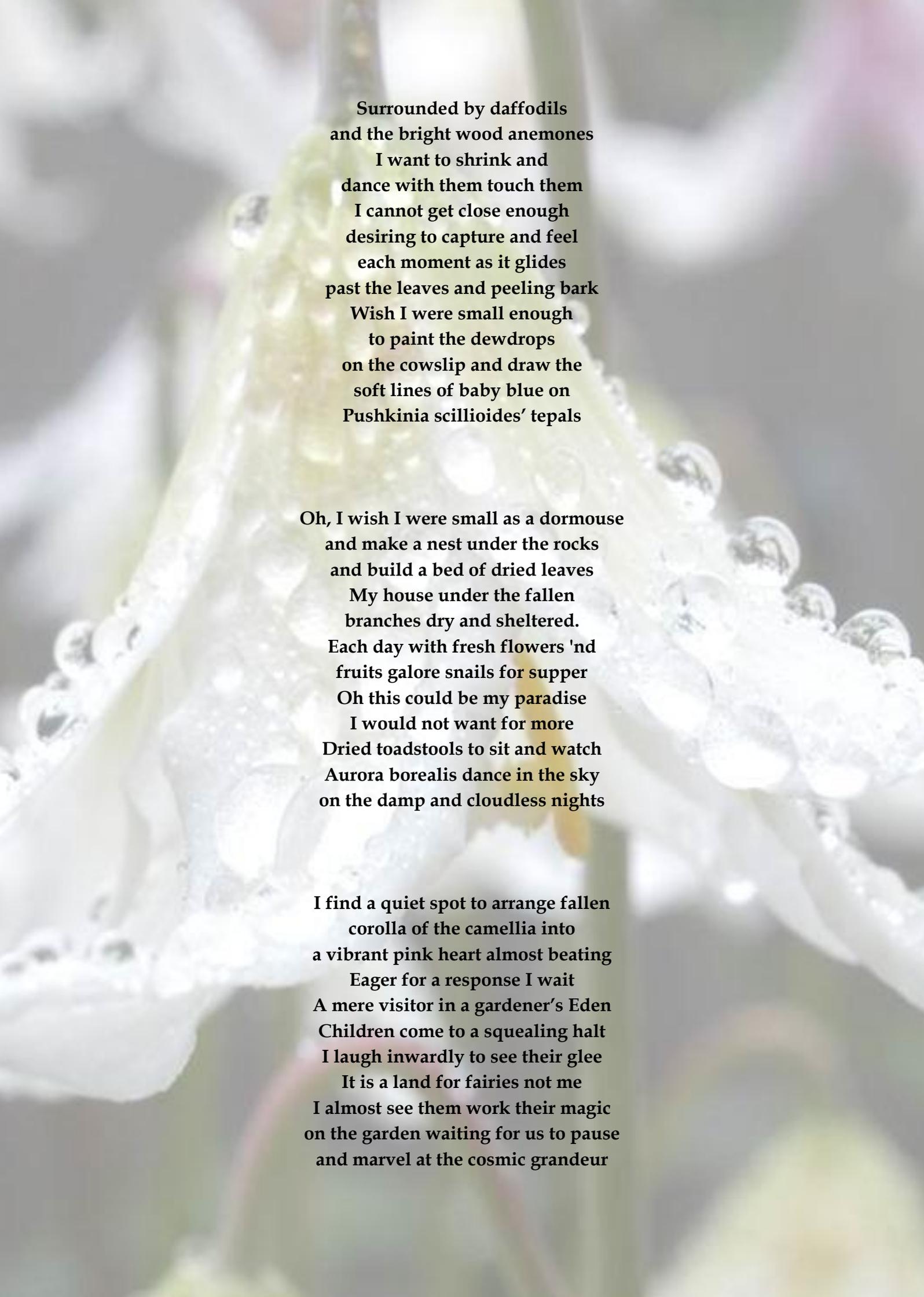
Lydia Muijen's poem inspired by the Erythronium follows.....

At the foot of a Giant

Zephyrus is welcomed
into the walled garden
The Ice Queen mourns the loss
for her winter's reign,
The snow elves retreat to
the clouds as we watch the
blanket of snow vanish from
the distant mountain tops
Birds building nests
as hail and frost makes way
for wind and rain

In the sensitive garden
A new season begins
Here at the foot of a giant
eagerly waiting for spring
the erythroniums grow erect
digging a way through the earth
following the worms and rain
from the bulb finding its way up
between the tree's soft roots
sheltered from the winds
I repaint the image and recall
the moment with awe and mirth

A newfound life refreshed
after winter's rest under
a blanket of lichen amidst
the gentle moss with dog
tooth petals painted in purple hues
the light glides off each leaf
as an invisible dew drop
swelling growing to its
fullest potential pregnant
until it can hold no more
delivering all the colours left
on the spectrum with a
inaudible inconceivable pop



Surrounded by daffodils
and the bright wood anemones
I want to shrink and
dance with them touch them
I cannot get close enough
desiring to capture and feel
each moment as it glides
past the leaves and peeling bark
Wish I were small enough
to paint the dewdrops
on the cowslip and draw the
soft lines of baby blue on
Pushkinia scillioides' tepals

Oh, I wish I were small as a dormouse
and make a nest under the rocks
and build a bed of dried leaves
My house under the fallen
branches dry and sheltered.
Each day with fresh flowers 'nd
fruits galore snails for supper
Oh this could be my paradise
I would not want for more
Dried toadstools to sit and watch
Aurora borealis dance in the sky
on the damp and cloudless nights

I find a quiet spot to arrange fallen
corolla of the camellia into
a vibrant pink heart almost beating
Eager for a response I wait
A mere visitor in a gardener's Eden
Children come to a squealing halt
I laugh inwardly to see their glee
It is a land for fairies not me
I almost see them work their magic
on the garden waiting for us to pause
and marvel at the cosmic grandeur

I yearn to climb up on the tree
stumps and jump from
branch to branch with the
no longer hunted red squirrels
I want to spin the fungi as if it were
Sheep's wool and show my art
to the world. Oh, had I been born an elf
and in the night hang the algae
and spores off the branches
in the cold salty breeze and
watch the stars dance in the sky
I am certain that the willow is proud
of its slow growing usnea

I lean against the pine and feel
myself shrink. I wake to the setting sun
and find myself sheltered between the trees
my feet on the soft silken moss
the expecting drops of sunlight bouncing
off my golden skin. I stroll over the sinuous trails
I hear the whispers of the wind
sharing the wishes of the trees.
Gradually the sensitive garden is
growing fond of me with each step
the flowering trees shed their colours
and pave my way to my newfound home

I stand tall between the bamboo
alone on the forest floor I find
company with many species
in awe of the other I fill my soul
Inside my heart will grow evermore
for I have captured Elysium! In a moment of bliss
I realize I want no more than just this
Married to my colourful memories
I close my eyes and find this garden
burnt into my retina. Stored into neurons
like spores I rebuilt each flower and tree
from memory for my sprit to roam 'nd
for my mind to explore eternally.