

*Journal*  
*of the*  
**HARDY ORCHID SOCIETY**

**Vol. 17 No. 2 (96) Spring 2020**



## The Hardy Orchid Society Committee

**President:** Prof. Richard Bateman, Jodrell Laboratory, Royal Botanic Gardens Kew, Richmond, Surrey, TW9 3DS

**Chairman:** Carol Armstrong, 18 Flaxfield Way, Kirkham, Preston, Lancashire, PR4 2AY [carol.armstrong75@yahoo.com](mailto:carol.armstrong75@yahoo.com)

**Vice-Chairman:** Colin Scrutton, 14 Trafalgar Road, Tewkesbury, Gloucestershire, GL20 5FN [Colin.Scrutton@dunelm.org.uk](mailto:Colin.Scrutton@dunelm.org.uk)

**Treasurer:** Colin Rainbow, The Old Post Office, Somerton Road, North Aston, Bicester, Oxfordshire, OX25 6HX [car.northaston@btopenworld.com](mailto:car.northaston@btopenworld.com)

**Secretary:** Angela Scrutton, 14 Trafalgar Road, Tewkesbury, Gloucestershire, GL20 5FN [angelascrutton@btinternet.com](mailto:angelascrutton@btinternet.com)

**Membership Secretary:** Moira Tarrant, Bumbys, Fox Road, Mashbury, Chelmsford, CM1 4TJ [moira.tarrant@outlook.com](mailto:moira.tarrant@outlook.com)

**Plant Show Secretary:** Colin Rainbow, The Old Post Office, Somerton Road, North Aston, Bicester, Oxfordshire, OX25 6HX [car.northaston@btopenworld.com](mailto:car.northaston@btopenworld.com)

**Photographic Competition Secretary:** Neil Evans, 48 Friars Avenue, Peacehaven, Sussex, BN10 8SB [neilfevans@btinternet.com](mailto:neilfevans@btinternet.com)

**Journal Editor and Website:** Mike Gasson, Moor End Cottage, Moor End, Stibbard, Norfolk, NR21 0EJ [moorend@globalnet.co.uk](mailto:moorend@globalnet.co.uk)

**Speakers Secretary:** Celia Wright, The Windmill, Vennington, Westbury, Shrewsbury, Shropshire, SY5 9RG [celia.wright@windmill.me.uk](mailto:celia.wright@windmill.me.uk)

**Southern Meetings Organiser:** Simon Tarrant, Bumbys, Fox Road, Mashbury, Chelmsford, CM1 4TJ [tarrant.simon@outlook.com](mailto:tarrant.simon@outlook.com)

**Northern Meeting Organiser:** Alan Gendle, Strathmore, Grayrigg, Kendal, Cumbria, LA8 9BU [alan@gendle.plus.com](mailto:alan@gendle.plus.com)

**Publicity & Outreach Officer:** vacant

**Seed Bank Manager:** John Haggart, 16 Cross Street, Hove, East Sussex, BN3 1AJ [johnsorchids57@gmail.com](mailto:johnsorchids57@gmail.com)

**Journal Distributor:** Nigel Johnson, Cassandene, Station Road, Soberton, Hampshire, S032 3QU [cassandene@waitrose.com](mailto:cassandene@waitrose.com)

**Conservation Officer:** Bill Temple, Primrose Cottage, Hanney Road, Steventon, Oxon., OX13 6AP [bill@billtemple.f9.co.uk](mailto:bill@billtemple.f9.co.uk)

**Field Meetings Co-ordinator:** Richard Kulczycki, 206 Blythe Road, London, W14 0HH [richardkulczycki@gmail.com](mailto:richardkulczycki@gmail.com)

### Front Cover Photograph

Mike Waller's photograph of *Goodyera macrophylla*. See article on page 43.

### Rear Cover

Colin Scrutton's photograph of *Bonatea speciosa* taken at Sedgfield, Eastern Cape, South Africa. See page 52 for the second part of Colin's article on South African Orchids

## The Hardy Orchid Society

Our aim is to promote interest in the study of Native European Orchids and those from similar temperate climates throughout the world. We cover such varied aspects as field study, cultivation and propagation, photography, taxonomy and systematics, and practical conservation. We welcome articles relating to any of these subjects, which will be considered for publication by the editorial committee. Please send your submissions to the Editor, and please structure your text according to the “Advice to Authors” (see Members’ Handbook, website [www.hardyorchidsociety.org.uk](http://www.hardyorchidsociety.org.uk), or contact the Editor). Views expressed in journal articles are those of their author(s) and may not reflect those of HOS.

## Contents

Editorial Note by Mike Gasson .....	39
Chairman’s Note by Colin Scrutton .....	40
Important Notice on the Impact of Coronavirus/Covid-19 by Colin Scrutton .....	41
Programme for HOS St Chad’s Leeds Meeting, Saturday 5 <sup>th</sup> September 2020 .....	42
Madeira’s <i>Goodyera macrophylla</i> by Mike Waller .....	43
Important Information Regarding the 2020 Photographic and Video Competitions .....	50
South African Orchids, A Selection – Part 2 by Colin & Angela Scrutton .....	52
Growing Hardy Orchids – 5 Moira Tarrant talks to Andrew Bannister .....	58
Lesvos Orchid Holiday by Hilary Pickersgill .....	64

## Editorial Note

### Mike Gasson

As with many aspects of life, HOS activities have been impacted by the restrictions consequent on the coronavirus pandemic. I hope that you are all managing to cope and that you are keeping well. This *JHOS* includes important information about how our future programme has been changed, so please do read Colin Scrutton’s notice on page 41 as well as information from Neil Evans and Steve Pickersgill on page 50 regarding the Photographic and Video Competitions for 2020. We will aim to keep the website updated with any further changes that may arise in future. In hope that the Leeds Meeting will be possible, its programme is included here on page 42. I have tried to include some uplifting articles with good photography and interest. Thanks to Hilary Pickersgill and Mike Waller for these as well as to Colin and Angela Scrutton for the second part of their South Africa epic. Something for growers is also included in the form of another instalment from Moira Tarrant on her innovative visits to our expert orchid cultivators, this time featuring Andrew Bannister. Keep safe!

## **Chairman's Note**

### **Colin Scrutton**

By the time you read this, the earliest of our home orchid flora should be starting to appear. Certainly, Early Spider Orchids will be out and Early Purple Orchids should be making an appearance. Green-winged Orchids, which we have in abundance at a site near us, will not be far behind. I hope it will be a good year for orchids, particularly at the many sites where we have field meetings organised. Richard Kulczycki, our Field Meetings Organiser, has really pulled the stops out with a fine spread of field meetings this year and I hope they will be well supported. Our Stroud Commons field meeting is already full. However, this has now been overtaken by the spread of coronavirus, so please see the important notice below on the impact of the virus on Society activities.

In my last note I mentioned the problem that had developed with the Forum. I'm pleased to say that it has now been fully resolved with the switch from Yahoo, which no longer met our requirements, to Groups-io. Invitations to join the new group have been sent out and so far, around 200 members have signed up to Groups-io. This was a big job for Moira Tarrant, our Membership Secretary, helped by Neil Evans. The Forum is a very useful means of communication within the Society and I hope more members will sign up and make use of the service. In addition, Moira has overseen a complete revision of our Society handbook. The new edition of the Handbook will be distributed with Members' 2020/21 membership cards.

We have set up a couple of new initiatives this year at the instigation of our former Publicity & Outreach Officer Sue Parker. First of all, we are recruiting a cohort of Local Liaison Members to further the interests of the Society in their respective areas. So far, we have recruited 10. These are members active in the local community, for example, giving talks on orchids, liaising with other organisations where orchids are a common interest, writing articles or contacting the press, as appropriate. In addition, we are launching the Hardy Orchid Conservation Award (HOSCA). Publicity material will be sent out, partly funnelled through the Local Liaison Members, to encourage communities to incorporate orchid conservation work into their environmental initiatives. Projects will be judged by a small panel and the winning project will receive a financial reward.

As I indicated above, Sue Parker has now resigned from the Committee and until we can recruit a new Publicity & Outreach Officer, we need to discuss how existing members of the Committee might be willing and able to service Local Liaison Members and HOSCA. That brings me to posts we need to fill for both the Committee and our southern meetings. We still need a volunteer to run our sound system for meetings at Kidlington. John & Shelagh Temporal would have overseen sound for

the last time at our April meeting had it not been cancelled. There will be a chance during a later meeting for a potential recruit to talk to John and Shelagh to see what is involved, possibly at the November meeting should that take place. Secondly, we need someone to take on the Plant Show Organiser's post to free our Treasurer from the overlap with his financial duties. This will not now be a problem until the April meeting next year (assuming that the virus has been defeated by then) when there will be a good opportunity to see what is involved in setting up the Plant Show. In addition, as I have already indicated, we need a new Publicity & Outreach Officer. I can assure a volunteer for that post that they would not be thrown in at the deep end. Help and advice from other Committee members will be freely available until the new holder is fully up to speed with what is involved in the post.

Finally, as noted above, coronavirus/Covid19 has reared its ugly head. When I originally wrote this in early March, cases were rapidly increasing across the country. However, the situation is now (late March) much more serious and the accompanying "Important notice" outlines the impact of the pandemic on the Society's activities. This is my last Chairman's note. I have enjoyed working with our excellent Committee, a dedicated and hard-working bunch. The Society is fortunate in having such a fine group of volunteers running the Society. It is a pleasure to extend all good wishes to our next Chairman, Carol Armstrong. I will serve on Committee for one more year as Vice-Chairman in support of Carol and my wife Angela, who has one more year to run as Secretary.

**Important Notice on the Impact of Coronavirus/Covid-19  
for the Hardy Orchid Society and its Members  
Colin Scrutton (Chairman)**

Since I wrote my Chairman's Note for this issue of the journal, the situation with respect to the coronavirus pandemic has significantly worsened and Government advice on public activities has become much more restrictive. This inevitably has implications for the Society's activities.

As many of you will already know, the Spring meeting at Kidlington has been cancelled, along with the AGM held at that meeting. In the light of this, changes to personnel on the Committee will be actioned as an emergency measure to be ratified as and when the AGM can be held. Thus, Carol Armstrong will take over as Chairman, I will continue for a year as Vice-Chairman and John Haggart will replace Alan Leck as Seed Bank Manager. The post of Publicity & Outreach Officer will remain unfilled at this time. Christopher Snelson will replace Iain Wright as Examiner of Accounts.

Our Treasurer reports that the Society's funds are healthy and a 15% surplus was generated in the last financial year. Full details plus the balance sheet will be presented at the AGM when it is held.

It is uncertain for how long the coronavirus pandemic will affect future activities of the Society. However, it is clear that all field meetings for this year should be cancelled. Leaders should contact those signed up for their meetings to ensure that they are aware of the cancellation. In addition, the introduction of the Hardy Orchid Conservation Award (HOSCA), mentioned in my Chairman’s note, will be delayed indefinitely.

There is also a strong possibility that the September meeting at Leeds will be affected. The programme is included with this copy of the Journal but no booking form is available yet. A booking form for this meeting will be circulated with *JHOS* 17 (3) if it seems likely that the meeting will go ahead, but those interested should delay booking until this can be confirmed. The latest information will be posted on the website and on the Forum. We cannot see further ahead at the moment. Opinion varies considerably as to the timescale over which the virus will remain a significant factor for group activities. Further information will be posted on the website when appropriate and distributed with later issues of the journal.

### **Programme for HOS St Chad’s Leeds Meeting Saturday 5<sup>th</sup> September 2020**

9.00		Set up and trade members’ stands
9.30		Doors open, sales begin Tea & coffee available
10.30	Carol Armstrong (Chair)	Introduction
10.40	David Trudgill	Our orchid meadow in a changing climate
11.30		<i>Short break</i>
11.40	John Scrace	Black Death: Investigations into a leaf spot and dieback disease affecting <i>Dactylorhiza</i> species
12.30		Video Competition
13.00		<i>Lunch</i>
14.00	Colin & Angela Scrutton	Orchids of Lesbos
15.00		Video Competition results
15.05		<i>Tea break</i>
15.25	Bryan Yorke	The Orchids of Sutton Roof
16.25	Carol Armstrong (Chair)	Chairman’s closing remarks
16.30		Meeting ends Hall must be vacated by 5pm

## Madeira's *Goodyera macrophylla*

Mike Waller

*Goodyera macrophylla* is perhaps one of the least-known members of the European orchid flora and indeed, some may be unfamiliar with this obscure plant. Due to the orchid's genuine rarity, preference for inaccessible ravines and perhaps the slightly higher price band of Madeiran flights, *Goodyera macrophylla* has developed a near mythical status amongst European orchidologists which is reflected in the surprising paucity of literature on the species. Those few who have found the temptation too great have often found themselves in a situation reminiscent of *Cypripedium* pilgrimages in the UK, where one has to make do with a clump of cultivated caged specimens where, even then, flowering spikes are rare. Fortunately, the species does persist in wild locations elsewhere on the island though never in abundance and often well away from paths. In late September 2019, we decided to take the gamble, spurred on by recent successful trips and an offer of help from the University of Funchal.

### First record

In 1768, Madeira became the first stop-off on Captain Cook's maiden circumnavigation of the globe on *HMS Endeavour*, making first landfall at Funchal on September 14<sup>th</sup>. On board was the botanist Sir Joseph Banks who collected 25 previously unknown plant species from the island over the four day stop, 11 of which were later engraved. Perhaps unsurprisingly, *Goodyera macrophylla* was missed by Banks and it wasn't until 1833 that the species was first described by the Reverend Richard Thomas Lowe in his *Primitia, Flora et Fauna Madera*. Lowe was a controversial clergyman who moved to Madeira with his mother in 1826 after graduating from Christ College Cambridge, spending much of his time intensively botanising across Madeira. Lowe was convinced that the steep inaccessible terrain could hold many more species that Banks simply didn't have time to



Fig. 1: The type specimen of *Goodyera macrophylla* collected by Mr. J. Buchanan in 1880 at the Royal Botanic Gardens Kew herbarium.

explore - and he was right. Interestingly Lowe reports that much of the island was devoid of forest at this time and was presumably restricted to small pockets in deep gorges and ravines. It is amazing that such dense forest has survived and now covers the island so prevalently.

### Status

*Goodyera macrophylla* is classed as Critically Endangered with the IUCN Red List flatly stating that only 50 mature individual plants remain in seven widely spaced colonies on the north side of the island. We can confirm that this is probably an underestimation having seen at least 60 rosettes in one population alone added to the fact that vast tracts of suitable habitat are simply impossible to access without climbing equipment, suggesting that many populations remain undiscovered. Nonetheless, the species is clearly a naturally rare endemic and it would not be unfair therefore to consider the species as one of Europe's rarest orchids, with the caveat that Madeira is geographically part of Africa (though not floristically).

### Ecology

Ecologically the orchid is a specialist of Madeira's ancient subtropical laurel forests which are most prominent on the north side of the island where the prevailing trade winds bring in warm moist air off the Atlantic. This air quickly cools as it rises up the steep mountain cliffs, creating a humid tropical rainforest-like environment (at >1000m) laden with mosses, lichens and ferns including large numbers of endemics and species such as *Trichomanes speciosum* (Killarney fern) which is notably abundant there but restricted to a hand-full of humid gorges in the UK. The result is that this mysterious orchid is literally shrouded in mist and cloud for much of the year.

Within the forests, the orchid seems to prefer cliff ledges and the areas immediately beneath where the correct balance of light and reduced competition is optimal. However, we did find single individuals in much darker flat areas where they can apparently thrive and flower quite happily. Our guide suggested that these plants may represent outliers of a larger unseen population on the cliffs above and we quickly learnt that binoculars were especially useful!

Curiously, there are only three other orchid species present on Madeira – the endemic and very showy *Dactylorhiza foliosa* (which counter intuitively also happens to be very widely cultivated outside of Madeira), *Gennaria diphylla* (a classic specialist

Fig. 2: Precarious cliff face habitat (the fern is pointing directly at the plant which is just right of centre).

Fig. 3: *Goodyera macrophylla* in typical habitat.

Fig. 4: A cliff ledge grove of perhaps 40 rosettes.

Photos by Mike Waller





of the Atlantic laurel forests) and *Neotinea maculata* (Dense-flowered Orchid). This paucity of orchid species diversity is true across the Macronesian islands with the neighbouring Canary Islands hosting only a handful of orchid species. The reason for this is not easily answered, especially when one considers how far orchid seed can reportedly travel on the wind and the wide variety of available habitat niches, particularly in the Canaries. Furthermore, it's not only the low diversity but also the general scarcity of the orchids themselves, as anyone who has gone to Tenerife in search of the endemic *Himantoglossum metlesicsianum* can attest. This was a point of much hilarity to several of my former Macronesian-focussed colleagues at the Natural History Museum who were far more interested in the seemingly endless diversity of *Asteraceae*! To them, an overseas trip to see one species of boring orchid would be pure madness. Perhaps it is a bit.

### On the hunt

Searching for the species, you quickly become very aware that no amount of hopeful peering through the trees produces a single glimpse of anything remotely orchid-like - despite apparently suitable laurel forest stretching for miles through the rugged landscape. In fact, the dark forest floor is largely devoid of any flowering plants at all. As always, the enthusiasm is initially strong, but this feeling slowly ebbs away as the true nature of the task in hand becomes apparent. There is a reason that only seven populations are known and all of them were found by accident. In this sense it felt like I was back in the sacred woods near Marlow and Henley, aimlessly staring at beech litter for two hours before deciding the ghost orchid really might be gone for good. But where the act of driving down the M40 for two hours entirely extinguishes any sense of genuine exploration, this felt like something more akin to a proper expedition. That said, we were on our way to a known location though it would still involve an hour's trek along a levada and then a 100m scramble up a rocky slope to a few clumps of plants which may or may not be flowering.

*Goodyera macrophylla* is a shy flowerer, perhaps producing a flowering spike every five to ten years meaning you really do need to be rather lucky and the more plants you can see, the better the chances of seeing one actually doing its thing. Out of the 60 or so rosettes at this site, we counted six flowering spikes – one plant with three spikes just opening, one plant with two spikes in tight bud and one single-spiked plant in full flower, halfway up a small cliff. It became apparent over the course of the week that this was to be the best location, with only one other site producing two

Fig. 5: A budding inflorescence of *Goodyera macrophylla*.

Fig. 6: Flowering plant of *Goodyera macrophylla*.

Fig. 7: Rosette showing the long creeping rhizomes which are capable of clinging to the rocks.

Photos by Mike Waller



depauperate stems and all others proving to be a no-show. Miguel tells me that, in a good year, he sees perhaps 25 flowering spikes at this site but in all honesty, I was more than happy with our six!

### **Taxonomy and morphology**

The *Goodyera* genus is large with around 100 described species and a global distribution covering temperate Eurasia, tropical Asia, Australasia and the Americas where they are variously known as ‘rattlesnake plantains’ or ‘jade orchids’. Of course, many readers will be familiar with Europe’s only other species – *Goodyera repens* (Creeping Lady’s-tresses) which is widely distributed and florally very similar to *G. macrophylla*. However, *G. macrophylla* differs in being a clearly much larger plant (up to 80cm tall) with flowers around twice the size of *G. repens* and a brownish-orange hue along the central rib of the upper sepal. Most striking of all are the enormous glossy leaves which either sit somewhat erect or flop down as they age. Unlike *G. repens*, the rosettes have no need to hide under ground to avoid a hard winter because the Madeiran forests remain mild throughout the year and so leaves are constantly being produced by the rhizome in the same manner as a tropical orchid. We also observed numerous new rosettes being produced along the creeping rhizome which accounts for the large clumps of rosettes encountered in favoured locations.

The flowers are pollinated by small bees and seed set is apparently high. Part of the reason for this high seed set may lie in the very long period of time it takes for the inflorescence to complete its flowering. From the first flowers opening at the base of the inflorescence to the very last, a whole month may elapse in larger specimens. It is quite clear that *G. macrophylla* has been genetically isolated for a significant period of time based on its morphological divergence and highly disjointed range in relation to other species in the *Goodyera* genus. It therefore seems quite possible that based on the Madeiran laurel forests being around 1.8 million years old (Góis-Marques *et al.*, 2017), *G. macrophylla* may have been present on the island for at least one million years or even longer, (unlike, I suspect, the terrestrial bird species which remain morphologically very similar to their continental relatives). The laurel forest itself is an ancient relic from a time when this habitat covered much of Europe during the last interglacial when the climate was warmer and wetter. When considered in this context, *G. macrophylla* is a particularly high priority species for conservation which is strongly adapted to the unique conditions present on Madeira.

Fig. 8: Two *Goodyera macrophylla* spikes just coming into flower.

Fig. 9: *Goodyera macrophylla* inflorescence.

Fig. 10: Close-up of *Goodyera macrophylla* inflorescence.

Fig. 11: A tiny short-inflorescenced plant found at a different location.

Photos by Mike Waller



Seeing this elusive species hidden in its ancient world, clinging to existence on this remote island was an absolute treat. For me, *Goodyera macrophylla* truly embodies the beauty, rarity and wildness that surely make orchids so exciting for us all. For those who wish to see the plant in the wild, I would advise contacting the University of Funchal for guidance and advice.

### **Acknowledgements**

My deepest thanks to Prof. Miguel Sequeira for his guidance and comments in shaping this article.

### **References**

Delforge, Pierre. 1995. *Orchids of Britain and Europe*. Harper Collins Publishers, W6 8JB, London.

Góis-Marques, Carlos A.; Madeira, José; Menezes de Sequeira, Miguel (2017). Inventory and review of the Mio–Pleistocene São Jorge flora (Madeira Island, Portugal): palaeoecological and biogeographical implications. *Journal of Systematic Palaeontology*. **16** (2): 1–19.

Parsons, M.J. (2003) Madeira, 17 - 24 May 1999. *Newsletter of the Hardy Orchid Society* **29**, p14-17.

<https://www.iucnredlist.org/species/162070/5527443>

<https://www.nhm.ac.uk/discover/endeavour/>

<https://lambethpalacelibrary.wordpress.com/2015/07/06/herborising-and-the-high-church-the-story-of-the-reverend-richard-thomas-lowe-1/>

<http://specimens.kew.org/herbarium/K000242207>

## **Important Information Regarding the 2020 Photographic and Video Competitions**

**Neil Evans & Steve Pickersgill**

Due to the restrictions that are in place due to the Coronavirus (COVID-19) pandemic changes have been made to the 2020 photographic and video competitions. Entry details are provided in the panel opposite.

There will be no time limit on when the photos or videos were taken for this year's competitions.

If for any reason the current situation continues for longer and these events are cancelled, there are plans in place to still have the competitions but to change how they are run. These will be communicated via the website, discussion forum and journal.

## **Photographic Competition at Kidlington, 8<sup>th</sup> November 2020**

E-mail digital entries to Neil Evans at [neilevans@hardyorchidsociety.org](mailto:neilevans@hardyorchidsociety.org) by 3<sup>rd</sup> October 2020. E-mail notification of entries for print classes to Neil by 18<sup>th</sup> October 2020. For entrants who are unable to attend the meeting Neil will accept postal entries by the same date, SAE if return of pictures is required. Please email Neil for the address for postal entries. The full Schedule of Classes and Rules can be found on the website:

<http://www.hardyorchidsociety.org.uk/HOS%201012/PhotoCompIntro.html>

## **Video Competition at Leeds, 5<sup>th</sup> September 2020**

The HOS Video Competition will be held during the HOS Northern Meeting in September. Full details, including the Video Show Rules, are available on the HOS website:

<http://www.hardyorchidsociety.org.uk/HOS%201012/Video%20Show.html>

The Tony Hughes Trophy will be awarded to the best video. The trophy may be held for one year, and must then be returned. Judging will be by audience vote. In the event of too many entries for a one-hour session, committee members will view the material and reduce the entry to the required number. If time permits, all entries will be shown at the Autumn Northern Meeting. The winning video will also be shown at the Autumn Southern Meeting.

For 2020 entries must be sent in advance by August 12<sup>th</sup> to the Video Competition Organiser Steve Pickersgill, either by email ([hosvc@hardyorchidsociety.org](mailto:hosvc@hardyorchidsociety.org)) or for larger files, using one of the free transfer services such as WeTransfer or Dropbox. The Video Competition Organiser will supply instructions for using WeTransfer on request.

If for any reason the current situation continues for longer and these events are cancelled, there are plans in place to still have the competitions but to change how they are run. These will be communicated via the website, discussion forum and journal.

## South African Orchids, A Selection – Part 2

### Colin & Angela Scrutton

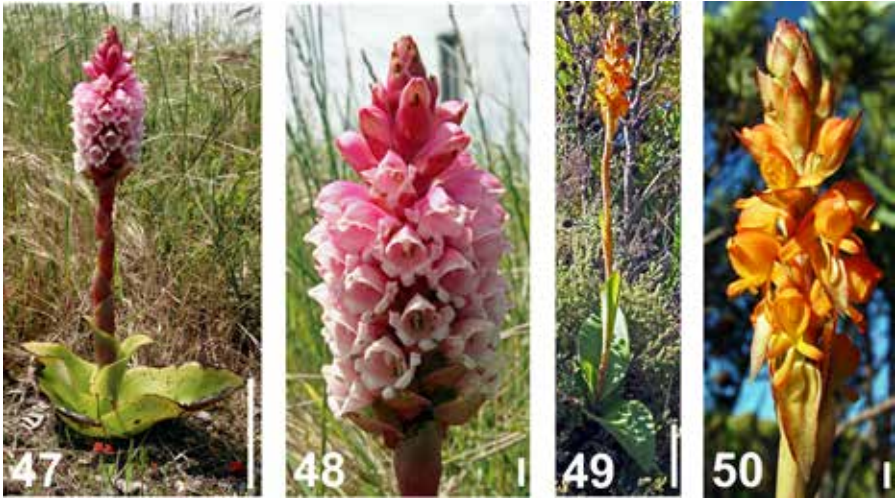
Part 2 of this article deals with two of the most important genera in South Africa, *Satyrium* and *Disa*. Together they amount to around 40% of the South African orchid flora. The genus *Satyrium* is distinguished by non-resupinate flowers having twin spurs on the labellum (hence the generic name), although they are usually obscured by the density of the inflorescence and bracts (but see Fig. 53). The lip forms a hood over the column, whilst the median sepal and lateral petals, sometimes reduced, are arranged in a fan at the base of the flower. It is a genus largely confined to Africa with 41 species in South Africa. Several species have off-set leaves as in *S. neglectum*, which has a scattered distribution from the Eastern Cape up to northern South Africa. This species can grow up to 80cm tall with small pinkish to red flowers scattered up the narrow spike. *Satyrium carneum* is not uncommon in coastal environments on the Western Cape and *S. corifolium* has a similar, slightly more extensive, distribution. Both have leaves more or less flat lying at the base of the stem. These three species give a good indication of the range of flower shapes among species of this genus.



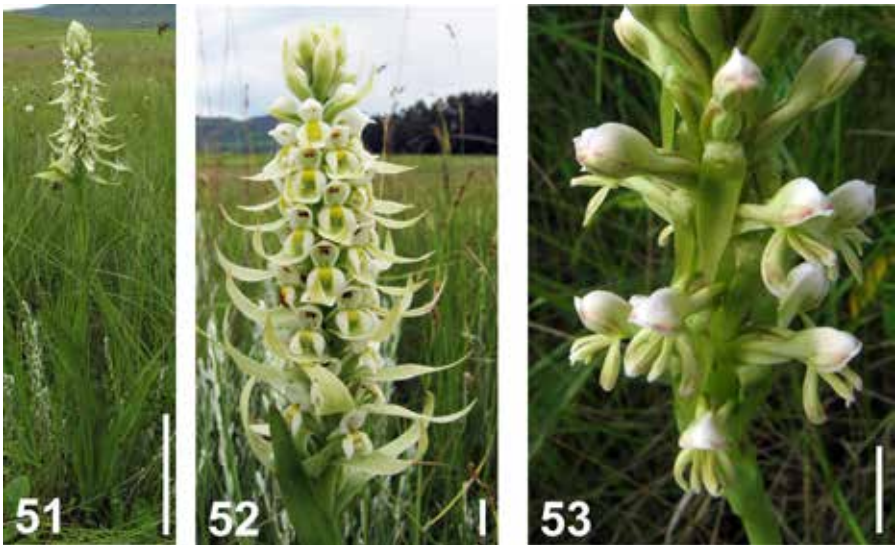
Figures 44-46: *Satyrium neglectum*. Scales for whole plant 10cm, for close-ups 1cm (scales similar for all other illustrations).

All photos in this article by Colin Scrutton





Figures 47-48. *Satyrium carneum*. Figures 49-50. *Satyrium corifolium*.



Figures 51-52. *Satyrium trinerve*. Figure 53. *Satyrium cristatum*.

*Satyrium trinerve* is unlike other species of the genus with its distinctive pyramidal inflorescence. It favours damp conditions and is found from the Western Cape up into northern South Africa and the Drakensberg. Yellowish-white bracts extend out beyond the inflorescence and the flowers have a white lip and lateral sepals. The median sepal and lateral petals are yellow, forming three parallel and near equal length elements between the lateral sepals.

*Satyrium cristatum* is included here as the twin spurs can be clearly seen in the lower part of Fig.53. It has a similar distribution to *S. trinerve*.

*Disa* is a genus of over 180 species, largely confined to Africa. With 143 species, it is by far the dominant genus of South African orchids. The vast majority are terrestrial. In recent years, several genera have been put into synonymy with *Disa*, including *Monadenia*, *Shizodium* and *Herschelia*, the latter mentioned below.

*D. uncinata* is a species of the Western Cape and illustrates the basic features of the genus. The basal leaves are narrow and spear-shaped. The flower is resupinate with a hood-shaped dorsal sepal bearing a spur inflated at the distal end. The lateral sepals are ovate and spreading, the lip short, narrow and tapering. The lateral petals are largely contained in the hood, terminating in dark tinted points.



Figures 54-55. *Disa uncinata*

*D. uniflora* is an iconic flower of South Africa with its striking large pink to red flowers. It grows along stream banks and on wet cliff faces, usually with a single terminal flower but rarely with three or more flowers. Narrow, tapering leaves around the base of the spike are difficult to distinguish from the stream bank vegetation in Fig. 56. The dorsal and lateral sepals dominate, with a short, narrow, tapering lip between the inner ends of the lateral sepals. The small lateral petals cup the column. There is a narrow, tapering spur partially obscured by the bract and close to the ovary. The species is restricted to a small area of the Western Cape.



Figs. 56-58. *Disa uniflora*

Just as *D. uniflora* is informally known as the Red Disa, *Disa graminifolia* is the Blue Disa. It was originally assigned to the genus *Herschelia*, which has been incorporated into *Disa* in recent years.



Figures 59-61. *Disa graminifolia*

The species is confined to the Western Cape where it grows in rough grassland which in Fig. 59 obscures the grass-like basal leaves. The spike is tall and slender with just a few flowers at the top. The broad, domed, dorsal sepal and lateral sepals are a rich blue, a colour rare in orchids, whilst the lip is violet. The column is prominent

in the centre of the flower. The lateral petals are upright and thread-like proximally, spreading out distally into broad, lateral orangey-yellow plates, apparently fused at their inner ends. The spur is short, upright and club-shaped.

The final two species in this selection are the only two South African species so far to be shown to pollinate by sexual deception (Steiner *et al.* 1994). *Disa bivalvata* and *Disa atricapilla* are structurally similar in that the inflorescence is more or less horizontal on top of a slender spike with narrow tapering leaves at the base and similar cauline leaves higher up the stem. The flowers are radially arranged with the small narrow and generally wedge-shaped lip towards the centre of the inflorescence. The dorsal sepal is narrow and just extends beyond the column which is cupped by the lateral petals. The lateral sepals extend laterally, tapering and twisted at the outer extremities. Despite the structural similarities, the contrasting colouration makes these two species easy to distinguish.



Figures. 62-63. *Disa bivalvata*.

Pollination is mainly by male digger wasps, *Hemipepsis hilaris* in the case of *D. bivalvata* and *Podalonia canescens* for *D. atricapilla*. Both are wasps that drag stunned prey to sandy burrows on which to lay their eggs, spiders in the case of *Hemipepsis* and caterpillars in the case of *Podalonia*.



Figures. 64-65. *Disa atricapilla*

Acknowledgements:

It is a pleasure to thank those who have helped us during our several trips to South Africa, particularly Mike & Sylvia Byren (Cape Town), who set up several contacts for us, John & Pamela Duff, Klaus Wehrin and Sandy Moss (Greyton), Sean Privett (Grootbos), Susanne Schoeman (Sedgefield) and Alan Waterson (Port Elizabeth).

Reference

Steiner, K.M., Whitehead, V.B. & Johnson, S.D. (1994) Floral and pollinator divergence in two sexually deceptive South African orchids. *Am. J. Bot.*, 81, 185-194.

The rear cover features Colin Scrutton's photograph of *Bonatea speciosa* taken at Sedgefield, Eastern Cape, South Africa. Height of inflorescence 33 cm. This species was included in the first part of the article on South African Orchids published in the Winter 2020 *JHOS*.

## Growing Hardy Orchids – 5 Moira Tarrant talks to Andrew Bannister

My journey in February to Andrew Bannister's home in Lincolnshire was not propitious as I battled driving rain and ferocious wind gusts from the never-ending days of storms following Storm Dennis. However, almost miraculously, we walked into his garden/nursery on a dry morning and the wind dropped for a short while before the inevitable gale built up again.

A long-time member of HOS, Andrew will be recognised by HOS members who have attended either HOS meetings at Kidlington or orchid shows around the country including the Malvern International Orchid Show. Trading as Orchid Alchemy<sup>1</sup> he raises a huge range of orchids, both tropical and hardy, from seed and sells the resulting plants. I wanted to find out how he grows the hardy and semi-hardy orchids many of which are unusual and striking and not commonly grown.

His garden immediately struck me as belonging to a man who wants to work with our natural surroundings as much as possible and he always, when talking about the culture of a plant, refers back to where it grows in the wild. Skirting round a pond designed solely for the local frog population we reached the first in a row of greenhouses, all with the ridges aligned East-West.

The first one, 16ft × 8ft, glazed with polycarbonate, is used to house winter-green species. A row of tubular heaters are hung along the benching but they only provide enough heat to keep the plants frost free. He explained that he used to have expensive fan heaters to give a minimum of 5°C but these had quite a short life, cheaper ones were found to have an even shorter life. Loss of the fan-heaters meant some loss of air-movement



Fig. 1: Andrew Bannister  
Fig. 2: Andrew's greenhouse for winter-green species.  
Photos by Simon Tarrant

so he now exploits the chimney effect. Ventilation is via a combination of ground level louvre and ridge vents, plus the doors. Unless frost is expected at least some, if not all, of these are open. The tubular heaters provide gentle and even temperature control plus air movement when it is frosty and the vents are closed. Also having several sources of heat is insurance against any one of them failing. He closed all but one louvre vent and the door while I was there as the 56mph winds forecast were making their arrival obvious. His current arrangement keeps the plants hard-growing and resilient.

His benching is wire mesh or planks. He explained that he doesn't like sand plunges, although a lot of growers use them, as he fears a build-up of both salts and pathogens in the sand over the years. As he rarely uses clay pots, sand would have few benefits to offset these concerns.

He waters on sunny mornings, from above and because he has a lot of plants this is with water pumped from water butts. An irrigation system was suspended above rows of pots of young *Bletilla* and *Ponerorchis* which can be used with rain or mains water if necessary. The irrigation is automatic or manual depending on his need. I asked about frequency of watering and the answer was – according to need! He doesn't feed if plants have been re-potted as the fresh compost should provide sufficient nutrients for a few months. He uses Peters Excel (Balanced, Cal. Mag.)<sup>2</sup> once or twice per month when in active growth. Fertiliser is made up in a smaller water butt with a solution of 300-400µS.

He uses as few different composts as possible: for most of his winter-green plants his standard is five parts sharp sand, two parts J12, two parts Perlite and two parts composted bark. He explained that the composted bark acts as a substitute for leaf mould saving him the task of gathering and processing leaves. This compost is used for true Mediterranean winter-green species as well as those winter-greens from South Africa, South America (such as *Chloraea*) and Australia (except some *Pterostylis*). He sometimes top-dresses the pots with gravel (the ones I noticed were pea gravel grade) particularly if the leaves are ground-hugging. Plants such as *Bletilla*, evergreen *Disa* some *Pterostylis*, and hardier *Eulophia* prefer a compost with more humus. For these he is experimenting with using more composted bark in the mix or another mix which is 2 parts composted bark and 1 part Perlite.

We talked about pests and how he deals with them, a conversation sparked by him stopping to squish some greenfly that he noticed. He used to spray with professional grade insecticides but became concerned about how much residue remains on plants which are often touched by the public at Shows. He now occasionally sprays with soft soap but prefers to buy in predators, his favourite being Lacewings which have the twin advantage of being both British natives and voracious eaters of both

greenfly and leafhoppers. He copes with the occasional bird damage and cats wandering in which are products of the door standing open.

We looked at some of the plants growing in this environment. As well as the genera already mentioned I admired *Disa draconis* which is winter-green and drier growing than *D. uniflora*. Also in this collection was *Disa lugens* which, when it flowers in early Summer has a spectacularly fringed lip. Andrew was awarded a Botanical Certificate for a plant of this species by the RHS Orchid Committee at Malvern International Orchid Show in 2017. He showed me a little curiosity, *Polystacha ottoniana*, an epiphytic, high altitude species from South Africa which he was growing in pure gravel in a little clay pot. Its small clump of green pseudobulbs, each with a pair of lanceolate leaves are supposed to shrivel when dry over winter but this plant, he pointed out, was still plump and green.

Andrew shades this house with shade cloth only on the South side and finds he sometimes has to do this as early as March. Warm days at this time of the year can quickly heat up the greenhouse and cause the winter-green orchids to shrivel and dry out prematurely, even if they are in damp compost.

We moved on to the second greenhouse, slightly smaller at 14ft × 8ft, again with polycarbonate glazing. This too had an automatic watering option but, being used for Summer growing species, was dry in February. There is no fixed heating in this house although, if exceptionally cold weather threatens, he can put in a tubular heater. In here some larger *Bletilla* were still showing green leaves from last season in spite of being kept dry and cold. Andrew finds some new hybrids and selections of *Bletilla* very promising such as *B. Brigantes* × *striata* and *B. Penway Sunset*. Also a selected form of *Bletilla striata* which is said to have branching flower spikes so increasing the time the plant is in flower. He admires *Bletilla ochracea* because of the



Fig. 3: *Disa lugens* Corrin  
 Fig. 4: *Disa atricapilla*  
 Photos by Andrew Bannister





Fig. 5: *Bletilla ochracea* Gold

Fig. 6: *Bonatea speciosa*

Photos by Andrew Bannister

selections of very beautiful colour forms now available. Larger plants of *Calanthe* were just starting into growth and these too are potted in two parts composted bark, 1 part Perlite. He finds that both *Calanthe* and *Bletilla* are quite greedy and will stand feed up to 800  $\mu$ S. Also in here are some British natives such as *Epipactis palustris* and *Dactylorhiza* Eskimo Nell which has creamy white flowers sometimes with a faint purplish tinge.

I asked him when we were in this house whether he ever found condensation dripping onto plants a problem, as some other growers I have talked to were very aware of the danger. He doesn't and suggested that polycarbonate is a better insulator than glass; also that the only house he showed me with glass was an elderly timber-framed model where each glass pane stretches from the ridge to the eaves. This ensures that any condensation runs down to the eaves rather than collecting on intermediate glazing sheets or bars and falling on to the plants beneath.

The third greenhouse we visited is also unheated (and never heated) and housed summer-growing species. In here were pots of *B. ochracea*, *Eulophia welwitschii*, *Ponerorchis* and *Satyrium nepalense ciliatum*. Under the bench were a large collection of *Dactylorhiza*, mainly *Dactylorhiza fuchsii* as winter frosts can damage plants in pots. During the Summer months the *Dactylorhiza* stand outside on the shaded north side of a greenhouse.

The last growing area we visited was an outdoor bench on the north face of a greenhouse which held large pots of *Cypripedium*. With no protection from either cold or rain these were just starting into growth. The only exception to this harsh

regime is *Cypripedium formosanum* which Andrew finds not quite so hardy as others and he puts it inside a greenhouse when the weather is extremely cold. These are potted in 5-6 parts grit, 1 part composted bark and 1 part Perlite. They are fed at the lower level of 400  $\mu$ S. I asked if Andrew varies this feed over the year as I know that a lot of *Cypripedium* growers switch to a high-potash feed later in the season to encourage flowering the following year but he finds that his plants perform well with a balanced fertiliser.



Fig. 7: *Pterostylis coccinea*  
Photos by Andrew Bannister

I have to admit that I approached this interview with Andrew with some trepidation as I feared that his professional training and huge range of unusual species would expose my very amateur view of growing orchids. But Andrew was as helpful and patient as I have always found him at orchid shows. Do ask him about his plants as he is always happy to explain what they need and how to grow them. I am very grateful to Andrew for his time and the welcome he gave me to his home and nursery.

Note: Andrew's nursery is not open to the public.

#### References

<sup>1</sup> <https://orchidalchemy.com/>

<sup>2</sup> Peters Excel - Water-soluble professional fertilisers manufactured by ICL Speciality Fertilizers <https://icl-sf.com/uk-en> (Available in the UK from LBS).



# Greenwings

*Wildlife Holidays*

## A selection of our botanical tours



Autumn Flora of the Peloponnese	20 - 27 Oct
Crete in Autumn	27 Oct - 3 Nov
Drakensberg in South Africa	24 Jan - 7 Feb
Cyprus in Spring	2 - 10 Mar
Orchids of Rhodes	4 - 11 Apr
Italy: The Gargano	11 - 18 Apr
Greece: Peloponnese in Spring	11 - 18 Apr
Lesvos at Leisure	26 Apr - 3 May
Greek Macedonia	3 - 10 May
Kent: Orchid Garden of England	16, 17 & 18 May
Eastern French Pyrenees	17 - 24 May
France: The Vercors	25 Jun - 2 Jul
Bulgaria: Flowers & Butterflies	25 Jun - 3 Jul
Italy: The Dolomites	3 - 10 Jul
Turkey: The Kackars	11 - 19 Jul

Private and bespoke  
tours also available  
on request

Led by knowledgeable & experienced guides, including  
Dr Yiannis Christofides, Jon Dunn & Dr Paul Harcourt Davies

01473 254658 ♦ [www.greenwings.co.uk](http://www.greenwings.co.uk)

## Lesvos Orchid Holiday Hilary Pickersgill

In 2017 Graham Giles, Steve and I spent two weeks on Lesvos. We stayed at the Hotel Malemi Organic at Skalla Kallonis – not the most central position for the orchids but the hotel came highly recommended and was popular with orchid hunters and birders. The proximity to the Gulf of Kallonis meant that we made several detours to enjoy the birdlife in the lagoon. Flamingos, glossy ibis, egrets, stilts, squacco heron and many, many more. A Scops owl could be heard most nights.

Lesvos had had an unusually cold winter with several days of snow cover. As a result, some early orchids were still in flower but we struggled to find others that would normally have been in bloom. In spite of the unusual season we saw around fifty different orchids during our two-week stay. The island is well worth a visit if you enjoy a mix of walks where you will enjoy orchids in large numbers, and sites that challenge you to find the gems. I could write at length but this article will be the edited highlights of our visit.

Our trip began with a walk along a track near Loutra where we saw so many interesting orchids we only travelled half of the distance we had intended and had to return a few days later. It was an *Ophrys* lover's paradise and we were soon photographing a bewildering collection of fusca-types and pink *Ophrys* of varying size and shape. After much time spent poring over books and internet pages we compiled our *Ophrys* list – *attaviria*, *fusca*, *iricolor*, *minutula*, *scolopax* (*orphanidea* on many of the lists from friends), *pelinaea*, *sicula*, *attica* and *umbilicata*. *Orchis italica* seemed to be at its best at this site and we saw it in large impressive groups at a number of places.

Some of the pink *Ophrys* had very small flowers and were coming to the end of their flowering so we felt reasonably confident that they were *Ophrys dodecanensis*. *Serapias* were coming into good flower and we saw *Serapias bergonii* at most sites. We only found *Serapias cordigera* at one site and *Serapias orientalis carica* at another but they are probably more widespread. Higher up above the path there were a few groups of *Orchis quadripunctata* coming to the end of their flowering. A dainty orchid with striking purple / pink flowers dancing on the breeze.

Fig. 1: *Ophrys tenthredinifera leochroma*    Fig. 2: *Ophrys umbilicata*  
Fig. 3: *Anacamptis collina*    Fig. 4: *Anacamptis laxiflora*  
Fig. 5: *Ophrys homeri*    Fig. 6: *Serapias cordigera*  
Fig. 7: *Ophrys ferrum-equinum*    Fig. 8: *Cephalanthera longifolia*  
Fig. 9: *Ophrys attica*

Photos by Hilary Pickersgill





Many of you will know Brian and Eileen Anderson. They were staying at the Malemi and were a fount of knowledge on the orchids. At the start of our stay they had been to check on a population of *Dactylorhiza romana* and found six in flower. We did not go to see them straight away and that was our loss as all but one disappeared, presumed to have been eaten. Our focus at the time was the endemic *Ophrys lesbis*. We visited one site where there would normally be a few good flowers but we were delighted to find more than fifty so perhaps they responded well to the harsh winter.

The next site that day should have been a gem but it had been grazed by sheep and goats. After a careful search we found *Anacamptis collina* in good flower. They were different from those we had seen elsewhere as most had deep pink lines on the lip making a very attractive flower. There were small numbers of *Ophrys* dotted around and we could only imagine what a wonderful site this would have been had we managed to get there ahead of the goats.

Our last site on that day was a track up a hill between olive groves and rough ground. The views were beautiful in the late afternoon sunshine and the carpet of flowers beneath the olive trees was stunning. As we moved from grassland to grass and shrubs the bright flowers of *Orchis simia* appeared, individually and in groups. We were struck by the pale body and dark limbs in these flowers making a very impressive inflorescence. At the furthest point of this walk we discovered a striking group of *Cephalanthera longifolia* in flower. Close-by an *Ophrys iricolor* was surviving on the edge of the path and *Orchis purpurea* on the bank with just one open flower. We returned a few days later to see it in flower. It was a handsome plant and it was the only one we saw during our two-week stay.

Olive groves are usually good for orchids. We followed tracks from the Pigi road through olive groves and enjoyed carpets of *O. italica* in full flower, *Anacamptis papilionacea*, and eight species of *Ophrys* including *Ophrys ferrum-equinum* and *Ophrys labiosa*. The *Ophrys tenthredinifera* stood out as many were deep red/pink, a variation sometimes called *Ophrys leochroma*.

During our visit we watched fields around the Gulf of Gera turn slightly purple as *Anacamptis laxiflora* came into flower. Most fields were very securely fenced but we found one site where we were able to enjoy the flowers at closer quarters and some plants with pink flowers which we had not seen before.

Fig. 10: *Anacamptis pyramidalis*    Fig. 11: *Anacamptis papilionacea heroica*  
Fig. 12: *Ophrys sitiaca*    Fig. 13: *Neotinea tridentata*  
Fig. 14: *Orchis quadripunctata*    Fig. 15: *Ophrys minutula*  
Fig. 16: *Ophrys mammosa*    Fig. 17: *Limodorum abortivum*  
Fig. 18: *Ophrys reinholdii*  
Photos by Hilary Pickersgill

Another day, another track, this time in search of *Ophrys reinholdii* which we found in large numbers, even flowering down the middle of the path at one point. This was also a good place for *Orchis provincialis* which was at the peak of its flowering at this site. Also worthy of note were the many *Fritillaria*, stunning red tulips and poppies. Following a tip, we explored another track through an olive grove, this time near Asomatos. We found a nice group of *Neotinea* but different from those we had seen elsewhere as they were taller and spindly with hemispherical inflorescences. The edge of the lobe was ragged rather than toothed. This was *Neotinea commutata*.

Finding *Ophrys blitopertha* proved a challenge. Firstly, finding the site and secondly, finding the right place on the hillside. The site looked far from promising but we searched diligently and eventually found quite a large group in full flower. There were *Ophrys* that we had seen elsewhere but also some *Himantoglossum robertianum* with a few good flowers. One of our favourite sites was a very steep NW facing olive grove. We logged twelve species at this site and *H. robertianum* in perfect flower in a garden/field on the other side of the road. There were eye-catching groups of unusually tall spikes of *O. labiosa* high up on the slope and a magnificent population of *Ophrys mammosa* at the bottom. On our second visit *Anacamptis pyramidalis* were just coming into flower and we suspected the large number of rosettes round about could develop into an impressive display of *Anacamptis sancta* as this had been logged at the site.

By our penultimate day we still had not seen the endemic *Ophrys homeri* so we targeted an olive grove where it had been seen in the past. We were rewarded with a large population in full flower and managed to take photographs before the men pruning the olives moved to our patch and trampled the orchids. We were not expecting to see *Cephalanthera epipactoides* in flower but we monitored one strong clump as the shoots grew, the buds fattened and eventually turned creamy in colour. On our last visit, on the way to the airport to fly home, we were rewarded with one open flower. The woodland round about was home to a healthy population of *Limodorum abortivum* which were just coming into bloom and would put on a magnificent display over the following weeks. The last site we visited was another re-visit where flowers were temptingly close to opening. We had already enjoyed *Orchis provincialis*, *Neotinea lactea*, *Neotinea intacta* in good flower at this site but the *Anacamptis coriophora* ssp. *fragrans* remained stubbornly in bud until our final visit when one flower was open and we were able to confirm the identity.

Easter Sunday fell the day before we returned home. At the hotel we were invited to join the family for their Easter meal and we were able to watch a whole lamb being roasted on an outdoor spit. We thoroughly enjoyed our stay in every respect and the meal proved a delightful end to our holiday.





Fig. 19: *Ophrys iricolor*    Fig. 20: *Orchis italica*  
Fig. 21: *Ophrys sicula*    Fig. 22: *Serapias carica*  
Fig. 23: *Ophrys pelinaea*    Fig. 24: *Orchis simia*  
Photos by Hilary Pickersgill

The work in the olive groves and manicuring of the ground has made the orchid hunters' task much harder but it is still worth the effort provided you do your homework before your visit. There was a marked lack of reptiles, presumably a result of the later season and lower temperatures. We regularly came across tortoises in the olive groves and that was a treat. Lesvos is largely unspoilt by tourism. There are plenty of ancient sites to visit including a large castle at Mytilini, two aqueducts, a petrified forest (not open to the public before Easter but there were petrified trees at the roadside in that area) and hot springs.

One of the challenges we faced was the identification of some of the *Ophrys*. The three images in Figures 25-27 show a plant we found on the walk near Loutra. As we were unsure what to call it the images were sent to a number of people for their opinions. Each one came back with a different name – *Ophrys lindia*, *Ophrys cesmeensis*, *Ophrys bilunulata* ssp. *punctulata*, and then one revised ID of *O. pelinaea*.



Fig. 25-27: Three images of a plant near Loutra that divided opinion on identification. Suggestions included *Ophrys lindia*, *Ophrys cesmeensis*, *Ophrys bilunulata* ssp. *punctulata* and *O. pelinaea*.

Photos by Hilary Pickersgill

We are very grateful to Brian and Eileen Anderson, Mike Parsons, Gerry Trask, Les Lewis and other friends who supplied us with excellent site information and made our orchid hunting so profitable and enjoyable. Thanks also to Gerry Trask, Jan Van Lent, Yiannis Christofides and others who have helped with identification of the *Ophrys* teaser.



## Laneside Hardy Orchid Nursery



The only specialist hardy orchid nursery in the UK.  
A wide range of native and northern hemisphere terrestrial hardy orchids available by mail order or at shows

Jeff has wide experience re-introducing native orchids to meadows and woodlands and in the selection of suitable species for garden planting.

[www.lanesidehardyorchids.co.uk](http://www.lanesidehardyorchids.co.uk)

[jcrhutch@aol.com](mailto:jcrhutch@aol.com)

01995605537

## WILDLIFE TRAVEL

natural history holidays worldwide

more than just a wildlife holiday  
discover a new world

Worldwide destinations include

Morocco Gargano Lesvos  
Cyprus Cevennes Armenia  
New Caledonia South Africa  
Costa Rica Colombia Chile



our profits are  
donated to  
conservation

01954 713575  
office in Cambridge

[www.wildlife-travel.co.uk](http://www.wildlife-travel.co.uk)



ATOL protected no. 808

