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Note: the opinions expressed by the authors are not necessarily those of the Editor, or of the Cyclamen Society.

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You can get quick free advice on cultivation, pest and disease control and other topics from the Society's Panel of Experts. Please contact the Secretary to the Panel, Trevor Wiltshire, by e-mail on info@cyclamen.org or write to him at [redacted]

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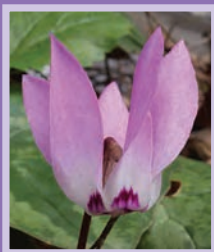


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Cover picture (and inset): *Cyclamen libanoticum* growing in the Nahr Ibrahim Gorge, Lebanon, March 2014.
Photographs by Martyn Denney

News

The Society and Science

The Cyclamen Society is almost unique amongst specialist plant societies in the original research it either carries out or sponsors. In this extended journal we present the results of some of the latest projects. This will continue in December when we will publish the results of a DNA analysis of the subspecies of *Cyclamen graecum* carried out for the Society by the Centre for Plant Diversity and Systematics at the University of Reading.

Midlands Group

The latest meeting of the Group was held on Sunday 2 March. The theme of the talks was 'Winter care of my cyclamen', and the three speakers approached the theme in very different ways. Jo Walker concentrated on the thrill of raising from seed, and the ways she nurtured the seedlings. Vic Aspland covered the way in which he moved the plants into different locations in the greenhouse depending on the season. Paul Whitlock talked of the adaptability of many species, and the frequency with which seedlings turned up in unexpected places.

The next meeting of the Group will be on Sunday 14 September at Norton Community Centre (DY8 3AP) from 11am (further directions or details from Vic Aspland on [REDACTED]).

Southeast Group

There are no meetings of the Southeast group currently planned. Any meetings planned for 2015 will appear in the December *Journal*.

Books and Cards

Books and cards may be purchased via the Society's website or by contacting Arthur Nicholls by email (publications@cyclamen.org) or via his address which appeared on page 78 of the December *Journal*.

Birmingham Conference 2014

The 2014 conference and show will be held on Sunday 21 September 2014 at the Birmingham Botanical Gardens. Directions to the gardens can be found on the Society's website: www.cyclamen.org/conference

Following the AGM there will be the following lectures: *In Search of the Colchic cyclamen, 2013* by Martyn Denney; and *Cyclamen libanoticum field study, March 2014* by the Field Study Team.

Annual General Meeting

All Society members are entitled to attend the AGM, which is to be held at 12.30pm on Sunday 21 September 2014, at the Society's Conference in Birmingham.

Agenda

1. Minutes of the AGM 2013
2. Matters arising from the Minutes
3. President's report
4. Secretary's report
5. Treasurer's report
6. Election of Officers and Committee
7. Appointment of Independent Examiner
8. Any other business

Nominations for the offices of Secretary, Treasurer, Editor, Librarian, Membership Secretary, Publications Officer, Publicity Officer, Seed Distribution Manager and Show Secretary, and nominations for Members of the Committee should be signed by at least two members and sent to reach the Secretary before 31 August 2014.

Note: nominations are welcome for all posts. Existing officers may stand for re-election.

The Secretary, Martyn Denney, can be contacted by e-mail at secretary@cyclamen.org or at [REDACTED]

Miscellany

Giant *Cyclamen graecum* tubers

In January the news broke on a Greek gardening forum (and then on the Scottish Rock Garden Club forum) that a number of very large *Cyclamen graecum* tubers had been found in the Peloponnese. Stavroula Ventouri was clearing 'canes' from part of her field in readiness for a tractor to come and plough it. She has a property a couple of kilometres (a bit over a mile) south of Paralio Astros. She said: "I cut back the canes and saw the cyclamen. I didn't realise their size. I thought they were common *C. graecum* but I didn't want the tractor to destroy them. In the same place there are more tubers, but I had no time to dig for them. The first five of them are in a safe place and until I have moved them all, the tractor is cancelled. The biggest one is 17.5kg (38.6lbs), and the



The five tubers of *C. graecum* weighing from 3 to 17.5kg.

smallest is almost 3kg (6.6lbs). The others are 12.4kg (27.3lbs), 4.5kg (9.9lbs) and 5.7kg (12.6lbs). My property starts 15m (50ft) away from seaside and I have found the tubers 60m (200ft) from the sea."

New site for *C. mirabile*

Also in January a posting to the SRGC forum by Ömer Eser from Turkey announced that he had found a new location for *Cyclamen mirabile* just outside the town of Afyon. This new site also had plants with interesting flower and leaf forms. A magazine article and blog written by him about this discovery are available on-line. Although they are written in Turkish the excellent photographs speak for themselves.

<http://cyclamenmirabile.blogspot.com.tr/>

http://www.ngbb.org.tr/images/bagbahce/bb_51.pdf

New sites for *C. intaminatum*

Bob and Rannveig Wallis have written to say that they have found two new locations for *Cyclamen intaminatum*. Whilst fritillaria hunting in Turkey at the beginning of April they were travelling between Uşak (Uşak province)



C. graecum tuber weighing 17.5kg. Photographs by Stavroula Ventouri.

and Salihli (Manisa province) and found two locations, over 160km (100 miles) from the nearest known population. Bob says: "In both cases the cyclamen were growing in shade of *Quercus coccifera* in the leaf mould. We were surprised by the long floral trunks and the rather spherical tubers which are a bit different from the cultivated ones but the leaves are round and have a few silver markings so we are pretty confident of the identification. The habitats were quite heavily grazed."

Abandoned!

Is this what you do with unwanted Christmas presents? Susan Bailey (Mrs Chairman!) spotted this abandoned cyclamen in Queen's Park, Loughborough on a very wet day in January.



Abandoned cyclamen in Loughborough. Photograph by Susan Bailey.

Cyclamen in the city

Richard Bailey writes: Large-flowered cultivars of *Cyclamen persicum* were used as bedding plants under trees along the Avenida da Liberdade, Lisbon, Portugal in December 2013. Many of the beds were too shady for these plants and trampling was obvious in several places. Nonetheless, there were sites along the Avenida, usually with rather better light, where they demonstrated the real value of persicum cultivars as bedding plants - at least in warmer climes.

Will any local authority be brave enough to try them as colourful, albeit costly, winter bedding here in Britain?



C. persicum cultivars used as bedding in Lisbon. Photographs by Richard Bailey.



The name behind *C. graecum* Link

Martyn Denney

Johann Heinrich Friedrich Link was born on 2 February 1767 in Hildesheim, Germany. His father, August Link, was a minister who introduced him to natural history at an early age. At just 16 Johann joined the masonic lodge in Hildesheim – he was to remain an active freemason for the rest of his life. In 1786 he attended the Hanoverian State University in Göttingen where he studied medicine and natural sciences, graduating in 1789. His thesis was a flora of the rocky areas around Göttingen. He remained in Göttingen for a couple of years as a private tutor before being appointed Professor at the University of Rostock in the new department of Natural History and Chemistry. His colleague at the university, Professor Wilhelm Josephi, introduced Link to his sister Charlotte, and the couple married in 1793.

Between 1797 and 1799 Link had the opportunity to accompany Count Johann Hoffmannsegg, the Dresden botanist, entomologist and ornithologist, on field studies in Portugal. Hoffmannsegg was almost the same age as Link and had also studied at Göttingen. It seems that it was as a result of these field studies that Link decided to specialise in botany. Together, Link and Hoffmannsegg published *Flore Portugaise* in parts between 1809 and 1840 – it is still a standard work.

In 1800 he was elected to the Academy Leopoldina, a learned society formed in 1652 originally under the name of the *Academia Naturae Curiosorum* and renamed in 1687 at the behest of King Leopold I, the Holy Roman Emperor. It is now known as the



Johann Heinrich Friedrich Link. Engraving by Ambroise Tardieu after a painting by Krüger. Reproduced by permission of the Linnean Society of London.

Deutsche Akademie der Wissenschaften (German Academy of Sciences) and is based in the city of Halle.

Link became particularly interested in plant physiology and through a number of papers on plant anatomy and physiology his reputation grew. In 1805 he won a prize offered by the Göttingen Academy of Science for his ground-breaking paper *Grundlehren der Anatomie und Physiologie der Pflanzen* (Fundamental principles of the anatomy and physiology of plants) which proved that plants were composed of cellular tissue rather than a homogenous vegetable mass. In autumn 1811 he was offered positions in Halle and at Breslau University. He chose the latter and was appointed Professor of Chemistry and Botany and was also elected twice as Rector of the University.

In 1815 after the death of Karl Ludwig Willdenow, Johann Link became Professor of Botany at the University of Berlin, Curator of the Herbarium, and Director of the Botanical Gardens (the '*Hortus Regius Berolinensis*'). At that time the botanical garden was in Potsdamer Strasse on a site now occupied by the German Supreme Court. Link extended the herbarium, subsidising it from his own funds, and in 1818 purchased Willdenow's herbarium (comprising some 26,000 specimens) on behalf of the Prussian state. In 1819 he set up the herbarium as an independent institution, becoming its first Director.

Link travelled extensively throughout Europe visiting Portugal, Sweden, Italy, Greece, Corsica, Belgium, France and Spain as well as the southern parts of his own country. Through these travels and through seed exchange with other botanical institutions he increased the collections at the botanical gardens so that by 1843 they had doubled in size with over 14,000 species represented. He continued the project started by Willdenow in 1803 with his *Hortus Berolinensis* to catalogue the rare plants of the Berlin Botanical Gardens, publishing two volumes of *Hortus Regius Botanicus Berolinensis* in 1827 and 1833. He was also fortunate to benefit from the enthusiasm of the conservator of the botanical garden, Christoph Friedrich Otto, with whom he collaborated on *Icones plantarum rariorum horti regii botanici Berolinensis* (Illustrations of rare plants in the Berlin Botanical Garden). He was President of the Gesellschaft für Natur- und Heilkunde (Society for Nature and Medicine) in Berlin from 1834 until his death on 1 January 1851.

Johann Link maintained a very broad interest in plants through his systematic, cytological and physiological research and his field studies. He described over 100 plant species, also naming the cactus genera *Echinocactus*

and *Melocactus* and many fungi. Amongst his newly described plants in 1834 was *Cyclamen graecum*, probably encountered during his travels in Greece.

He said that *C. graecum* flowers profusely amongst the rocks around Naplion in the Peloponnese in September, that the flowers were odourless and that there were no leaves when it flowered. He compared it with '*Cyclamen neapolitanum*' which he had encountered also flowering in September near Naples and on Sicily, noting that around Palermo the leaves of that plant were elongated and lanceolate. This feature of Sicilian leaves was something I noticed myself in 2006. He was using the name *C. neapolitanum* in the sense of Michele Tenore, a botanist from Naples who was describing William Aiton's *Cyclamen hederifolium*. Link said that *C. graecum* differed in that the leaves are heart shaped, roundish or ovate, with margins that have small rounded teeth; that the leaves are flexible but tough and that the underside is either red or green. He said that the flowers were smaller than those of *C. neapolitanum*. He also described prominent teeth on both sides of the corolla lobes which are probably what today we usually refer to as auricle. He goes on to point out that Giovanni Gussone (a student of Tenore's, and an expert on the flora of Sicily) considered these 'corolla teeth' to be the prime indicator of *C. neapolitanum*.

There is no evidence that Johann Link (or Gussone, come to that) ever visited Turkey, Cyprus, Rhodes or Crete and it is therefore unlikely that he would have encountered either *C. graecum* subsp. *anatolicum* or subsp. *candicum* or the other auricled species, *C. africanum*.

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Link, J H (1834): in Schlechtendal, D (Ed) *Linnaea* **(9)**, 573-574.

Gussone, G (1827): *Florae Siculae prodromus*. Napoli.

Tenore, M (1838): *Flora Napolitana* **(2)**, 195-198. Napoli.

Genus *Cyclamen* in Science, Cultivation, Art and Culture

We are very grateful to Martyn Rix for reviewing the Society's book *Genus Cyclamen*. This is a particularly comprehensive review that considers every chapter of the book individually and is somewhat too long to publish in the *Journal* and to abridge it would be to make it pointless. We have therefore made it available in full on the Society's website. You can click through to it from the publications page or access it directly here: www.cyclamen.org/GenusCyclamenReview.htm

To whet your appetite, here are a few snippets:

This large, heavy and detailed book will be in every *Cyclamen*-lover's bookcase. It is the result of co-operation between thirty-one different scientists, botanists, gardeners and artists, all of whom have a particular interest or expertise in *Cyclamen*, both wild and cultivated. It covers every aspect of cyclamen, in the wild, in the garden, in culture and in history.

This book is so full of interest and of differing aspects of cyclamen, that I have here described each chapter to do it full justice.

Chapter two, entitled cyclamen in nature, covers all the species, and their taxonomy. They are illustrated by numerous photographs, and in addition the species are illustrated by full-page paintings by Pandora Sellars or Christabel King. The paintings are brilliant, with the subtle colouring of the leaves beautifully shown...

This section on cyclamen species is full of interesting detail and beautiful illustrations which will inspire any grower or gardener who wants to naturalise cyclamen outdoors.

The *Cyclamen* Society is to be praised for organising this field work, and for getting permission from the relevant authorities in Turkey and in the United Kingdom, to import so many beautiful variants for study and for propagation in cultivation.

This is a fascinating and beautiful book... It repays many weeks of careful study, and will be a valuable reference for many years.

Cyclamen libanoticum field study, March 2014

Martyn Denney, Richard Bailey and Keith Fry

Cyclamen libanoticum was first described by the German botanist Friedrich Hildebrand in 1898 from plants collected in 1895 by E Hartmann between Laessa (Lassa) and Amis (Qehmez) in the valley of the Nahr Ibrahim, northeast of Beirut in the Lebanon. By June 1899 the plant was in cultivation in the Netherlands and, writing in the *The Garden*, John Hoog said “The tubers were found embedded deeply among the rocks between the roots of shrubs and trees, the plants occurring only in heavily shaded places, where during the winter continuously for nearly three months the temperature ranged more or less below freezing-point.” He also referred to the fact that it was flowering in March in M van Tubergen’s nursery at Haarlem. His article was accompanied by a photograph which showed a plant typical of most plants in cultivation today with robust flowers with wide petals.

In spite of the enthusiasm with which the plant was greeted by gardeners it seems that it was

‘lost’ in the wild until rediscovered by Eliot Hodgkin and Pere Mouterde in 1962. In 1996 Jim Archibald offered seed originating from their collection, saying that it was ‘Distinct from the long-cultivated form in its elegant, longer-petalled, deeper-pink flowers & in its more distinctly marked leaves, often pink-tinted as they unfold’. Also in the 1990s two sites near Mchati were visited by Erna and Ronald Frank, with Manfred Koenen in 1997 (Frank, 1998), and with Bob and Rannveig Wallis in 1999. Otherwise very little new had been written about *C. libanoticum* until the excellent account by Ricardus Haber and Myrna Semaan in the Society’s book *Genus Cyclamen*.

Against this back-drop the aim of the field study in March 2014 was to find out more about the habitat in which *C. libanoticum* grows, find out how variable the plant is in the wild, to map its current distribution and establish the extent to which it is threatened. In May 2012, Lebanon became a party to CITES (The International Convention on Trade in Endangered Species) and with the assistance of Myrna Semaan the team was fortunate to obtain permission from the Lebanese Ministry of Agriculture to collect herbarium specimens and dried leaf material for DNA analysis.



Jabal Moussa from the south. Photographs by Martyn Denney.

Cyclamen libanoticum grows on and around Jabal Moussa, a mountain some 30km (19 miles) northeast of Beirut, that in 2009 was designated a biosphere reserve by UNESCO. It is composed of Kesrouane limestone from the Middle to Upper Jurassic period, a more or less horizontal strata around 1,500m (4,900ft) thick which has layers of chert and is also locally dolomitized and in parts has dramatic ‘karstic’ outcrops. The Biosphere Reserve is approximately 6,500 hectares (25 sq miles) in area and comprises a core conservation zone, a buffer zone and an outer development zone. All populations of *C. libanoticum* found during the field study were within these three zones. We received a warm and enthusiastic welcome from the Association for the Protection of Jabal Moussa (APJM) (www.jabalmoussa.org) and we received support and guiding on the mountain from their staff during our four principal days in the reserve’s core area.

This was to be a short trip. We arrived in Lebanon on Friday 14 March 2014 and left on Sunday 23 March. Six days were allocated to *C. libanoticum* and one each to *C. coum* and *C. persicum*. Accounts of these last two species will appear in the *Journal* in December 2014.

On Saturday morning we met Myrna Semaan and then Joelle Barakat (ecologist) and Roman Bruder (forester) from APJM before driving to meet Pierre Doumet, President of APJM. Pierre has a large area of private land south of Jabal Moussa – part given over to orchards and part left in its natural state. Pierre had cleared a path down through an area of limestone outcrops so that he could show us a population of *C. coum*. On the way down we passed a number of significant populations of *Paeonia kesrouanensis* just coming into flower amongst patches of snow. However the highlight of the morning was finding a small previously unknown population of *C. libanoticum* on the



Paeonia kesrouanensis on Jabal Moussa.

north side of a series of limestone outcrops – an excellent start to the week. The afternoon was spent checking the roadside areas around and between the villages of Mchati and Nahr Ed Dahab and visiting a location given to us by Bob and Rannveig Wallis.

On Sunday 16 March, we again met Myrna and Joelle in order to visit a couple of sites that they knew. The first was an area of north-facing *Quercus infectoria* and *Q. coccifera* forest below the road above Joelle’s village of Yahchouch. When Myrna first visited the site some years ago it was an area of mature trees with a thriving population of *C. libanoticum* underneath. Unfortunately the mature trees have been cut for wood and the result is an area of dense scrub on the abandoned terraces with sapling and coppiced *Quercus*, *Styrax*

officinalis, *Crataegus monogyna* and *Laurus nobilis*, and a dense herbaceous layer with scrambling *Smilax aspera*. The cyclamen were still there and although there was evidence of regeneration the population was much reduced.

We moved on to the north side of Jabal Moussa driving past roadsides carpeted with *Cyclamen persicum* in a diversity of colours, to study populations of *C. libanoticum* in the bottom of the Nahr Ibrahim gorge. These are mixed populations with a smaller number of *C. persicum* at the base of north-facing cliffs and almost vertical woodland which suggested that the plants may have a far wider distribution on the mountainside above. Some of the plants here had very large leaves in excess of 13cm (5in) in both length and width and the majority had a distinct hastate pattern that wouldn't look out of place on many Greek *C. hederifolium*. Many of the leaves were badly damaged by being eaten by slugs or caterpillars.

Monday 17 March was a very productive day. First we returned to the south side of Jabal Moussa and a site (14/04) above the village of Nahr Ed Dahab that had been pointed out to us by Joelle on Saturday but in fading light. This had a thriving population of *C. libanoticum* in a quite contained north-facing area surrounded by outcrops of Kesrouane limestone. Unfortunately the *Quercus coccifera* and other young trees that provided shade for the cyclamen had recently been cut for wood – a change of habitat that may have an impact on the health of the population. In spite of this, the site remained fairly damp and continued to support *Primula vulgaris*, *Anemone coronaria*, *Orchis galilaea* (syn. *O. punctulata* var. *galilaea*) and the rather attractive *Lamium truncatum*.

Continuing to Mchati we were successful in locating a site quite close to the village on the south side of the river which was noticed by Manfred Koenen and recorded by Erna

Frank in her diary of 24 April 1997 as “A notable find!” The population is spread thinly along several hundred metres (or yards) in an apparently narrow band at the edge of the trees and upwards through a tangle of *Rubus* and *Smilax aspera*.

Attempting to extend the range of *C. libanoticum*, we headed south-west by the back road towards Chahtoul, a village with a camping resort on the mountain above. Chahtoul is mentioned as a location by G and H Tohmé (2007). We found a small population along the road and then, on entering the village of Jouret Mghad, another population at the bottom of a patch of woodland. Higher, by the church and camping resort, *C. libanoticum* grows extensively through an area of very gently sloping *Quercus coccifera* woodland with a largely northerly and westerly aspect. We thought it likely that the population extended down the hillside to the location we had spotted earlier. The leaves were again large and

most had a distinct hastate pattern and at the time of our visit there were few flowers.

On Tuesday 18 March we were to meet Roman in Yahchouch for him to guide us along a new trail on the north side of Jabal Moussa between the villages of Chouwan and Al iibré. This trail initially passes through a population of *C. persicum* and then traverses the mountainside in an easterly direction as it climbs towards Al iibré. As it does this it passes through a small but dense population of *C. libanoticum* growing in mixed woodland of *Quercus coccifera*, *Ostrya carpinifolia*, *Arbutus andrachne* and *Acer syriacum* and then through a succession of individual and groups of plants all the way to the upper village. Putting together the data from this path and the observations down in the gorge it is possible to extrapolate that *C. libanoticum* grows through a large part of the wooded slopes along the eastern end of the north side of Jabal Moussa. During the field study we saw quite a variance from the usual ‘seagull’ shaped



C. libanoticum in the Nahr Ibrahim Gorge.



C. libanoticum habitat on the trail to Al iibré on the north side of Jabal Moussa.

blotch at the base of the corolla lobes (petals). The population towards the lower end of the trail was particularly interesting in this regard as the blotch was quite minimalist and more 'Y' shaped (see picture, right).

In the afternoon we drove north of the Nahr Ibrahim gorge in an attempt to extend the range of *C. libanoticum* further in that direction. Once over the top of the gorge the area is extensively cultivated and although the underlying rock is still Kesrouane limestone, at the surface the soil seems significantly different, the habitat is generally wrong even on north-facing slopes and no cyclamen were found. One can speculate whether this is due to the differing habitat, human influences, the natural barrier provided by the depth and near-vertical sides of the gorge, or a combination of all three.

The following day we moved to the south side of Jabal Moussa to meet Elie Khalil from APJM and to walk a trail that initially rises from Baydar el-shawk, near Qehmez,



C. libanoticum flower on the trail to Al iibré, showing the minimal blotch at the base of the corolla lobes.

before following the mountainside in a westerly direction towards some old ruined houses at El-byut where it meets a roughly north-south trail that descends from El-salib, the cross at the western end of the ridge to the village of Mchati. This is a pleasant undulating walk that passes populations of *Paeonia kesrouanensis*, *Anemone coronaria*, *A. blanda*, *Bellevalia flexuosa*, *Scilla cilicica*, *Gagea* sp. and *C. coum*. Along the way, the trail passes the 18th century well and underground reservoir at El-masbek, near which there was still snow at the bottom of some limestone outcrops. Two populations of *C. libanoticum* were found in the area of El-byut and El-salib, in both cases the plants were in deep north-facing shade with (amongst other plants) *Corydalis solida* subsp. *brachyloba*, *Primula vulgaris*, and *Paeonia kesrouanensis*. On the steep path down to Mchati we passed more *Cyclamen coum* leaves and a number of plants of *C. persicum* in full flower.

On Friday 21 March we returned to Baydar el-shawk and started searching for *C. libanoticum* east of Jabal Moussa, hoping to find it in the

area where Hartmann first collected it, between Qehmez and Lassa. We soon found a small population high on a north-facing bank above the road under *Quercus cerris* and *Ostrya carpinifolia*. There were further populations along the road to Qehmez growing in mosses on, and at the base of, the north facing roadside limestone cliff. We also found a few isolated plants just east of Qehmez – technically therefore between Qehmez and Lassa, though barely. The rest of the day was spent exploring the area further east of Qehmez, between the road through Bhassis, Chouata and Lassa, and the Nahr Ibrahim River to the north, but although some promising habitats were found, the only cyclamen we saw were plants of *C. persicum* north of Lassa.

Results

We were successful in finding and collecting data for some 17 locations where *Cyclamen libanoticum* grows. Some of these could be considered contiguous sites and others could be extrapolated to cover a wider area than was visited. All these locations were in an area

of approximately 20 sq km (7.7 sq miles) within one of the three zones of the Jabal Moussa Biosphere Reserve:

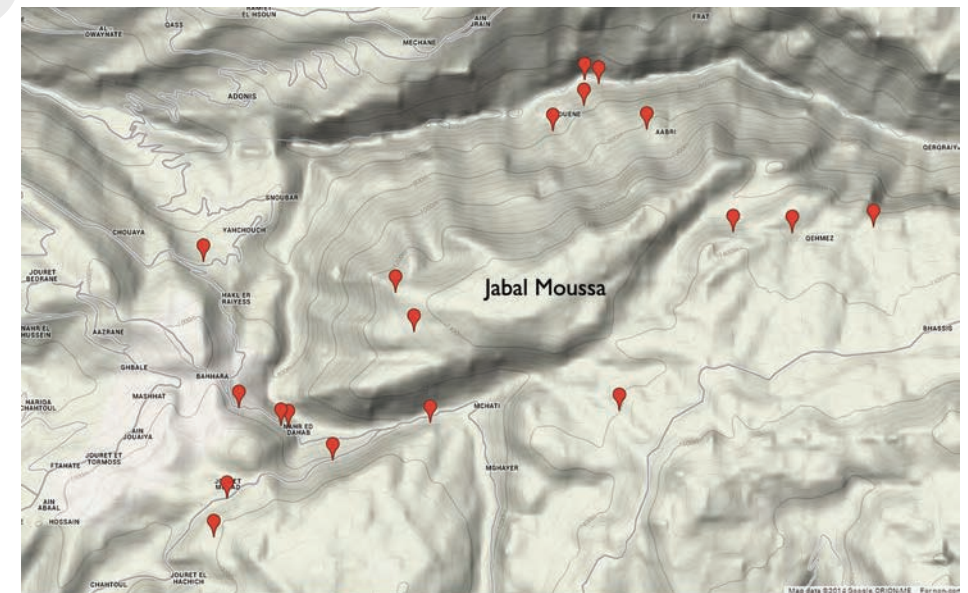
Core Conservation Zone	6
Buffer Zone	8
Development Zone	3

Herbarium specimens and dried leaf material for DNA research were collected from populations large enough to allow this without any detrimental impact.

Cyclamen libanoticum has always been considered one of the most endangered species of cyclamen. The field study has shown that whilst it comes from a very restricted area to which it is endemic, *C. libanoticum* is more locally abundant than was thought. The UNESCO Biosphere Reserve of Jabal Moussa does not provide legal protection but the conservation measures in place in the core Conservation zone and the monitoring that takes place within the Buffer and Development zones by the dedicated Association for the Protection



Orchis galilaea at site 14/04



Map showing the distribution of *C. libanoticum* around Jabal Moussa. Map data ©2014 Google ORION-ME.



Above and right. A selection of *C. libanoticum* leaf patterns encountered during the field study.



of Jabal Moussa offer a good prospect for its continued survival and prosperity. While *C. libanoticum* is not at present under threat and was seen to be regenerating well from seed at most sites, future threats, probably in the Buffer and Development zones, can be foreseen from:

- (i) Woodland change and development, both through the felling of timber and natural increase in dense scrub
- (ii) Agriculture – woodland and scrub are being cleared and hillsides terraced for agriculture

- (iii) Building – significant new buildings can be seen around most villages.

Habitat

Cyclamen libanoticum was found growing at altitudes of 437 – 2,384m (1,434 – 7,822ft). Sixty nine per cent of sites were over 900m (2,953ft) and 31% were over 1,300m (4,265ft). The four lowest sites were on the northern side of Jabal Moussa in the Nahr Ibrahim gorge. *Cyclamen libanoticum* grows predominantly in locations with a northerly aspect or sometimes westerly as follows: NNE 13%; N 63%; NNW 6%; NW 13%; W 6%.



C. libanoticum near the village of Mchati.

The degree of slope did not appear to be a factor other than when the steepness of the slope towards the north contributed to the degree of shade. Sixty three per cent of sites were in 80-100% shade and the majority of the others were at the base of north-facing cliffs. The exception, site 14/04, is discussed above.

Soil pH was between 7.2 and 8.3, measured around the tubers. In 63% of sites the pH was between 7.7 and 7.9. An analysis of the soil showed that 63% of sites consisted of mainly or totally inorganic material, whilst 37% were dark and largely or richly organic with some decomposed material. Both types of soil were generally poorly drained.

Note: The value 63% appears three times in these statistics but in each case comprises a different mix of sites. There was however some correlation between those sites in 80-100% shade and those with inorganic soil.

Companion plants

The top 12 most frequent companion plants were as follows:

<i>Quercus coccifera</i>	10
<i>Primula vulgaris</i>	6
<i>Smilax aspera</i>	6
<i>Cyclamen persicum</i>	5
<i>Paeonia kesrouanensis</i>	5
<i>Tamus orientalis</i>	5

<i>Taraxacum officinale</i>	5
<i>Bellis perennis</i>	4
<i>Crataegus monogyne</i>	4
<i>Lonicera etrusca</i>	4
<i>Ruscus aculeatus</i>	4
<i>Spartium junceum</i>	4

Note: Nomenclature throughout this article follows Tohmé and Tohmé, 2007 and 2012.

Morphological data

A sample of 80 pairs of leaves and flowers collected across 10 locations were measured. Leaves:

- (a) Leaf lamina size: length 37.8 – 152.6mm; width 34.5 – 137.2mm
- (b) In 95% of samples the leaf lamina length exceeded the width
- (c) The ratio of leaf length to width varied from 0.92:1 to 1.45:1
- (d) The thickness of the leaf lamina varied from 0.2mm to 0.5mm
- (e) The diameter of the petiole approximately 1cm below the leaf varied from 0.9 to 3.3mm
- (f) There was no correlation between leaf and corolla lobe size
- (g) There was no correlation between leaf size and any environmental factor
- (h) There was some correlation between leaf size, leaf lamina thickness and petiole diameter

- (i) Leaves had between 5 and 10 main veins. It was not uncommon for there to be an extra main vein on one side of the leaf
- (j) The depth of the leaf sinus varied from 9.0 to 41.6mm
- (k) In 41% of samples the leaf lobes were overlapping at the sinus. Where not overlapping, the angle varied from 0° (ie touching) to 80°
- (l) Leaf reverse: green 5%; pink 75%; red/purple 20%
- (m) There was no correlation between leaf reverse colour and corolla lobe or corolla lobe blotch colour.
- Flowers:
- (a) Corolla lobe size: length 17.8 – 34.6mm; width 6.8 – 13.0mm
- (b) Ratio of corolla lobe length to width varied from 1.9:1 to 4.1:1
- (c) There did not appear to be any correlation between corolla size and any environmental factor
- (d) Using the RHS colour charts, 9% of corolla lobes were within the Red-Purple groups 68, 72, 73 and 74; 79% were within the Purple groups 75-78; and 11% were Violet groups 84-85. This doesn't really say anything about the depth of colour but does show that there is less magenta and more purple/violet in the colour of the corolla lobes than encountered in other cyclamen species. No white-flowered plants were seen
- (e) Again, using the RHS colour charts to assess the basal corolla lobe blotch, 15% were in the Red-Purple groups 72 and 74; 64% in the Purple groups 77-79; 14% in Purple-Violet groups 80-82; and 7% in Violet groups 83 and 86. The variation in colour of the basal blotch was a surprise – particularly the number of plants (17%) where the blotch matched the very dark Purple group 79A and 79B. The basal blotch generally continues inside the mouth of the corolla (see picture, right). No plants were seen without a basal blotch
- (f) There was no correlation between the colour of the corolla lobe and corolla lobe blotch. The blotch colour was not necessarily within the same colour group as the body of the lobe
- (g) The shape of the corolla lobe blotch was variable. The following is indicative of the variation encountered:
- a letter 'M' or seagull in silhouette
 - a letter 'M' or seagull with the 'arches' filled with a third colour
 - a beehive-shaped lighter blotch entirely containing the 'M' or seagull.
 - a minimalist 'Y' shape
 - a more robust bat-wings style
- (h) Corolla lobe twist: There is a generally lower degree of twist in the corolla lobes of *C. libanoticum* than is encountered in other species. 0° - 6.0%; 20° - 1%; 30° - 3%; 45° - 24%; 90° - 56%; 120° - 8%



A selection of *C. libanoticum* corolla lobe blotches encountered during the field study.



A *C. libanoticum* flower showing how the corolla lobe blotch is repeated on the inside of the tube.

- (i) All flowers, with the exception of one, were scented
- (j) In 89% of flowers the style was exserted; in 11% it was inserted.

Acknowledgements

The Levant is a troubled region. Lebanon has had its own problems in the past and has become caught up in those of its neighbours, Israel and Syria. Talking with the Lebanese during our visit it appears that the advice of the British Foreign and Commonwealth Office is realistic and fair insofar as unlike some other countries there is no general advice against visiting Lebanon. There is currently very little foreign tourism. During our visit we felt perfectly safe and without exception found the Lebanese people to be welcoming and helpful whether it was in towns, villages or in the mountains and for this we thank them.

A field study of this nature is unlikely to be successful without assistance from the host country. Foremost we are grateful for the

help and support of Myrna Semaan, both in the planning stage and in the field with her intimate knowledge of the area around Jabal Moussa. Pierre Doumet, President of the Association for the Protection of Jabal Moussa, was enthusiastic in his welcome and made available to us the resources of the Association and its staff. Joelle Barakat, Roman Bruder and Elie Khalil of APJM provided guidance and local knowledge in the field. We are grateful to Eng George Phrem of the Ministry of Agriculture of Lebanon for granting a CITES permit for the export of dried plant material.

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C. colchicum – variation measured by DNA sequence

Kálmán Könyves and Alastair Culham

Cyclamen colchicum has had a mixed history in the hands of botanists. Albov, in 1894 and 1895, described it as a variety of *C. europaeum*. Only two years later it became a *Cyclamen* species in its own right (Correvon 1897) but was not included in Hildebrand's monograph in 1898. This curious plant was mired in



C. colchicum in the Khobistskali Gorge, Samegrelo. Photograph by Martyn Denney.

Species	Sample number	Collection site
<i>C. colchicum</i>	13010	site 13/02
<i>C. colchicum</i>	13011	site 13/02
<i>C. colchicum</i>	13012	site 13/03
<i>C. colchicum</i>	13017	site 13/04
<i>C. colchicum</i>	13018	site 13/04
<i>C. colchicum</i>	13019	site 13/04
<i>C. colchicum</i>	13030	site 13/06
<i>C. colchicum</i>	13031	site 13/06
<i>C. colchicum</i>	13033	site 13/07
<i>C. colchicum</i>	13035	site 13/08
<i>C. colchicum</i>	13036	site 13/08
<i>C. colchicum</i>	13037	site 13/08
<i>C. colchicum</i>	13040	site 13/09
<i>C. colchicum</i>	13041	site 13/09
<i>C. colchicum</i>	13042	site 13/09
<i>C. purpurascens</i>	K 1990-480	Val d'Ampola. Trentino, Italy
<i>C. colchicum</i>	K 1987-3701	Okum Gorge, Georgia
<i>C. purpurascens</i>		Kranjska Gora, Slovenia

Table 1: Details of the studied cyclamen samples.

confusion, and for many years was lost as part of *C. purpurascens* (*C. europaeum*). Schwartz (1938) recognised the species but Grey-Wilson in 1988 treated this regional taxon as *C. purpurascens* subsp. *ponticum* suggesting too little was known about it.

The field study in the Caucasus undertaken by the Cyclamen Society in 2013 has enabled us to investigate the genetic differences between a series of populations of *Cyclamen colchicum* (Albov) Correvon and the more widespread *C. purpurascens* in which it has sometimes been included.

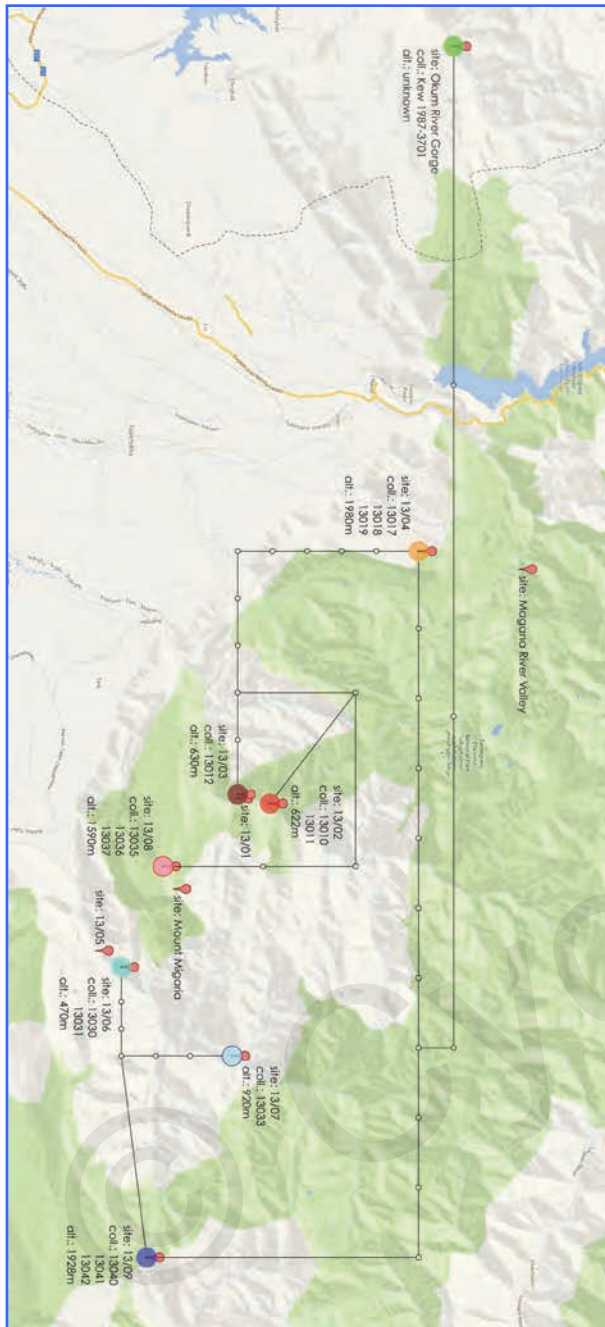
Our task was to investigate whether the genetic variation in the Caucasus plants fell into the general variation of a single species (*C. colchicum*) or of two species, indicating some material to be *C. purpurascens*. This required us to demonstrate how different the two species are based on DNA sequence data.

Modern DNA technology allows DNA sequences to be generated from tiny fragments of plant material. DNA sequences provide a fairly objective measure of how different things can be from each other. We chose to study six different regions of DNA from

	13010	13011	13012	13017	13018	13019	13030	13031	13033	13035	13036	13037	13040	13041	13042	K 1990-480	K 1987-3701	Kranjska Gora
13010	0																	
13011	4	0																
13012	10	4	0															
13017	10	10	10	0														
13018	10	10	10	0	0													
13019	10	10	10	0	0	0												
13030	25	25	25	15	15	15	0											
13031	25	25	25	15	15	15	0	0										
13033	25	25	25	15	15	15	6	6	0									
13035	4	4	6	12	12	12	27	27	27	0								
13036	4	4	6	12	12	12	27	27	27	0	0							
13037	4	4	6	12	12	12	27	27	27	0	0	0						
13040	21	21	21	11	11	11	4	4	4	23	23	23	0					
13041	21	21	21	11	11	11	4	4	4	23	23	23	0	0				
13042	21	21	21	11	11	11	4	4	4	23	23	23	0	0	0			
K 1990-480	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
K 1987-3701	21	21	21	11	11	11	12	12	12	23	23	23	8	8	8	**	**	**
Kranjska Gora	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	18	**	**

Table 2: The number of pairwise DNA substitutions. ** means more than 180.

Figure 1: Distribution of collection sites (shown by balloons) and sites of the eight different DNA sequence types found (shown by the coloured circles). The length of lines has no significance but the number of small circles along them indicates the degree of DNA separation. For more details, see full report on the Society's website.



the chloroplasts of these cyclamen to give a measure of difference between putative species (*C. purpurascens* and *C. colchicum*) and between individuals within the populations under study. Details of the methods are available in the Cyclamen Society field report of the field study (Könyves and Culham, 2014)

We used 15 silica-dried leaf samples of *C. colchicum* from its natural distribution in Georgia provided by the Cyclamen Society, which represented seven different populations, plus a leaf sample from a living *C. colchicum* plant raised from seed collected from the type locality in the Okum Gorge, Georgia. For comparison, two *C. purpurascens* samples from Italy and Slovenia were included to approximate the genetic variation/distance between *C. colchicum* and *C. purpurascens*. See Table 1 on page 18 for details.

The methods for DNA extraction and sequencing are given in the Cyclamen Society expedition report (Könyves and Culham, 2014). Together, the six DNA regions generated over four thousand base pairs of DNA sequence per sample. Each base pair is able to tell a story about the relationship among samples by either matching another or differing from it.

These data were then analysed to generate a pattern of similarity (ie relationship) among the samples that could be represented on a map of the collections following established methods (Könyves and Culham, 2014).

A simple table that shows counts of the number of differences in DNA sequence between each pair of samples (see Table 2 on page 19) showed the very close relationships among the Caucasus collections (a minimum difference of zero and a maximum of 27), while the two samples of *C. purpurascens* each have over 180 differences between them and any *C. colchicum* sample. Even without further analysis it was strongly evident that *C. colchicum* is a distinct species based on the genetic differences found.

Within *C. colchicum*, there remains the question of where its variability occurs. Of the 16 different plants sampled only eight different DNA sequence patterns were found. In contrast, the two samples of *C. purpurascens* were each distinguishable from each other (in part a byproduct of the small sample size).

Once the species are separated, perhaps the most significant result was that all *C. colchicum* collection sites had a different pattern of DNA sequence. This pattern of DNA differences has been overlaid on a map showing the sample sites (see Figure 1 opposite). Two sub-groups could be identified: sites 13/02, 13/03, 13/08 and sites 13/06, 13/07, 13/09.

When plants migrate or spread in an uninterrupted pattern then it is reasonable to expect there to be a link between geographic distance and DNA sequence difference – ie the further apart things are the longer they have been separated from a common parent and the longer time there has been to become genetically different. The geographic patterning we see in the map suggests that the migration

of populations may be predominantly along mountainsides but not crossing river valleys. The result is that what appear to be two mountains close to each other, probably separated by a valley or gorge are at opposite ends of the network of DNA differences. There are two major groups of individuals in shades of red versus blue that are distinct groups. The plant thought to be from the type locality, the most eastern site, is most closely related to site 13/09, the most western site based on DNA substitutions. Overall this shows that there is considerable DNA variation in this narrowly distributed species and that it is distinct from *C. purpurascens*.

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Editor's Note

The technical results of this DNA research have been incorporated into the report of the 2013 Field Study in Georgia. This final version of the report can be downloaded from the Society's website, here: www.cyclamen.org/georgia2013.htm

Spring flowers in Croatia

Jo Hynes

In late April and early May 2013, the Mediterranean Garden Society ran a trip to Croatia which encompassed both the beautiful Dalmatian coast and the inland National Parks of Palenica and Plitvice. Guessing there would be cyclamen involved I joined the group.

The tour started in Dubrovnik and was accompanied by two tourist guides who stayed with us for the week so not only did we have the immense botanical expertise of our tour leader (Chris Gardner) we were also treated to a comprehensive history of the region from the Byzantine to the current era.

Dubrovnik city is a stunning sight with its towering warm sandstone walls jutting out over the Adriatic and its intricate network of narrow streets with red-tiled rooftops being an artist's or photographer's dream. Many of the roofs

have been restored after the damage caused by the Serbian siege of the 1990s and the result has made the city a much sought after film location (Game of Thrones is a recent example).

Leaving architecture behind, the group took a ferry out to Lokrum Island to visit the university botanic garden which was founded there in 1959. It had been developed from the garden of a former Austrian Archduke who had brought back plants from his time in South America. The garden itself is mature with a mixture of Aleppo pine, Cupressus, Arbutus, Phlomis, Escallonia pulverulenta and many magnificent succulents. Beneath the canopy there is a lovely groundcover of wildflowers and bulbs including *Scilla hyacinthoides*, *Asphodelus aestivus*, *Iris pallida*, *Salvia pratensis*, *Ornithogalum* and a very magnificent stand of *Serapias lingua*.

Next we visited Trsteno Arboretum, the entrance to which was flanked by two enormous 500 year old plane trees. This garden had suffered the ravages of the Yugoslavian army in 1991 but there was much to see including some huge *Cycas revoluta*, a lovely stand of pyramidal orchids and the first find of



Iris pallida on the Croatian coast north of Dubrovnik. Photographs by Jo Hynes.

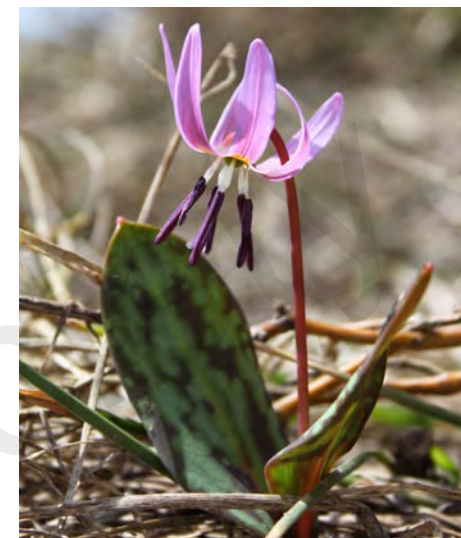
cyclamen – in this case *Cyclamen hederifolium*, but just a few very averagely marked leaves and, of course, no flowers.

After the garden we drove up into the hills where a limestone plateau provided acres of wonderful flowers and in particular orchids. Here we found Man orchids (*Orchis anthropophora*), Monkey orchids (*Orchis simia*) and natural hybrids of the two along with *Orchis quadripunctata*, *Orchis pauciflora*, *Ophrys bertolonii* and *Ophrys mammosa*. Mixed amongst the sheets of orchids were vetches, Ornithogalums, Fumaria, Cerastium, Muscari, Lathyrus, Cistus, Campanula and many, many more. A real floral paradise. A short drive on, we found *Orchis scolopax*, *Neotinea tridentata* (three-toothed orchid), the blue stars of Edraianthus and Campanula, and masses of bright yellow patches of *Linum flavum*.

Driving back to Dubrovnik along the coast we stopped to take in the view, fringed with *Iris pallida*, of the multitude of small islands of Croatia.

The next morning found us, bleary-eyed, on the ferry to one of the larger Islands, Hvar. Driving to our accommodation we were once again thrilled by the sheer quantity and diversity of the wild flowers. Hvar island is criss-crossed with stone walls and terraces and little shepherd huts. In the past, olives were grown on the terraces but more recently lavender has been planted to produce oil for the perfumery business.

We explored some of the quieter tracks and roads enjoying the brilliant blue of *Anchusa cretica*, white *Cistus salvifolia*, the muted fawn of Orobanchae, bright pink of Centaurea and once again many orchids. Also here we found the first vivid magenta flowers of *Cyclamen repandum* pushing up along the road verge, through the tarmac and massed under old fig trees. However for sheer architectural



Erythronium dens canis on Mount Biokovo.

magnificence they could not compete with *Geropogon hybridum*.

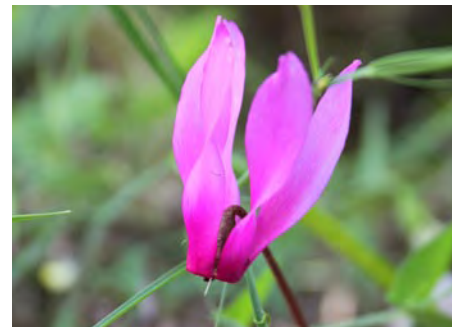
Returning to the mainland, the trip continued along the coast and then climbed inland and steeply up the slopes of Mount Biokovo. The minibuses took us right up to the snowline (we had swum in the sea the evening before) at over 1,600m (5,250ft) where the views stretched from the Adriatic Sea over to the mountains of Bosnia. We left the buses to walk down, botanising on the way. Here were some higher alpine species, silver saxifrages, Draba, Globularia, Muscari, Corydalis, Crocus and Erythronium.

Further down the slopes we came across more orchids, this time *Dactylorhiza sambucina* in both purple and white form, also *Fritillaria montana* and a big patch of *Narcissus poeticus*.

The flowers of Croatia just continued to get better as we next visited the Palenica National Park. This amazing 95 sq km (36.7 sq miles) of dolomitic limestone mountain park hosts



C. repandum in the Palenica National Park (above, below and right).



international rock climbing and we happened to arrive at the time of the annual rock climbing festival. The canyons and rock faces were swarming with fashionably equipped, muscular climbers, men, women and children with music and fancy cars. It reminded me a little of the surfing scene in Devon and Cornwall.

We quickly left the buzz and headed up the gorge to stumble happily into blankets of *Cyclamen repandum* which carpeted either side of the path under a light deciduous canopy of *Carpinus*, *Acer*, *Amalanchier*, *Corydalis* and *Euonymus*. In more open areas grew *Corydalis ochroleuca*, *Neotinia tridentata*, *Dictamnus albus* and some lovely specimens of *Orchis purpurea*.

Our final destination was the Plitvice Lakes National Park. Opening the window in my bedroom I was greeted by the thunderous roar of water. I don't think I had much idea of what I would see the next day but it turned out to be incredible. This National Park is a wonderland of deciduous woods and lakes and tufa waterfalls that continuously shift and change. The lime-rich catchment rivers feed around 16 lakes (some of which you can catch a ferry across) which then crash through lush greenery as waterfalls and the total descent is around 300m (984ft). It is absolutely spectacular. There are miles of trails and boardwalks weaving back and forth over the cascading water and into the woods. Health and safety definitely goes out of the window at

this place. The walkways over the falls are rustic and slatted and the water gushes through them as tourists hang out to get dramatic pictures.

However if the landscape was stunning then so were the plants. The range here included almost everything we grow in a spring garden in the UK: *Pulmonaria*, *Solomon's Seal*, primrose, snowdrop, marsh marigold, hepaticas, wood anemones, *Lathyrus vernus*, *Paris quadrifolia*, *Asarum europaeum*, *Anemone ranunculoides*, *Cardamine enneaphylla*, lily of the valley and of course cyclamen. This time it was *Cyclamen purpurascens* and once again was not flowering but the leaves were quite nicely marked from well silvered to plain glossy green.

I had little idea of what Croatia had to offer to a plant lover: I knew it was a popular destination for teenagers wanting a beach holiday, but it turned out to be one of the most floristically delightful countries I have ever visited. My thanks go to all those involved in organising such a botanically and culturally rich trip.



Waterfalls in the Plitvice Lakes National Park.

Croatian holiday snippets

Ian Robertson

This is really a mishmash about some of the sites where I saw cyclamen growing in Croatia and Montenegro, principally near the coast, with some comments comparing them with sites in other places. I have holidayed three times in Croatia and twice in Montenegro, so it is nowhere near a complete picture but it adds to that painted in Jo Hynes's article on page 22.

First we stayed in Lovren, Istria, which is on the coast below the Učka National Park. *Cyclamen purpurascens* was the only species I saw, mainly growing a bit up the mountain rather than near sea level. While there, we drove to Krk Island to look for the population of *C. repandum* mentioned in Tim Murphy's article in the December 2006 *Journal*. Krk is fairly low-lying, and we found three good sites near the north coast. Tim's article also mentions that it occurs on Cres. I didn't go to Cres, but I looked around Brse and Brestova on the mainland just opposite Cres and found only *C. purpurascens*.

A year or two later we stayed at Brela on the Dalmatian coast, where I seem to remember seeing a few *C. hederifolium* but no other cyclamen, though I understand that *C. purpurascens* occurs in the mountains to the north of Split.

In May 2013, we stayed at Cavtat, just south of Dubrovnik. At the end of March a friend visited the island of Mljet and reported seeing a cyclamen in flower in the north of the island, which I can only think was *C. repandum* and I am told that Oleg Polunin reported seeing it there. Melvyn Joep also saw it in 2013 in the



C. repandum near Babin Kuk, Croatia. Photograph by Melvyn Joep.

Babin Kuk area, just north-west of Dubrovnik, where it was growing with larger populations of *C. hederifolium*. However, around Cavtat and to the south in the woodland around Močići and Čilipi, all I found was *C. hederifolium*. *Cyclamen hederifolium* occurred much further inland in this area. I also found *C. hederifolium* in the hills to the east of the airport near Konavoska and in woodland to the west of Trebinje in Bosnia. I also saw it in Montenegro just south of Budva, between Pržno and Sveti Stefan, but failed to find it further south when we stayed in Petrovac.

If the above distribution is typical – and it may not be – it poses two conundrums to me: first, I have seen *C. repandum* in Corsica, where it not only grows at low altitudes, but also quite high up. For instance there are large populations above L'Ospedale, inland from Porto-Vecchio and further north around Piedicroce. Why are those in Croatia confined to low altitude sites near the coast? Secondly, *C. hederifolium* grows in Corfu and in Albania, but does it grow in southern Montenegro or is there a gap between the populations and, if so, why?

Preparation and successful rooting of *C. hederifolium* cuttings

Mike Brown

As is well known, cyclamen, including many cultivars, are almost invariably propagated from seed. True cloning of cyclamen occurs only rarely and the accepted view seems to be that propagation from seed is the only practical way. However, a reliable method of vegetative propagation, even if it were more difficult and less convenient than seed sowing, would at least be of academic interest and also probably of some use in research. Vegetative propagation could also have some specialised horticultural or botanical use, for example, in cases where an exceptional cyclamen is encountered, either in cultivation or perhaps more importantly in the field. The ability to be able to produce and distribute genetically identical plants could be useful in conservation work. There is of course also a possibility, not to be completely dismissed, that vegetative propagation might be easier than now thought likely and have a somewhat wider application.

Discussions on vegetative propagation of cyclamen have been presented by Christopher Grey-Wilson (2002). Suffice to say here, the two methods that seem the most obvious are propagation by division of the tuber and propagation by means of cuttings. It is the latter method, seemingly little explored, that has interested me. Propagating cyclamen from cuttings, however, seems to present two particular problems. The first is what to take as the stem component of the cutting. Cyclamen leaves normally grow from the

part of the plant termed the floral trunk. This, contrary to what its name may imply, is usually very small and represents only a tiny fraction of the mass of the whole plant. However, it is that part of the plant which seems most stem-like and therefore seems very desirable to have as a part of a cutting. The second problem, one of timing, arises because the annual cycle of growth in cyclamen is coming to an end in late spring. In summer, cyclamen remain seemingly dormant, during the very time that most propagation via cuttings is carried out. During these seasons of the year most other plants are growing actively and vigorously, responding to the seasonal warmth and high light levels. Warmth and good light also favour rooting of cuttings. However, given that cyclamen growth is slowing to almost a standstill in late spring or summer, it seems to me on balance that these would be bad times of year to take cyclamen cuttings. I would rather put vigorous growth of the stock plant as being more important than ambient warmth and good light. On this basis then the ideal time to take cyclamen cuttings would be late in the year, say from mid-October to mid-December.

There would also seem to be another particular advantage in taking cuttings late in the year. Each leaf (and its petiole) is then not only actively growing but it is quite large, almost but not quite fully grown, and represents already a substantial amount of biomass. This could be very desirable in providing sufficient reserves of energy to sustain cuttings during rooting, and get them away to a good start, without a significant contribution required from stem tissue which in the cyclamen is in short supply. Photosynthesis too could be kept going or restarted rapidly after root formation. A cutting can be envisaged as a leaf bud cutting consisting of a leaf, a petiole and just a short sliver of stem with the attached axillary bud. This would also be advantageous

in enabling a lot of cuttings to be taken from a given plant.

Cyclamen hederifolium, having a robust and vigorous constitution, seemed the ideal species to study. Cuttings, comprising one or more leaves attached to a chip of floral trunk, were first taken and rooted on an exploratory basis in late 2009. Further studies were made in 2010 and 2011 improving the technique somewhat. The main lesson learned from the exploratory work in 2009 was that the amount of floral trunk material could be surprisingly small, being equivalent approximately to that of a very large cyclamen seed. The following description of how cuttings may be prepared and rooted is the best current practise but of course it takes into account lessons learned from only a relatively few years of experience. Very high success rates of initial root formation can be achieved (with care these are essentially 100%) but of course this doesn't necessarily mean that all cuttings are viable in the longer term.

Preparation of cuttings

Cuttings are taken from four- to five-year old plants, grown in pots, and in good health, ensuring that the foliage is turgid. Compost is removed and the entire plant is washed under the tap and the roots are cut off. In all *C. hederifolium* available as stock plants, the floral trunks invariably and unhelpfully were found to arise from a V-shaped depression in the tuber and are very hard to get at. The tuber is therefore cut away piece by piece until the floral trunks can be severed cleanly from the remaining small piece of tuber. Often the leaves and petioles are a tangled mass which need sorting out, sometimes best done under water in a bowl. From now on the cuttings are prepared using a sterile scalpel. Usually the stock plants have about 20 to 30 leaves and it is fairly easy to take 5 to 10 cuttings, selecting

healthy leaves one by one and cutting into the floral trunk tissue at the base of the petiole to form the cutting. These are kept turgid by placing them in a wet polythene bag. Much unused, and unusable, material is discarded, including seed pods and remains of flowers and they are cut away at the very base of the pedicels. Petioles are often very closely spaced on the floral trunks and getting a cutting with a suitable amount of floral trunk attached is made difficult. However, unwanted leaves can be removed, severing the petioles close to their point of attachment to the floral trunk. Such wounds, seemingly large in relation to the small chip of floral trunk, do not seem to affect the viability of the cutting and may actually be helpful. Also many more wounds arise from the removal of pedicels.

There are some points to note on taking cuttings. The cuttings are more robust than might be anticipated but it is important not to damage tissue at the junction between petiole and floral trunk. Any cutting with damage to the petiole should be rejected. Small immature leaves are not suitable. Although the total amount of floral trunk tissue is small, it is important that both the internal tissue and outer epidermal layer are well represented. For example, if the ideal chip might be one of rectangular box-like shape (never achievable in practice), one of the larger sides should be made up of the epidermal layer and the other five sides would result from incisions into the internal tissue. Thinking of the same idealised shape, the area of epidermal tissue would vary from about 2x3mm to 3x5mm. Roots can form from very, very tiny amounts of floral trunk tissue but in the longer term the cuttings are not likely to be viable. As a final step in preparation of cuttings, they are totally immersed in fungicide solution (myclobutanil), used at half strength, for 10 to 20 minutes.

Placing cuttings in rooting medium

Vermiculite seems to work very well as a medium in which the cuttings can begin the very first stages of root formation. A quantity is placed in a polythene bag and water is added, enough to increase the density and make it much easier to handle and to support the cuttings better. Too much water should not be added or the vermiculite will not flow freely. The pile of cuttings at this stage presents a daunting sight with the unruly petioles varying in length sometimes from 50mm (2in) to more than 200mm (8in) and with the large leaves set at an angle. They are seemingly composed of unpredictable springy material bent into the most irregular shapes. Getting them into vermiculite seems quite impossible. However, the following method makes it actually quite easy.

The cuttings are selected according to length in different batches, this helps a bit. Small batches of cuttings, between 6 and 8 in number, are rooted collectively in plastic pots of 115mm (4.5in) diameter or larger depending on the size of the leaf lamina and the total length of cutting. Very fortunately, it is not necessary to ensure that cuttings do not touch each other, the sides of the pot or any transparent enclosure above them. It is just as well because it is impossible to place *C. hederifolium* cuttings precisely in any predetermined position. However, the cuttings, after being bathed in fungicide solution, are extremely resistant to fungal attack and this helps enormously.

With vermiculite placed in the pot to a depth of about 15mm (0.6in), the cuttings are then put in, spacing them around the pot, hooking the leaves over the rim of the pot if the petioles are short; if they are long the lower tip of the cutting can be pushed down onto the top of the layer of vermiculite. The pot is then gradually filled to the brim with vermiculite, rearranging the cuttings when

necessary but not being concerned about the spacing and contacts between petioles beneath the vermiculite or any apparent tangles. The longer cuttings may require the petioles to be compressed into a partial spiral as the pots are filled. Finally a little rearranging can take place and, where possible, the leaves levered gently towards the middle of the pot to minimise overhanging.

The vermiculite requires further watering. It needs to be quite wet, containing almost as much water as it can take up by capillary action. This can be achieved by standing the pot in water of a couple of cm (an inch or so) in depth for 20 to 30 minutes after which the vermiculite becomes moist enough right to the top. The excess of water is then removed by placing the pot on an absorbent surface for a little while. The pot and contents are then placed inside a polythene bag (as used in freezers) and then closed at the top with a wire tie to keep the air inside humid. Sometimes a wire frame is used to minimise contact between the leaf lamina and polythene bag.

First phase of propagation

When kept at a temperature of 22°C (72°F) in vermiculite, cuttings form roots within a period of about 3 to 4 weeks and they are best kept in this medium for 6 to 8 weeks. By placing the pots (enclosed separately in plastic bags) into holes in a horizontal partition of plywood within the propagator; this relatively warm temperature is maintained only within the lower part of the propagator. The top part of the cuttings consisting of the leaf lamina and the top few cm of petiole is situated above the partition within the propagator enabling it to be kept in a much cooler environment. So to summarise, each pot of cuttings is in its own small humid environment within a polythene bag, heated largely from beneath, and with other similar pots, placed within a



A batch of seven 'First phase' cuttings of *C. hederifolium* removed for early observation at 4 weeks (above and right). Photographs by Mike Brown.

propagator. The propagator itself has a plastic top, approximately 50cm x 40cm (20 x 16in) in size, of the type readily available in garden centres. To give additional height the plastic top is raised by a wooden frame over the plywood partition.

Propagators are kept within a frost-free greenhouse which minimises somewhat the heat required to raise the temperature to 22°C (72°F) but even so heaters of a minimum output of 120 watts are required which is quite a lot for such a small propagator. An electronic thermostat and small electric fan, both situated beneath the plywood partition, ensure excellent temperature control. Provision of sufficient controllable heat during the coldest months of the year is thus made

possible. It is necessary to shade from direct sunlight even though it is winter.

As can be readily imagined, the temperature gradient within each polythene bag results in a lot of condensation and a continuous process of reflux occurs. Water from condensation accumulates in the bottom of the bag but, providing the bag is a close fit to the bottom of the pot, it is reabsorbed by the vermiculite. Sometimes, though, it is necessary to drain off excess water. When cuttings are removed for examination, they should be treated again with fungicide, otherwise they are quite likely to rot.

Roots formed in vermiculite are very similar to roots formed when cuttings are rooted in water and although vermiculite, being sterile,



seems ideal initially, it is not suitable for the next stage during which cuttings are taken to the point where they are able to cope with conditions of normal humidity and very little additional heat.

Second phase of propagation

When quite a lot of roots are about 30mm (1.2in) in length, the cuttings are best moved on and placed in new compost in which they grow until about weeks 14 to 24. A mixture made up of approximately equal amounts of perlite and a soil-less seedling compost based on peat seems to be satisfactory although initially a compost containing perlite, soil and leaf mould was used successfully. Cuttings are washed free of vermiculite and bathed in fungicide as before and placed into similar or slightly larger pots, putting almost as many cuttings per pot as before, depending upon the amount of root growth. During this phase the root system is going to develop a lot, all roots of course originating from the bottom tip of each cutting (from what was originally the chip of floral trunk tissue). To make a bit more

room for the developing roots, it is useful to place the lower tips of the cuttings higher up in the pot than previously. Apart from this, the procedure is the same but it may be more necessary to support the leaves with a wire framework because there is now a longer length of petiole exposed above the compost.

Pots, enclosed in sealed polythene bags, are replaced in the same or a similar propagator. The temperature is initially set a bit lower at about 20°C (68°F) and gradually lowered further until it is at about 14°C (57°F) at the end of this 6 to 8 week phase. Ventilation within the polythene bags is introduced after a couple of weeks and gradually increased further by loosening the ties or by means of small holes, until the bags are almost fully open towards the end. From the beginning of this phase the compost is kept just normally moist hence there is a need initially to keep the humidity within the bags high to allow the cuttings to acclimatise to their new environment. Water loss increases with the amount of ventilation and needs to be made good. If all is well the leaves will remain turgid.

During this phase, the leaves become noticeably more mature, deeper green, thick and leathery in appearance and the petioles thicken and become more rigid. The cuttings develop quite extensive root systems and if left for 24 weeks can be potted up individually. What is most surprising however, is the formation of immature leaf and even flower buds in various stages of development up to as much as 60mm (2.4in) in length but generally much smaller. Such growth, of course, is quite unseasonal for *C. hederifolium*.

Discussion

When cuttings are prepared as described, they root readily and vigorously and the success rate is essentially 100%. Progress is also very encouraging when cuttings are moved on at

about 6 weeks from vermiculite into normal compost. Growth rates are quite remarkable and by 24 weeks (April the following year) cuttings have grown into quite substantial plants and their quality is consistently good. At this stage, plants from cuttings would be about one year or more ahead of comparable plants grown from seed.

Further growth of the small plants from April into the summer is also very rapid, vigorous summer growth being, of course, uncharacteristic of cyclamen.

One of the problems of taking cuttings from *Cyclamen hederifolium* is the very long irregular petioles that the plants possess. The length

of the petiole could perhaps be reduced by growing stock plants with the tuber exposed for this does appear sometimes to restrict petiole length. Finding it invariably necessary to sacrifice stock plants was a big disappointment.

Sometimes tubers of, usually older, *C. hederifolium* have small floral trunks growing from the entire area of the top of the tuber and such floral trunks could be removed readily without significant damage to the donor plant and thus saving it from being sacrificed. Unfortunately no such plants were available to me. Interestingly, *C. graecum* is another species which often produces many small adventitious floral trunks. I found



Five of the same cuttings towards the end of the 'Second phase' at 24 weeks after disentangling their root systems (above and right).



Potful of 'Second Phase' cuttings at 24 weeks.

a number of such plants available, which presented an irresistible alternative target for propagation. Taking a few cuttings on an exploratory basis presented no problems, the wounds rapidly healed and the cuttings readily rooted. This looks promising as *C. graecum* is an important species often found in very fine forms.

Reference was made earlier to the possibility of producing a large number of genetically identical plants from a single donor plant. In an attempt to demonstrate this, from a fairly



large *C. hederifolium* having approximately 100 leaves it was found possible to take as many as 50 cuttings. Of these, 46 were successfully rooted in the usual way in vermiculite at 22°C (72°F). Although attempts to grow them on further were only a limited success and the experiment was abandoned, this single attempt does demonstrate that relatively large scale propagation from a single donor plant is a realistic possibility.

Finally, a point of some possible interest comes from close examination of cuttings while they are developing. Roots appear to grow mostly from cut areas of the floral trunk chip, ie they appear from what was internal tissue of the floral trunk but they sometimes are seen to appear from the surface that was previously the external epidermal layer. However, leaf and flower buds invariably grow from this latter ex-epidermal layer and visible changes within this layer occur very early on. This suggests that bud initiates are already present in the floral trunk sample and early indications are that they are essential to successful development into a new plant. Swelling of the floral trunk chip also commences early on in development of the cutting, continues to increase with time and eventually a tuber is formed.

Future articles will describe growing on the cuttings into mature flowering plants and other aspects of the research.

Acknowledgements

A contribution from The Cyclamen Society towards the cost of equipment is gratefully acknowledged and thanks are due to Vic Aspland, Martyn Denney and John Good for their help and encouragement.

Reference

Grey-Wilson, C (2002). *Cyclamen. A Guide for Gardeners, Horticulturists and Botanists*, 27. BT Batsford, London.

Sorrento and *C. hederifolium*

Barbara Boize

In late October 2013 I was due to go on my first-ever holiday to Italy, to the Bay of Naples area staying in Sorrento on the limestone Amalfi peninsula. I therefore read with interest Jo Hynes's account of her visit to an area further south ('An afternoon with *C. hederifolium*', in the June 2013 *Journal*, p 8) as I planned to look out for cyclamen.

I was one of a group on a specially arranged tour visiting the famous archaeological sites south-east of Naples and the volcanoes of Vesuvius and the Campi Flegrei. Unsurprisingly, I found no cyclamen on the

slopes of Vesuvius or at the archaeological sites, but the Italian Wall Lizards (*Podarcis sicula*), which were especially abundant at Paestum (impressive Greek temples), were delightful and easy to photograph.

My first encounter with *Cyclamen hederifolium* was unexpected. Towards the end of the tour we visited the Grotta del Cane (Cave of the Dog) in the Campi Flegrei. By arrangement with the Hotel delle Terme di Agnano (beautiful gardens with many large palms and conifers), we requested the holder of the key to the cave to open it for us. Gathered round the entrance to what is actually a fumarole, we felt the warm gases, which include carbon dioxide, welling up around our ankles and sandaled feet; it was not possible to go into the cave which in any case looked particularly uninviting. It was then I spotted my first cyclamen. A few flowering plants were growing

on the very steep and shady bank to the right of the fumarole. The plants looked typical with some seeds pods developing.

On the final day, instead of joining in a return visit to Naples, I decided to explore the hills south of Sorrento which are intensively cultivated with olives, lemons and oranges. I had a simple map showing country walks (passeggiate) and went to Sant'Agata 1.5 km (0.9 miles) away and at a height of 390 m (1,280 ft). It is at least 6 km (3.7 miles) by very twisting roads. The route of the walk looked straight, along the Via Casarufolo and Via Circumpiso. It turned out to be a strenuous uphill slog along a mixture of roads, tracks, footpaths and steps with hardly any way marks.

About halfway along the walk, on a sharp bend, I was delighted to discover the first of many colonies of cyclamen scattered on

the route. Plants grew on steeply sloping banks under trees and bushes, in crevices in walls, between blocks of limestone, on flatter areas deep in grass and along the edges of cultivated fields.

After refreshments in Sant'Agata I decided to return by the gentler way of Via Li Schisani and Santa Maria del Toro to the western end of Sorrento. Again there were colonies of cyclamen scattered along the footpaths and tracks. There were also excellent views over Sorrento and the Bay of Naples.

On both routes all plants had typical pink flowers, some with long thin twisted petals while others had dumpier ones. Some plants were in leaf though there was little variation in pattern and none was distinctively marked.

A perfect end to my trip to Italy.



Cyclamen hederifolium south of Sorrento (above and right). Photographs by Barbara Boize.



Seed Distribution

Roy Skidmore writes: As we move on to my fifth year as Seed Distribution Manager I would like to pass on my continued thanks to all the seed donors and all the members who have assisted me with this task. The support is invaluable to me.

Your application form is in with this *Journal*. Please be sure to fill in the form fully (including your e-mail address) and send the correct postage.

Donors

Fresh seed of all species/varieties is needed... especially rarities. Each variety should be packed in a separate packet and labelled with the species name, varietal epithet and 2014 code if applicable (see opposite). Please ensure that all seed is completely dry, clean and free from dried seed pod material – for more on this, see *Journal*, June 2009, p8. If you are sending seed of *C. persicum*, include the flower colour of the parent plant. If you are sending wild-collected seed, please state date and location of collection. Please ensure that donations reach the Seed Distribution Manager by **31 August** at the latest.

Applying for seed

Only applications on the official form will be accepted. Please include your Society membership number (after your name on your membership card sent with the December *Journal* and on the June address label). Distribution will start in mid-October and takes four to six weeks so please do not enquire about missing seeds until early December.

Please list adequate alternatives which should include different varieties from those already ordered. Where a variety is in short supply, donors will get priority. No member will receive more than one packet of any rare form or more than five packets of any variety. No non-donor will receive all rarities. Last date for receipt of all applications (UK and overseas) is **31 August 2014**. Donated seed and application

forms should be sent to: Roy Skidmore, [redacted]

Overseas members

All US members must apply for a small seed lot import licence from the USDA. More information on this can be found at: http://www.aphis.usda.gov/import_export/plants/plant_imports/smalllots_seed.shtml Overseas members are advised to pay by limit cheque (see back of form) drawn in euros on a euro account or dollars on a dollar account. If this is not possible, seed will be sent to the value of the payment, substituting if necessary. Your list of alternatives is very important. See also **PayPal** below.

CSE seed

Seed from plants collected on Society field studies (each with a "CSE" number) will be listed separately. To get this list (available after mid-September), UK members should send a SAE to Roy Skidmore at the address above. Overseas members just send a self-adhesive label. The CSE list will also be available via e-mail at seeds@cyclamen.org. A special web page illustrating many of the parents of the listed collections, in the wild, will be made available at www.cyclamen.org/CSEseed2014. Many of the CSE plants are especially interesting with particularly good flowers, leaves or both.

Notes to holders of CSE plants

Please keep a careful eye on your plants to see that seed pods are not missed and omitted from the CSE seed distribution. Send seed to Roy Skidmore (address above) as early as possible and if it is not ripe or none has set by 6 September please let him know.

PayPal

Please note PayPal is offered as a payment facility for **overseas members** only. If paying by PayPal, please tick the PayPal box on the application form. Once I know what seed is available, I'll email applicants and let them know the cost of their order (likely to be mid-October).

General Seed List

(packets will be numbered only, so keep this list)

- | | | | | | |
|----|--|-----|--|-----|--|
| 1 | <i>africanum</i> | 41 | <i>cyprum</i> 'ES' | 86 | <i>mirabile</i> 'Tilebarn Anne' |
| 2 | <i>alpinum</i> | 42 | <i>elegans</i> | 87 | <i>mirabile</i> 'Tilebarn Jan' |
| 3 | <i>alpinum</i> white fl | *43 | <i>graecum graecum</i> | 88 | <i>mirabile</i> 'Tilebarn Nicholas' |
| 4 | <i>alpinum</i> ex CSE | *44 | <i>graecum anatolicum</i> | 89 | <i>parviflorum</i> |
| 5 | <i>balearicum</i> | *45 | <i>graecum candidum</i> | 90 | <i>persicum</i> pink fl |
| 6 | <i>cilicium</i> | 46 | <i>graecum</i> | 91 | <i>persicum</i> white fl |
| 7 | <i>cilicium album</i> | 47 | <i>graecum album</i> | 92 | <i>persicum</i> ex CSE |
| 8 | <i>cilicium</i> ex CSE | 48 | <i>graecum</i> ex CSE | 93 | <i>persicum</i> pure white, no red nose |
| 9 | <i>cilicium</i> 'Bowles Variety' | 49 | <i>graecum</i> pewter/silver leaf | 94 | <i>persicum</i> 'Tilebarn Karpathos' |
| 10 | <i>colchicum</i> | 50 | <i>graecum</i> 'Glyfada' | 95 | <i>persicum</i> pewter/silver leaf |
| 11 | <i>confusum</i> | 51 | <i>graecum</i> 'Rhodopou' | 96 | <i>pseudibericum</i> |
| 12 | <i>coum</i> magenta fl | 52 | <i>hederifolium</i> pink fl | 97 | <i>pseudibericum roseum</i> |
| 13 | <i>coum</i> pink fl | 53 | <i>hederifolium</i> white fl | 98 | <i>purpurascens</i> |
| 14 | <i>coum</i> white fl | 54 | <i>hederifolium</i> mixed | 99 | <i>purpurascens album</i> |
| 15 | <i>coum</i> mixed | 55 | <i>hederifolium</i> <i>crassifolium</i> | 100 | <i>purpurascens</i> 'Fatra Form' |
| 16 | <i>coum</i> ex CSE | 56 | <i>hederifolium</i> ex CSE | 101 | <i>purpurascens</i> silver leaf |
| 17 | <i>coum</i> ex CSE 88397 | 57 | <i>hederifolium</i> scented | 102 | <i>repandum</i> |
| 18 | <i>coum</i> ex CSE 88020B | 58 | <i>hederifolium</i> 'Antiochus' | 103 | <i>repandum album</i> |
| 19 | <i>coum albissimum</i> 'George Bisson' | 59 | <i>hederifolium</i> 'Artemis' | 104 | <i>rhodium</i> |
| 20 | <i>coum albissimum</i> 'Golan Heights' | 60 | <i>hederifolium</i> 'Bowles Apollo' | 105 | <i>rhodium</i> ex CSE |
| 21 | <i>coum albissimum</i> 'Lake Effect' | 61 | <i>hederifolium</i> 'Ellen Corker' | 106 | <i>rhodium peloponnesiacum</i> |
| 22 | <i>coum caucasicum</i> | 62 | <i>hederifolium</i> 'Fairy Rings' | 107 | <i>rhodium peloponnesiacum</i> ex CSE |
| 23 | <i>coum</i> (kuznetzovii) | 63 | <i>hederifolium</i> 'Lysander' | 108 | <i>rhodium peloponnesiacum</i> <i>albiflorum</i> |
| 24 | <i>coum</i> scented | 64 | <i>hederifolium</i> 'Perlentteppich' | 109 | <i>rhodium vividum</i> |
| 25 | <i>coum</i> 'Linnett Jewel' | 65 | <i>hederifolium</i> 'Rosentteppich' | 110 | <i>rhodium vividum</i> ex CSE |
| 26 | <i>coum</i> 'Linnett Rose' | 66 | <i>hederifolium</i> 'Ruby Glow' | 111 | <i>rohlfianum</i> |
| 27 | <i>coum</i> 'Meaden's Crimson' | 67 | <i>hederifolium</i> 'Stargazer' | 112 | X <i>drydeniae</i> (<i>coum</i> x <i>alpinum</i>) |
| 28 | <i>coum</i> 'Nymans' | 68 | <i>hederifolium</i> 'Tilebarn Greville' | 113 | X <i>hildebrandii</i> (<i>africanum</i> x <i>hederifolium</i>) |
| 29 | <i>coum</i> EKB (pink & white forms) | 69 | <i>hederifolium</i> 'Tilebarn Helena' | 114 | X <i>meikleii</i> (<i>creticum</i> x <i>repandum</i>) |
| 30 | <i>coum</i> pewter/silver leaf, pink fl | 70 | <i>hederifolium</i> 'Tilebarn Shirley' | 115 | X <i>saundersiae</i> (<i>balearicum</i> x <i>repandum</i>) |
| 31 | <i>coum</i> pewter/silver leaf, white fl | 71 | <i>hederifolium</i> pewter/silver leaf, pink fl | 116 | X <i>schwarzii</i> (<i>libanoticum</i> x <i>pseudibericum</i>) |
| 32 | <i>coum</i> 'Blush' | 72 | <i>hederifolium</i> pewter/silver leaf, white fl | 117 | X <i>wellensiekii</i> (<i>libanoticum</i> x <i>cyprum</i>) |
| 33 | <i>coum</i> ex BSBE form 1 | 73 | <i>hederifolium</i> silver leaf, ruby fl | 118 | X <i>whiteiae</i> (<i>graecum</i> x <i>hederifolium</i>) |
| 34 | <i>coum</i> ex BSBE form 2 | 74 | <i>hederifolium</i> 'Nettleton Silver' | 119 | <i>balearicum</i> x <i>creticum</i> |
| 35 | <i>coum</i> 'Maurice Dryden' | 75 | <i>hederifolium</i> 'Silver Arrow' | 120 | pot cultivars, large fl |
| 36 | <i>coum</i> 'Tilebarn Elizabeth' | 76 | <i>hederifolium</i> 'Silver Cloud' | 121 | pot cultivars, small fl |
| 37 | <i>coum</i> 'Tilebarn Graham' | 77 | <i>hederifolium</i> 'White Cloud' | | |
| 38 | <i>creticum</i> | 78 | <i>intaminatum</i> plain leaf | | |
| 39 | <i>creticum</i> ex CSE | 79 | <i>intaminatum</i> patterned leaf | | |
| 40 | <i>cyprum</i> | 80 | <i>intaminatum</i> mixed leaves | | |
| | | 81 | <i>intaminatum</i> pale pink fl | | |
| | | 82 | <i>intaminatum</i> ex CSE | | |
| | | 83 | <i>libanoticum</i> | | |
| | | 84 | <i>mirabile</i> | | |
| | | 85 | <i>mirabile</i> ex CSE | | |

*Donors: only include subspecies for seed of *graecum* if you are certain this is correct. Where the subspecies is unknown, label as *graecum* (Code no 46).

Show Business

Shows in Autumn 2014

Sunday 21 September: Conference Show – Birmingham Botanical Gardens in conjunction with this year's conference (see p2 for brief details of the conference).

Saturday 11 October: Autumn Show – Hillside Events Centre at RHS Wisley Gardens.

All our Shows depend for success on you, our members, bringing as many of your favourite cyclamen and putting them on the show benches. So if you have never shown plants before, why not take the plunge and enter some plants in this year's shows? It may seem daunting but remember even the best-known exhibitors had to take the plunge too and enter their first show. There will always be plenty of experienced exhibitors and show officials on hand to give you all the help you will need.

There are a few things you can do before you leave home:

- make sure the pot is as clean as possible
- remove any unwanted material from plant and pot and, of course, any weeds
- top dress with a suitable material
- arrange the foliage and flowers so that the plant looks as neat as possible.

This is a great opportunity to show off your favourite plants – not just to other members of the Society but to visitors to Wisley and the Birmingham Botanical Gardens too. You really get a buzz when you see that prize card in front of your plant – so why not become one of the growing number of NEW exhibitors.

Staging and plant sales will start at 8am, judging will start at 10.15 and the shows will be open to the public from 11.30am to 4pm. Directions



Ian Robertson's *C. coum*, winner of Class A3 and the Jill Moore Trophy for Best *C. coum* at the Wisley Winter Show. Photographs by Martyn Denney.

to the shows can be found on the Society's website: www.cyclamen.org/shows

Details of the classes and trophies to be awarded at the shows are in the show schedules included with this *Journal*. Please note that plants entered in the CSE progeny classes should be 1st generation progeny only.

Any queries concerning the show schedules or about the show generally should be addressed to the Assistant Show Secretaries:

Members are invited to bring plants not for competition which they would like to display or ask about. Also please bring surplus plants (cyclamen, or other plants likely to interest cyclamen growers), to sell or exchange; you will be expected to donate 25% of the proceeds to the Society (exchanges will be treated as sales). "Bargain" cyclamen (at a very low price, to encourage starter growers) are very welcome. Plants for sale should have two labels, one with the name of the plant, the other with the seller's name and price: prices must be IN MULTIPLES of 50p – for example £1.50, £2 and £3.50.

Shows in 2015

Unfortunately the RHS are unable to consider



C. alpinum CSE97006T winner of Class A8 and the Moira Reid Trophy for best *C. alpinum*, grown by Ian Robertson.

our request for dates for the 2015 shows at Wisley until later in the summer. As soon as we have firm dates, we'll put them on the Society's website. The 2015 conference will be held at Birmingham Botanical Gardens on Sunday 27 September 2015.

Wisley Winter Show, 8 February 2014

Paul Whitlock writes: The day started like something from 'Winnie the Pooh and the Blustery Day', with howling gales threatening to sweep off their feet everyone daring to venture out. There was even a lecture from 'Wise Old Owl' in the person of Brian Mathew who was scheduled to talk later about the Society's 'Big Book' (*Genus Cyclamen*). However, once inside the Hillside Events Centre there were plenty of colourful, well-grown plants to look at, for those hardy enough to make it that far (though, after lunch, once the rain started coming down



Ian Robertson's *C. parviflorum* winner of Class A9.



Lee and Julie Martin's dark-flowered *C. pseudibericum*, winner of Class B4.

in sheets as it had since December, there were not so many of those). Still, it gave a good chance for exhibitors to catch up with each other's news!

On the show benches there was plenty of note even without two of our most experienced exhibitors. They were otherwise engaged in setting out an excellent display of prints which featured in *Genus Cyclamen* to complement the start of a two month-long exhibition in the Lindley library, Wisley of the Society's paintings from the book. The mild wet winter meant *Cyclamen coum* and *C. alpinum* were at their peak.

I always find the three pot classes difficult, as they require, guess what – three plants of sufficient quality to win. However, Ian Robertson found a varied, well-flowered trio of 'Golan Heights', 'Meaden's Crimson' and *C. coum* forma *album* to take Class A1. Duncan Gates beat off stiff competition from Steve Walters to win the foliage class, A2, with a trio of *C. hederifolium* subsp. *crassifolium*, *C. confusum* and *C. hederifolium* subsp. *hederifolium*. Their reserves seemed none too depleted by this exertion either, with all three featuring heavily in other classes and Ian taking first prize and trophies in both Classes A3 and A8 with similarly magenta-coloured specimens of *C. coum* and *C. alpinum*.



C. alpinum won Class C2 and the Temple Trophy (best plant in the novice section) for Jan Aspland at the Wisley Winter Show.

The rest of us still have catching up to do in the large pot classes for these species.

Among the small pots, although the 'Steve Walters' class for *C. coum* in flower (B1) was a clean sweep once again (and with what looked to me like a different selection of plants from last year, indicating considerable strength in depth), the other classes were a free for all, with five other prize winners, including Lee and Julie Martin's excellent dark-flowered *C. pseudibericum* with well-marked leaves in

Class B4. This was their only entry of the day and one which they nearly didn't bring because they didn't think it was good enough, showing quality will always win out over quantity.

Your reporter attempted the reverse with *C. elegans* in Class A7 and excited some comment by taking all the prizes there but, in mitigation, I put as much seed from these plants into the Society's exchange as I can, so this is unlikely to persist once better growers get their eye in. Other plants which caught my eye and from which I would be very happy to receive seed included a *C. mirabile* from Vic Aspland and a *C. purpurascens* from Steve Walters both in Class A3, a *C. coum* from Jan Aspland in Class C1 and a *C. pseudibericum* from Helen Sissons in Class C4, all with very well marked leaves.

The photo sections were slightly depleted by the absence of our print exhibitors but there were still some class shots to make us wish for warmer climes and a fine display of early flowering crocus and a few snowdrops brought a range of different colours to the room.



Ian Robertson's 1st prize winning exhibit in Class A1 at the Wisley Spring Show.

Class Results

11 exhibitors, 89 competitive entries

Details of the results for all the classes can be found on the society's website: www.cyclamen.org/shows

Judges: Melvyn Jope, Helen Sissons and Roy Skidmore

Trophy Winners

Jill Moore Trophy (best *C. coum* in flower) – Ian Robertson, Class A3.

Moira Reid Trophy (best *C. alpinum* in flower) – Ian Robertson, Class A8.

Brian Mathew Award (best Society-collected plant or progeny of such plants) – Steve Walters for *C. coum* (CSE 2nd generation), Class A15.

Temple Trophy (best plant in Novice Section) – Janet Aspland for *C. x schwarzii*, Class C3.

Wisley Spring Show, 29 March 2014

Paul Whitlock writes: A more pleasant contrast to the day of the winter show could scarcely be imagined, with a calm, warm, sunny day bringing out the crowds and a plentiful supply of good plants for show. Jan and Meike Bravenboer attempted to overflow the sales tables with masses of high quality plants, brought on one of their now traditional visits from Holland. The display of prints to complement the exhibition of paintings



C. creticum f. *pallide-roseum* exhibited by Ian Robertson. Winner of Class A8 and the Crete Trophy.

in the Lindley Library, Wisley was repeated (see report of the Winter Show). In addition to the photographic record of last summer's expedition to the Caucasus to research *Cyclamen colchicum*, there was an exciting (for me at least) display of pictures from the very recent March field study in Lebanon to research *C. libanoticum*. This showed a range of flower and leaf markings not displayed in plants I have seen hitherto.



Classes A11 and A12 at the Wisley Spring Show with the antique print display in the background.



Duncan Gates's *C. repandum*, winner of Class A7.

For once, the weather had been conducive to bringing out the full range of species we might hope to see at this show, with *C. rhodium* well represented. A review of the trophy winners might lead an observer to conclude this was a one-man show, with Ian Robertson sweeping the senior prizes but the competition was fierce in all classes and there were five other winners also.



Ian Robertson's *C. pseudibericum*, winner of Class A11 and the Peter Jones Plate for the Best Plant in Show.

A selection of *C. pseudibericum*, *C. libanoticum* and a late flowering *C. coum* took Class A1 for Ian but Steve Walters and Duncan Gates rejoined battle in the foliage Class A2. Steve came out on top on this occasion with *C. graecum*, *C. coum* and *C. hederifolium* 'Fairy Rings' thus leaving honours split evenly for the year so far. Several classes stood out for number of entries and quantity of flower. Classes A11 for *C. pseudibericum*, A13 for *C. persicum* cultivars, B2 for *C. rhodium* subsp. *peleponnesiacum*, B3 for *C. rhodium* subsp. *viduidum*, B5 for *C. persicum* and B6 for other species were all in this category with six different winners.

As usual, particularly attractive plants raised my hopes for seed from the exchange. Those for flower were a *C. rhodium* subsp. *peleponnesiacum* in Class A4, a *C. repandum* in Class A7 and a *C. persicum* in Class A12 all from Duncan Gates, a *C. rhodium* subsp. *viduidum* in Class A5 and a *C. creticum* forma *pallide-roseum* in Class A8 from Ian Robertson, together with a *C. balearicum* in Class A9 from Steve Walters. For foliage there was a *C. hederifolium* 'Lysander' type in Class A16 from Jan Aspland, a *C. creticum* in Class A18 from Pat Nicholls, several *C. rhodium* subspecies in Class B4 and *C. hederifolium* in Class C4 from Phöbe Friar.



C. persicum, winner of Class A12, entered by Duncan Gates.



Flowers from Duncan Gates's joint 1st prize winning *C. persicum* cultivar in Class A13.

Among the novice exhibitors, Jan Aspland, completed her progress through the group like a dose of salts and graduated to the senior group in what may be record time. So, if there are any members, new or not so new, who are filled with trepidation at the thought of exhibiting, there is always a vacancy in the novice classes through which to gain experience and remove any fear factor.

The photo sections were well represented this time and further interest was added via an exhibit of hepaticas from Phöbe Friar and a flowering plant of *C. rhodium* germinated from seed in a single dried pod found on Kythera by Jan and Vic Aspland.

As always, I encourage members to put seed from their best plants (maybe not as dried out as that from Kythera) into the seed exchange, even a few, as the best plants tend to give the best offspring and there should be plenty of



Ian Robertson's *C. libanoticum*, winner of Class A15.

opportunity to gather some seed over the next month or so as it ripens.

Class Results

9 exhibitors, 101 competitive entries

Details of the results for all the classes can be found on the society's website:

www.cyclamen.org/shows

Judges: Roger Brook, John Lavin and Pat Nicholls

Trophy Winners

Challis Cup (best *C. rhodium* in flower) – Ian Robertson for *C. rhodium* *viduidum*, Class A5.

Crete Trophy (best *C. creticum* in flower) – Ian Robertson for *C. creticum* forma *pallide-roseum*, Class A8.

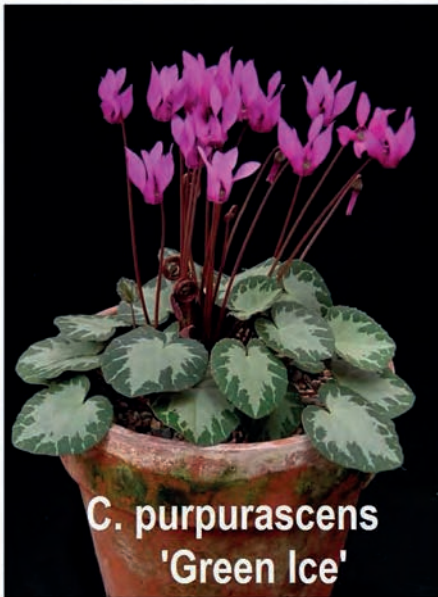
Peter Jones Plate (best plant in show) – Ian Robertson for *C. pseudibericum*, Class A11.

Kath Dryden Trophy (best plant from Cyclamen Society seed with brief history notes) – Ian Robertson for *C. rhodium* subsp. *peleponnesiacum*, Class A19.

Adrasan Award (best plant in Novice Section) – Phöbe Friar for *C. hederifolium*, Class C4.



C. hederifolium exhibited by Phöbe Friar. Winner of Class C4 for foliage and the Adrasan Award for the best plant in the Novice Section.



C. purpurascens
'Green Ice'

Green Ice Nursery

Kerkweg 70

6713 ND Ede

The Netherlands

www.Green-Ice-Nursery.nl

Green-Ice-Nursery@kpnplanet.nl

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