

**Journal  
of the  
HARDY ORCHID SOCIETY**

**Vol. 21 No. 1 (112) Winter 2024**



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**Cover Photograph:** Front cover features *Neotinea ustulata* photographed by Janet Hails and placed first in Class 3 of the 2023 Photographic Competition. Results and other images start on page 8.

Password for Members' Area of HOS Website: **lady24**

**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.

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**Editorial Note**

**Mike Gasson**

This *JHOS* includes results from the 2023 Photographic Competition with a selection of the first-placed winning images. The full collection of all winners' photographs is available on the website. Richard Bateman provides us with another of his in-depth articles, this time a write-up of a talk he gave at an earlier HOS meeting. Detail of the first field trip for 2024 is included, as well as a description of an attractive walk in Teesdale from Alec Latham. We have two book reviews, including a thoughtful piece from Richard Kulczycki that takes us past the first impressions that Ben Jacob's "*Orchid Outlaw*" title might conjure up. Note the inclusion of a new draft Constitution to be tabled at the AGM in March and a change to the Members' Area password that will be implemented once this *JHOS* is distributed.

## **Chairman's Note**

### **Celia Wright**

Welcome to the first HOS Journal of 2024. I'm writing this on a bright winter's day when the hardy orchids in our garden are wisely sheltering under the ground, though soon the hardy orchid year will begin. We will look for them first on trips to warmer climates, then quite soon here in the UK as well. I'm hoping to see more of our native orchids in the wild this year as I know many of you will be.

In November 2023 at an Extraordinary General Meeting, held during the Southern Autumn Meeting at Islip, changes were made to the HOS Constitution to align it with current practice. Nearly all the changes related to the terms of tenure of posts. Following that meeting, the Committee decided to consider the whole of the Constitution with the same aim of bringing it into line with practice in the Society today. I am grateful to the Committee for giving up their time to work together to do this. Ideas have been shared, sometimes accepted, sometimes rejected and often modified, all with the aim of agreeing a version of the Constitution that will guide us well in the future. This has resulted in the proposed revised Constitution that will be presented and voted on at the AGM on 17<sup>th</sup> March 2024.

The proposed new Constitution is published in this issue of the Journal. If you wish to compare the new version with the current 2023 version, you can find the 2023 version in the Members' Area of the HOS website. You will also find there some notes explaining the Committee's reasons for the proposed changes.

Many of us on the Committee have been there for quite a long time and feel that HOS would benefit from the fresh ideas and enthusiasm that new Committee Members would bring. I have gained a lot from being on the Committee over the years, learning about hardy orchids from many different perspectives as well as making good orchid-loving friends. If you are interested in joining the Committee, please get in touch and talk about the opportunities informally. I look forward to hearing from you.

The booking form for our March meeting at Kidlington (yes – we're back at Kidlington again) is enclosed with this Journal. Do come if you can and happy orchid hunting and growing in 2024 to you all.

## **Hardy Orchid Society Constitution**

### **Version proposed for adoption at the HOS AGM on 17<sup>th</sup> March 2024**

1. **NAME:** The Society shall be called The Hardy Orchid Society (HOS).
2. **OBJECT:** The Society's object is to encourage interest in, knowledge of, and conservation of Hardy Orchids.
3. **MEMBERSHIP:** Membership shall be open to all but may be refused or withdrawn at the discretion of the Committee. Anyone whose membership is so withdrawn shall have the right of appeal to the Society in writing to the Secretary.
4. **SUBSCRIPTIONS:** Subscription rates shall be determined at a General Meeting and become due on 1st May each year. Any member whose subscription remains unpaid at 31st October shall immediately cease to be a member of the Society.
5. **ENROLMENT FEE:** New members joining the Society are required to pay an enrolment fee, which entitles them to an enrolment pack. For those paying by Standing Order, the enrolment fee may be waived. The amount of the fee shall be reviewed by the Committee if they feel it necessary.
6. **HONORARY LIFE MEMBERSHIP:** This may be awarded to current or past members for outstanding service either to the Society or to orchids in general. Nominations for Honorary Life Membership must be submitted to the Committee for consideration at least two months before a General Meeting. If approved, the nomination will be put to the Society at a General Meeting for election. A majority of two thirds of members present is required to approve such an award.
7. **COMPLIMENTARY ONE YEAR MEMBERSHIP:** The Committee may award this concession to non-members who have contributed meaningfully to the Society. The recipient will receive free membership of the Society, ending on 30th April following the first anniversary of the award.
8. **PRESIDENT:** The President may be elected at any General Meeting of the Society by a majority of those present. The President will be a non-voting member of the Committee. Former Presidents who so desire may retain the honorific title of Vice President.
9. **OFFICERS:** The Officers shall comprise the Chair, Vice-Chair, Secretary, Membership Secretary and Treasurer. Officers shall be elected annually at a General Meeting.

10. COMMITTEE: The Committee shall comprise the Officers and a maximum of 15 Ordinary Members, all of whom must be elected annually. Should an Office become vacant during the year, the Committee may appoint a stand-in until the next Annual General Meeting.

11. COMMITTEE MEETINGS: These may be convened at the request of any four Committee Members. A quorum shall consist of nine Members.

12. COMMITTEE DUTIES: In addition to the powers specifically conferred on the Committee by these rules, the Committee shall be responsible for control of the Society's finances and all administration necessary to carry out the objects of the Society. The Committee may appoint Ordinary Committee Members to fulfil specific roles and define the corresponding duties. The Committee shall have the power to co-opt additional, non-voting members.

13. AGM: This shall be held on any day in the period March to June within 15 months of the previous AGM as decided by the Committee. The meeting shall transact the following business:

- 1 Receive the Chair's Report of the Society's activities during the year.
- 2 Receive and, if approved, adopt a statement of the Society's accounts for the preceding financial year, ending on the last day of December.
- 3 Determine the membership subscription rates and enrolment fee for the year commencing 1st May (Rules 4 and 5).
- 4 Elect the Officers and Ordinary Members of the Committee (see Rules 9 and 10). All nominations must be received by the Secretary at least fourteen days prior to the Annual General Meeting. If insufficient nominations are received, nominations may be accepted from the floor. All nominations must be proposed and seconded and have the nominee's agreement.
- 5 Appoint an Auditor, who may not be an Officer or Committee Member of the Society.
- 6 Consider and, if approved, sanction alterations to these Rules, provided that the notice convening the meeting specifies such proposed alterations (see Rule 15).
- 7 Subject to these Rules, to consider any other business concerning the Society.

14. NOTICE OF A GENERAL MEETING: This shall be sent to all members not less than twenty-eight days before the meeting date, either as an announcement in the Journal of the HOS or by the Secretary. An Extraordinary General Meeting may be convened at the written request of not less than twenty members. It will normally take place within three calendar months and not more than six months of the request being received by the Secretary. The notice convening the EGM shall specify the agenda for the requested meeting.

15. ALTERATIONS TO THE RULES: Rule changes shall be formulated and proposed through the Committee. Proposed alterations may not take effect until confirmed by a majority of those present at a General Meeting. Members of the Society have the right at such a meeting to propose amendments, which must then be referred to the Committee for consideration.

16. DISPOSAL OF ASSETS: In the event of the dissolution of the Society, all assets remaining after meeting the Society's liabilities shall be passed to Plantlife for the express purpose of furthering interest in hardy orchids.

### **Field Trip Update 2024**

We are currently preparing our trips programme for the 2024 season and hope to run about twelve to fifteen trips. We would love offers to run trips, especially anywhere outside the south-west and south-east of England. If you would like to discuss a possible trip, please contact the Field Trip Co-ordinators.

#### **Saturday 6th April: Oxfordshire, near Didcot**

Leader: Hamza Nobes

Email: [hamzanobes@gmail.com](mailto:hamzanobes@gmail.com)

To see the Giant Orchids (*Himantoglossum robertianum*) discovered two years ago. One or two orchids should be near the path but most are down a very steep and slippery grass bank. Stiff soled shoes are preferable and the short descent requires care.

### **Plant Show 2024**

The Plant Show will take place during the Southern Spring Meeting at Kidlington on 17<sup>th</sup> March 2024. Notification of entries should be received by Neil Hubbard (Email: [neilhubbard@talktalk.net](mailto:neilhubbard@talktalk.net)) by Wednesday 13<sup>th</sup> March. Please see website for classes and rules.

## Results of Photographic Competition 2023

### **Class 1. A view of an area (landscape or habitat) showing orchids in their natural environment, print size up to A4. (8 entries)**

- 1st Karen Gregory – *Platanthera bifolia*
- 2nd Janet Hails – *Orchis purpurea*
- 3rd Denise Harper – *Orchis mascula*

### **Class 2. A group of orchids containing at least three flower spikes in their natural environment, print size up to A4. (9 entries)**

- 1st Karen Gregory – *Cypripedium calceolus*
- 2nd Denise Harper – *Dactylorhiza kerryensis*
- 3rd Ken Elsom – *Anacamptis pyramidalis*

### **Class 3. A flower spike of a single orchid in its natural environment, print size up to A4. (10 entries)**

- 1st Janet Hails – *Neotinea ustulata*
- 2nd Denise Harper – *Neottia nidus-avis*
- 3rd Ken Elsom – *Hammarbya paludosa*

### **Class 4. A close up of an orchid, showing one or more entire inflorescence(s), in its natural environment, print size up to A4. (11 entries)**

- 1st Ken Elsom – *Platanthera chlorantha*
- 2nd Alan Blackman – *Orchis simia*
- 3rd= Christopher Hoskin – *Orchis mascula*
- 3rd= Karen Gregory – *Pseudorchis albida*

### **Class 5. A close up of an orchid showing part of an inflorescence, in its natural environment, print size up to A4. (10 entries)**

- 1st Ken Elsom – *Epipactis leptochila*
- 2nd Vincent Blood – *Ophrys apifera* (sepaloid)
- 3rd= Janet Hails – *Ophrys sipontensis*
- 3rd= Karen Gregory – *Ophrys apifera*

### **Class 6. A view of an orchid with pollinator, in its natural environment, print size up to A4. (5 entries)**

- 1st Gillian Elsom – *Anacamptis pyramidalis* (with *Melitaea cinxia*)
- 2nd Ken Elsom – *Dactylorhiza fuchsii* (with bee)
- 3rd Hilary Pickersgill – *Epipactis purpurata* (with wasp)



**Class 7. An orchid subject that is growing in cultivation, print size up to A4. (3 entries)**

1st Janet Hails – *Anacamptis morio*

**Class 8. A view of an area (landscape or habitat) showing orchids in their natural environment, in JPEG form. (17 entries)**

1st Karen Gregory – *Platanthera bifolia*

2nd Denise Harper – *Dactylorhiza majalis*

3rd Alan Dash – *Orchis italica*

**Class 9. A group of orchids containing at least three flower spikes in their natural environment, in JPEG form. (22 entries)**

1st Karen Gregory – *Cypripedium calceolus*

2nd Denise Harper – *Anacamptis morio*

3rd Gillian Elsom – *Anacamptis coriophora*

**Class 10. A flower spike of a single orchid in its natural environment, in JPEG form. (23 entries)**

1st Gillian Elsom – *Platanthera bifolia*

2nd Ivar Edvinsen – *Orchis mascula*

3rd Alan Blackman – *Dactylorhiza sambucina*

**Class 11. A close up of an orchid, showing one or more entire inflorescence(s), in its natural environment, in JPEG form. (24 entries)**

1st Peter Vaughan – *Orchis simia*

2nd Denise Harper – *Orchis* ×*angusticuris*

3rd Mark Dowie – *Ophrys* ×*pietschii*

**Class 12. A close up of an orchid showing part of an inflorescence in its natural environment, in JPEG form. (23 entries)**

1st Denise Harper – *Ophrys insectifera*

2nd Tony Fielding – *Ophrys apifera*

3rd Ivar Edvinsen – *Ophrys lunulata*

**Class 13. A view of an orchid with pollinator, in its natural environment, in JPEG form. (11 entries)**

1st Mark Dowie – *Epipactis helleborine* (with wasp)

2nd Catriona Matheson – *Gymnadenia borealis* (with *Polyommatus icarus*)

3rd Tony Fielding – *Epipactis helleborine* (with wasp)

**Class 14. An orchid subject that is growing in cultivation, in JPEG form.  
(7 entries)**

- 1st Janet Hails – *Spiranthes spiralis*
- 2nd Ivar Edvinsen – *Disa uniflora*
- 3rd Bill Temple – *Pecteilis radiata*

**Class 16. Novice class, any hardy orchid, in JPEG form. (10 entries)**

- 1st David Livermore – *Orchis purpurea*
- 2nd Stuart Meeson – *Ophrys sphegodes*
- 3rd Tony Fielding – *Platanthera chlorantha*

**Class 17. A hardy orchid subject that has been manipulated creatively using any advanced software technique to create an artistic image, print size up to A4. (4 entries)**

- 1st Janet Hails – *Ophrys rhodia*
- 2nd Gillian Elsom – *Platanthera bifolia*

**Class 18. A hardy orchid subject that has been manipulated creatively using any advanced software technique to create an artistic image, in JPEG form. (7 entries)**

- 1st Janet Hails – *Dactylorhiza fuchsii*
- 2nd Alan Blackman – *Dactylorhiza caramulensis*
- 3rd Gillian Elsom – *Orchis purpurea*

**Best Print & Maren Talbot Photographic Trophy:**

Gillian Elsom for *Anacamptis pyramidalis* with *Melitaea cinxia* (Glanville Fritillary) in Class 6.

**Best Digital Image:**

Karen Gregory for *Platanthera bifolia* in Class 8

**Our thanks to the Competition Judge:** Howard Rice

Some of the first-placed winning entries are shown on the following pages. Numbers refer to the Class entered. The HOS website has a display of all the winning images:

<https://www.hardyorchidsociety.org/photocomp/2023mobile/photocomp2023.html>









**Our orchid-hunting tours for 2024 include:**

**Orchids and Wildlife of Cyprus in Spring 1-8 March £1,425**

**Orchids of Rhodes 1-8 April £1,425 1 space remaining**

**Orchids of Sicily 11-18 April FULLY BOOKED**

**Dorset Spring Orchids daytrips 27 or 28 April £100**

**Arnside & Silverdale Spring Orchids daytrips 3 or 4 May £125**

**Orchids of Kent daytrips 1 or 2 June £150**

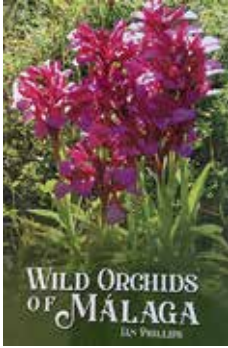
**The Helleborines of Helsington daytrip 6 July £125**

**The Helleborines of Hutton Roof daytrip 7 July £125**

**[www.mariposanature.com](http://www.mariposanature.com)**

**Special discount - £100 off all 2024 overseas tours  
booked before 1 December 2023!**

***Wild Orchids of Málaga***  
**Book Review by Mike Gasson**



*Wild Orchids of Málaga* by Ian Phillips. Published by Austin Macauley Publishers Ltd, London, 2023. £15.99 from <https://www.austinmacauley.com>

“*Wild Orchids of Málaga*” is a comprehensive regional guide to an orchid-rich area of southern Spain that draws on some 35 years of local exploration by its author Ian Phillips. The book starts with a foreword from HOS President, Professor Richard Bateman, who from personal experience highlights the area’s orchid and cultural interest. Richard aptly describes Ian’s work as a “labour of love”, something which shines through from its 191 pages.

For anyone visiting Andalusia with orchids in mind this book is the essential guide. Ian includes details of how and where to find them, something that can be largely achieved by searching out roadside colonies and nearby areas. A chapter with five driving itineraries provides the sort of detailed guidance that ordinarily one might need to request from a fellow enthusiast already aware of the best sites.

A major part of the book is dedicated to detailed species accounts of all that the region has to offer. These are relatively concise but both authoritative and informative. For example, some care is taken to address the complexities of *Ophrys* taxonomy where knowledge of a pollinator may be as important as morphology in pinning down an identification. Hybrids are included as well as good coverage of the variation to be found within some of the species.

Several photographs, mostly taken by the author, are included within each species account and these cover whole plants, close-ups, and habitats. In his introduction Ian makes a point of declaring himself not to be a natural photographer having “little patience with the gadgetry beloved of the true photographer”. He has used modest camera equipment compared with what is now available to those with money to spend. He has however achieved his objective of adequately illustrating what he has to say. Photographically this book does not offer the sort of coffee table quality images found in some other orchid publications, but it does provide a good range of images that aid identification.

Overall, this is an excellent guide to the region’s orchids, which Ian describes as occurring in some very fine forms and sometimes in great numbers.

## **Current Status of Botanical Recording in Britain and Ireland**

### **Richard Bateman**

Britain and Ireland are small countries that, despite being geologically diverse, share a flora that is impoverished compared with that of the Mediterranean, largely as a consequence of having been a glacial (in the north) and periglacial (in the south) landscape as little as 11,700 years ago. Consequently, we currently host only between 52 and 54 truly native orchids (Bateman 2022a) whereas, for example, a recent paper on Italian orchids claimed an ambitious total of 113 supposed species and subspecies for the Gargano Peninsula alone.

Nonetheless, HOS members will surely have invested in protecting and encouraging what remains of the orchid flora of these smallish and comparatively crowded islands, particularly in the face of an undeniably accelerating climate crisis. Are orchid species that were until now exclusively Continental currently renewing their past enthusiasm for invading the British Isles? As a corollary to such positivity, will the more cold-loving among our native orchid species eventually meet lonely ends at the peaks of our highest mountains? Will the more moisture-loving among our orchid species finally wither away under the intense sun that has become only too familiar during recent summers? Before we can even begin to address such fundamental questions, we need to determine precisely where our orchid populations are located and how they are behaving.

Botanical recording in the British Isles has relied primarily on the network of local coordinators established long ago by the Botanical Society of Britain and Ireland (BSBI). They divided the British Isles into 153 “vice counties” of broadly similar area, each overseen by a local superintendent, to whom members would submit records for eventual centralisation. Also important were several local records centres, typically run by local government, which became increasingly coordinated by the national Biological Records Centre. The BRC was established in 1964 at the (since deceased) Monks Wood Experimental Station in Huntingdonshire, but now resides at the UK Centre for Ecology and Hydrology (CEH) in Oxfordshire. In the latter half of the 20th century, Britain could boast that it possessed the best understood flora of any in the world, thanks to the combination of the unusually rigorous recording networks and the comparatively high density of field botanists constantly plucked from the bosom of “a nation of gardeners.”

I have prepared this article because I am aware that many members of HOS invest much time and effort in finding and identifying our native orchids (though often tending to repeatedly visit a small number of famous orchid localities). I am also aware that there is a growing inclination among members to offer practical support to increasingly popular schemes referred to in the broadest sense as “rewilding”



(Bateman 2024). It will be essential that all such deliberate (re)introductions of orchid species are adequately documented, to allow them to be distinguished from natural colonisation events. In short, I believe that, given better organisation, the HOS could contribute much more to vegetational mapping in Britain and Ireland.

### **Increased resolution through time**

Botanical recording in the British Isles has long been based on square areas delimited by the Ordnance Survey's national grid. The precision with which typical records are submitted has increased through time, from initial tetrads ( $2 \times 2$  km squares) through monads ( $1 \times 1$  km squares, i.e. four-figure grid references) to hectares ( $100 \times 100$  m, usually reported as six-figure grid references). Increasingly widespread use of GPS devices by field botanists from the late 1990s onwards further strengthened potential precision to at least eight-figure grid references, accurate to within 10 m. However, far coarser resolution has been used to summarise records when generating species distribution maps for publication – typically, tetrads are used at a local level and hectads ( $10 \times 10$  km squares) at a national level. Arguably the most prominent outcome of the increasingly intensive field recording has been a series of plant atlases of the British Isles that are based on the presence or absence of species at hectad resolution. The first plant atlas was published in the early 1960s (Perring & Walters 1962), and new atlases are released from captivity approximately every 20 years.

### **The latest atlas**

Although still based on the traditional hectad grid maps, Atlas 2020 (Stroh et al. 2023) – weighing in at two volumes totalling 1524 pages and 8.3 kg – is a significant improvement on previous atlases in terms of presentation (Fig. 1). Hectad records are, as in Atlas 2000, divided into multiple time-slices denoted by contrasting shades of blue, whereas known non-native occurrences are presented in red. A new innovation, borrowed from recent county floras, is that the coloured dots are given a backdrop of altitudinal slices presented as various shades of green. As before, the accompanying text consists of one paragraph describing distribution and habitat preferences, a second paragraph that summarises long-term changes in these properties, and finally a skeletal bibliography. The text is supported by novel graphics that summarise altitudinal distributions from south to north, distributions of both vernalisation and flowering time, and simple arrows that indicate long-term and short-term trends in frequency, given separately for Great Britain and for Ireland.

Undoubtedly the most fundamental innovation associated with Atlas 2020 is the release of the first ever online version, which has been made freely accessible. It mirrors the aesthetics of the printed version but in addition offers a limited degree of interactivity; readers are offered choices of time-slices and of presence/absence versus frequency data per hectad. You can also zoom in on particular regions of the British Isles, simultaneously switching to a higher-resolution tetrad grid. You

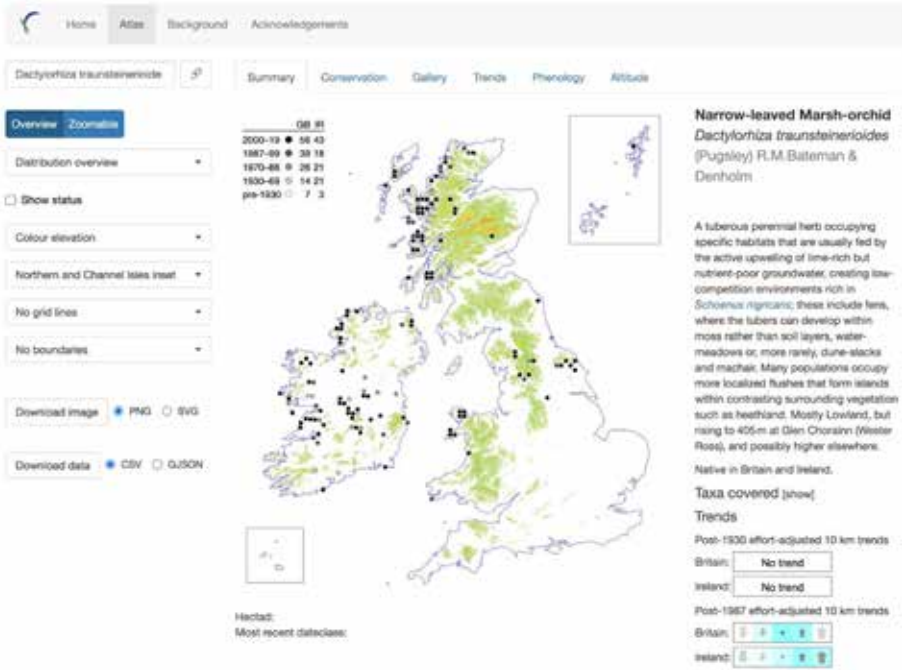


Fig. 1: Typical initial page of BSBI’s online Atlas 2020 (Stroh et al. 2023), illustrating the number of records of Pugsley’s Marsh-orchid represented in GB and Ireland for each of five time-slices. The site offers a degree of interaction and layering, but will not be constantly updated.

can create and save distribution maps prepared to your own specifications, while presentation of flowering times (adjusted for latitude) and especially trends of change in frequency is more sophisticated and statistically rigorous. Supporting data fields include conservation status and an image gallery (albeit a gallery currently populated with images that are often mediocre and occasionally wrongly identified). One controversial decision, viewed by some observers as a wasted opportunity, has been to freeze the underlying data between the publication of successive Atlases, rather than constantly updating the data to aid the innumerable people who will consult the database in the interim. This decision places greater emphasis on gaining access to the underlying database(s), which are updated frequently.

### Why invest effort into recording distribution data?

What use are distribution data? Viewed from the static perspective of a single atlas (i.e. a single 20-year time-slice), they tell you whether that species is widespread or localised, though they do not allow you to easily determine the number of populations

or especially their typical size. You can overlay categories of extrinsic data, such as altitude, geology/soil type and land use, aiming to identify preferred habitat, though at resolutions coarser than  $100 \times 100$  m such interpretations are invariably crudely averaged, being obliged to overlook critical but highly localised factors such as soil moisture, slope and aspect. Species distributions can also be compared with climate data, albeit on the basis of worryingly coarse grid rectangles of at least five arc minutes of longitude and latitude (an area a little smaller than a hectad). And from a conservation perspective, knowing which particular species grow where obviously assists people aiming to select, and subsequently prioritise, areas competing for various kinds of conservation status.

However, the power of being able to access distribution data gathered through almost a century becomes most clear when distributions are compared for successive time-slices, thereby revealing dynamic trends through time. Admittedly, interpretation of the resulting trends is both complicated and weakened by the need to somehow adjust for considerable fluctuations through time in overall levels of field effort expended (e.g. Trudgill 2022a, 2022b). For example, in the case of the example of Pugsley's Marsh-orchid, the perceived post-1987 increase in frequency (Figure 1, bottom right) is presumably due primarily to identification skills improving through time. Nonetheless, setting aside these concerns, the six selected trends abstracted from the BSBI Online Atlas for use here as Figure 2 do collectively reveal an intriguing set of contrasting behaviours.

Burnt Orchid (*Neotinea ustulata*) undoubtedly reveals a constant rate of precipitous decline, as the species has retreated to three core areas in Britain (Bateman 2022a). The rise of Southern Marsh-orchid (*Dactylorhiza praetermissa*) has been gradual, albeit less profound, reflecting increases in both numbers of populations and the northward expansion of its distribution. Arguably of greater interest are those curves that proved to be non-linear. I would have expected the main decline in Early Marsh-orchid (*Dactylorhiza incarnata*) to occur between 1950 and 1990, due to drainage of its preferred wetland habitats. However, there appears to have been a steady decline only *after* 1990, possibly caused less by drainage than by the drier summers that reflect longer-term climate change. These same drivers may have caused the Bee Orchid (*Ophrys apifera*) to show a converse curve, its main increase in adjusted frequency occurring post-1990 and incorporating the effects of a 21st century northward expansion even more rapid than that of *D. praetermissa*.

Other curves shown in Figure 2 are more complex and intriguing. Lizard Orchid (*Himantoglossum hircinum*) is a species whose distribution was greatest in the 1930s and 1940s, before declining back to its Kentish strongholds, but during the 21st century it has bounced back, greatly increasing in frequency. For example, my former recording territory of Hertfordshire was bereft of Lizards from the 1930s until

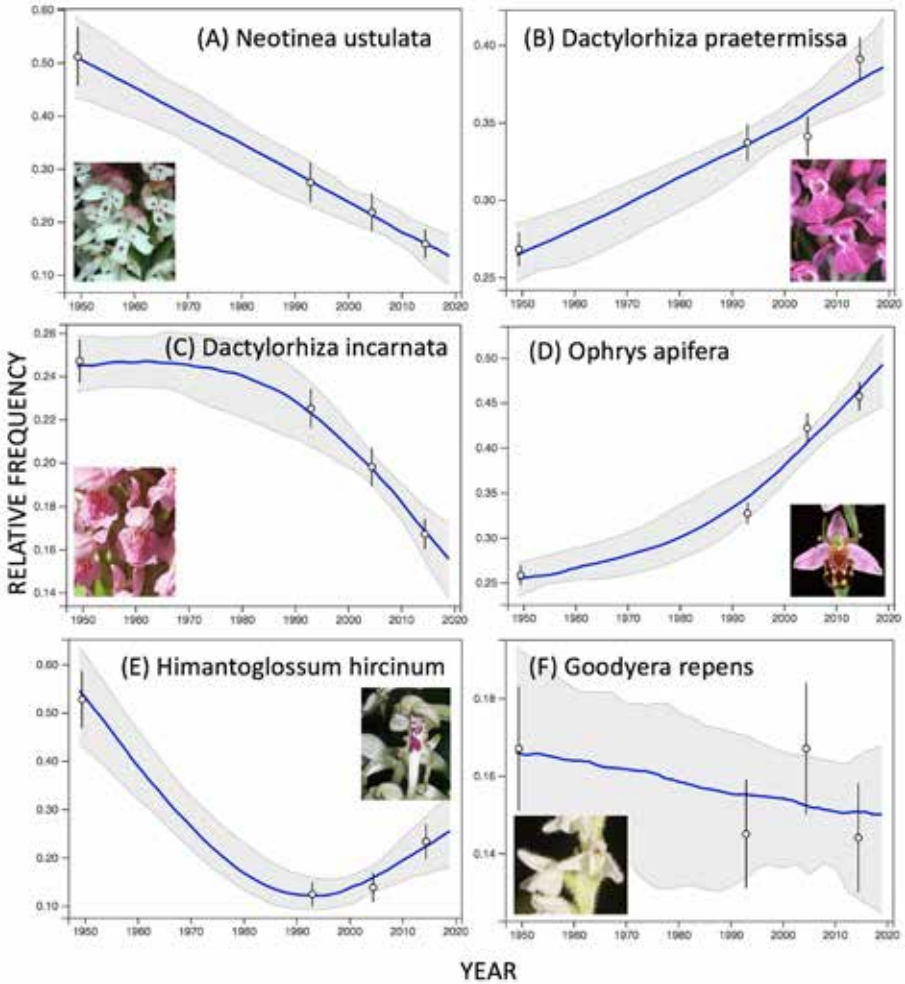


Fig. 2: Set of six frequency curves abstracted from the online Atlas (Stroh et al. 2023) for six selected native orchid species that show contrasting trends through the last 70 years. All trends share the same four data-points; the greyed zone indicates uncertainty.

2018, but today the county boasts three separate occurrences. Lastly, the trend for Creeping Lady’s-tresses (*Goodyera repens*) is more difficult to interpret. Averaging out its historical records to a slight gradual decline masks the perturbations affecting each of the four data-points, as evidenced by the relatively large error bars. Although this species appears stable in overall frequency, I suspect that the modest decline from the 2000s to the 2010s largely reflects the (again, possibly climate-driven) loss

of several of the more southerly populations, including those of uncertain origin that formerly graced Norfolk pine plantations (Bateman 2022a).

Also, as I've discussed previously (Bateman 2022a, 2022b), generating trends for the past and present from multiple time-slices opens opportunities for mathematical modellers to project distributions of these species into the future (e.g. Charitonidou et al. 2022). Predicting the behaviour of orchids in the face of various models of climate change has become a popular academic pastime, though for the models to accommodate migration adequately their source data must be at least Europe-wide. In an ideal world, all other European countries would have been subjected to the same intensity of botanical exploration, for the same period of time, and using the same species circumscriptions, as Britain – desires that cannot possibly be fulfilled.

Modelling projects may appear unrealistically ambitious, but they are not wholly divorced from reality. In particular, the more dynamic modern approach to conservation relies heavily on establishing migration corridors – routes intended to assist native species seeking more appealing locations as their current habitats fall victim to the myriad causes of degradation. You cannot construct such corridors without both knowing where the relevant species are located and possessing enough understanding of both their biology and the landscape to predict their future behaviour under particular scenarios of environmental change.

### **How has native plant recording become structured?**

I have attempted to represent the current structure of British (and, to a lesser extent, Irish) botanical recording as Figure 3, which is arguably best summarised as two broadly parallel systems that are nucleated around the BSBI and CEH respectively. The two systems interconnect repeatedly as individual plant records pass through the system. BSBI records are likely to be input into MapMate 2 software and to pass through vice-county recorders, sometimes via taxonomic referees such as myself, before entering their DDb centralised database. In contrast, CEH increasingly encourage direct entry of information into their BRC database through online input using iRecord. Admittedly, DDb and BRC are interlinked, and their content then feeds into other overarching schemes developed to encompass greater taxonomic and/or geographic scope. Happily, both DDb and BRC also permit, at least in theory, much of the accumulated data to flow in the opposite direction (green arrow in Fig. 3) – as field botanists, we can learn a great deal about our beloved orchids by interrogating these databases.

### **What can you retrieve from the distribution databases?**

I have chosen to focus my discussion of “what your databases can do for you” on DDb more than iRecord, as at present the underlying data are more reliable. The initial DDb interface is illustrated in Figure 4. The obvious temptation is to begin

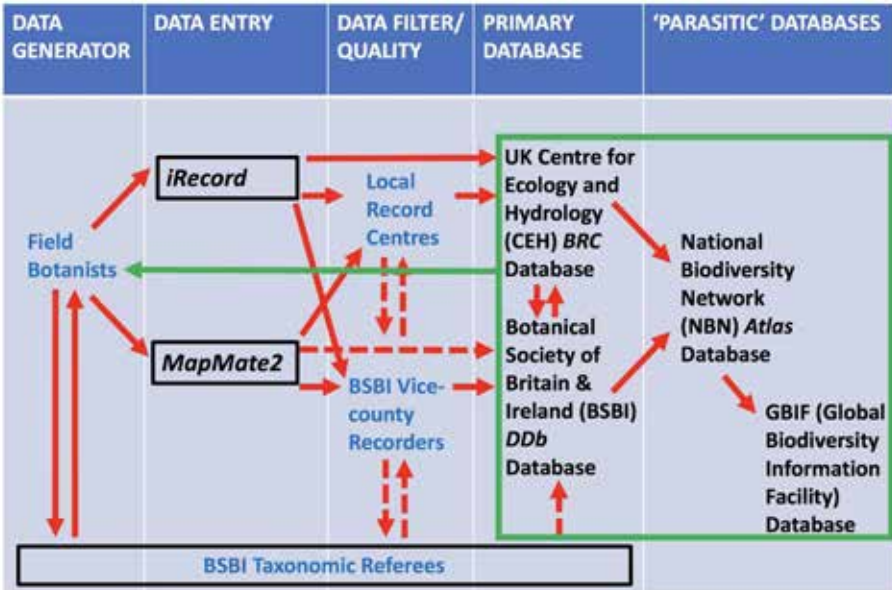


Fig. 3: Hierarchy of core databases relevant to botanical recording in Britain and Ireland, highlighting the two main routes currently employed for data entry: BSBI’s DDb database via MapMate2, and CEH’s BRC database via iRecord.



Fig. 4: Primary search interface of the DDb, here shown requesting all post-2010 records of Pugsley’s Marsh-orchid from the administrative county of Yorkshire (specific hectads could alternatively have been selected, as in Fig. 5).

a search by specifying individual species in the “taxon” box, though it is worth remembering that you can also specify a genus or the entire family Orchidaceae. You can narrow a search geographically, either through specifying particular vice-counties or national grid squares, and you can narrow a search temporally, either in order to divide records into selected time-slices or to focus your search on recent records most likely to represent populations that remain extant. For example, by searching for “Orchidaceae” records more recent than say 2010 and specifying a particular monad, you can easily assess what is currently known about the orchid flora of a particular nature reserve present in the chosen monad.

record	taxon	recorder	vc	locality	grid ref	date
<input type="checkbox"/>	<i>Neofila ovata</i>	A	VC62	Newbridge	SE802851	20/6/2020
<input type="checkbox"/>	<i>Platanthera chlorantha</i>	A	VC62	Newbridge	SE802851	20/6/2020
<input type="checkbox"/>	<i>Orchis mascula</i> ssp. <i>Early-purple</i> Orchid	B	VC62	Fickering	SE806855	20/5/2016
<input type="checkbox"/>	<i>Platanthera bifida</i>	C	VC62	Gundale	SE8087	18/6/2021
<input type="checkbox"/>	<i>Platanthera chlorantha</i>	C	VC62	Gundale	SE8087	18/6/2021
<input type="checkbox"/>	<i>Cochloselinum</i>	C	VC62	Gundale	SE8087	18/6/2021
<input type="checkbox"/>	<i>Deschampsia flexuosa</i>	C	VC62	Gundale	SE8087	18/6/2021
<input type="checkbox"/>	<i>Neofila ovata</i>	C	VC62	Gundale	SE8087	18/6/2021
<input type="checkbox"/>	<i>Orchis mascula</i>	D	VC62	Haugh and Gundale Slacks SSSI Unit 3	SE80082 87823	31/5/2016
<input type="checkbox"/>	<i>Neofila subdata</i>	B	VC62	Gundale	SE8088	17/5/2016

Fig. 5: Partial output from search of DDB for all post-2010 records (presently totalling 294) of Orchidaceae for hectad SE88 in the North York Moors. I have replaced with letters the names of the original recorders. The eye symbol present at two locations under “record” denotes restricted access to Fly Orchid and Burnt Orchid data – species categorised by DDB as “sensitive”. Note the contrasts in dates of records and level of resolution of grid references.

The results of your search can be presented in either tabular or map format. For those users given unrestricted access, tables immediately give the recorder’s identity, the locality, the date and – admittedly with a wide variety of precision – the grid reference. A single click on the grid reference conjures up a map of the relevant area, to which you can apply a range of overlays describing various aspects of the landscape. By digging a little deeper you can discover whether there has been expert verification of the record, and a minority of records also carry an estimate of plant numbers, habitat description and/or infraspecific identification. Some records will prove to be duplicated; duplicates of the same site at different times and/or deposited by different botanists constitute useful confirmation, whereas precise duplicates are mere irritants to be filtered out. By clicking on the column headers you can re-sequence the records according to date or location.

An alternative approach is to begin with the “maps” and “zoomable map” options, which allow you to focus in on grid squares of particular interest. For example, in order to generate Figure 6, I divided records for Pugsley’s Marsh-orchid (*Dactylorhiza francis-drucei traunsteinerioides*) in north-east Yorkshire into pre- and post-2000 time-slices before clicking on the square representing hectad SE88. This yielded the yellow box summarising the number of records for each of the two prescribed time-slices at three contrasting levels of resolution (hectad, tetrad, monad). Clicking on any one of the six figures highlighted in blue within the yellow box would immediately generate a table detailing all of the enumerated records. Once a search is completed, the results can then be downloaded in a range of file formats.

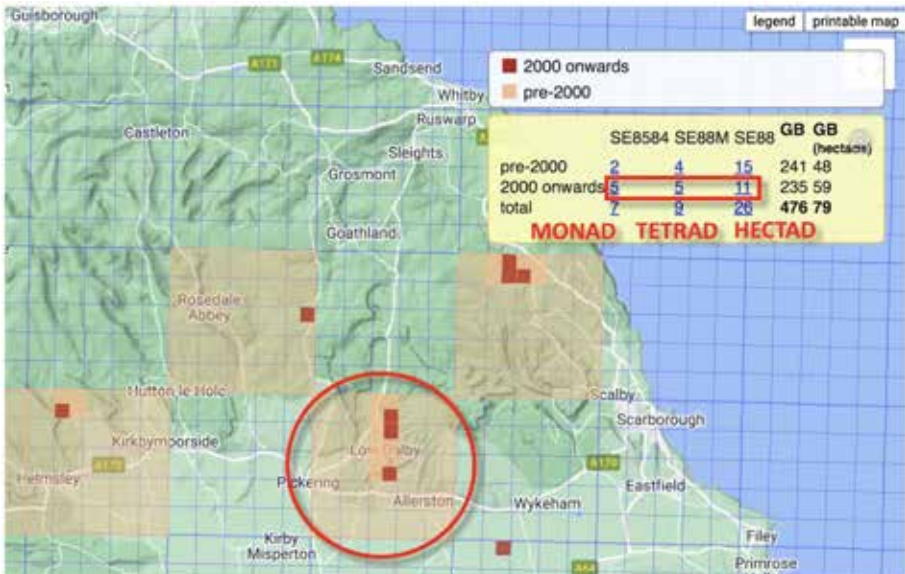


Fig. 6: “Zoomed” map generated via DDb for all Pugsley’s Marsh-orchid records in the North York Moors, shown simultaneously as hectads, tetrads and monads. Hectad SE88 is ringed; figures shown in blue in the inset indicate the number of records held at three different scales for two different time-periods.

Of course, life is not quite this simple. At present, the DDb is not freely available – access is achieved through individual request to the database managers. Moreover, permission is also given at two levels, the lower of which removes the identities of recorders, and also limits resolution to tetrads for some vice-counties. Moreover, lower-level access universally restricts details available for those 16 of Britain and Ireland’s 54 putatively native orchid species that BSBI consider particularly vulnerable. The BSBI list of sensitive species, summarised here in Table 1, includes 10 of 11 taxa maximally protected by Schedule 8 of the Wildlife and Countryside



Species with restricted access on DDb	IUCN threat category (UK & Ire)	Schedule 8 protection
<i>Cypripedium calceolus</i>	CR	✓
<i>Cephalanthera rubra</i>	CR	✓
<i>Epipogium aphyllum</i>	CR	✓
<i>Dactylor. incarnata ochroleuca</i>	*CR	✓*
<i>Orchis anthropophora</i>	EN*	✓
<i>Orchis militaris</i>	VU	✓
<i>Orchis simia</i>	VU	✓
<i>Neotinea maculata</i>	NT	
<i>Neotinea ustulata</i>	EN*	
<i>Himantoglossum hircinum</i>	LC*	✓
<i>Himantoglossum robertianum</i>	(?)	
<i>Serapias parviflora</i>	(RE)	
<i>Serapias lingua</i>	CR	
<i>Ophrys insectifera</i>	VU	
<i>Ophrys sphegodes</i>	LC*	✓
<i>Ophrys fuciflora</i>	VU	✓

Table 1: List of species currently awarded restricted access status on BSBI’s DDb, including all but one Schedule 8 species but contrasting strongly with the categorisations of threat awarded using the progressive IUCN criteria (recent changes of status are asterisked).

Act (I find inexplicable the omission from the BSBI “sensitive” list of the genuinely vulnerable Fen Orchid, *Liparis loeselii*). Both the Schedule 8 list and BSBI’s DDb list make striking contrasts with the rigorous assessments of vulnerability made under the auspices of the International Union for the Conservation of Nature. Every IUCN category of threat is represented in the BSBI list, from Least Concern through Near-Threatened, Vulnerable and Endangered to Critically Endangered (CR). In my opinion, all three of these schemes for conservation categorisation would benefit from review with a fresh eye (Bateman 2022a, 2022b).

**How best can you enter data, and into which distribution database?**

Assuming that I have persuaded the reader that time would be well-spent entering their hard-won field data into one of the major databases, which currently available method of data entry is recommended? This is where matters become rather more difficult.

Property	Mapmate 2	iRecord
<b>Developer(s)</b>	Private individual sponsored by BSBI	CEH Biological Records Centre plus professional software developer
<b>Cost</b>	£36	Free
<b>User manual</b>	ca 250 pages	73 pages
<b>Registration</b>	Obligatory	Optional
<b>Data entry</b>	PC software only	Website and/or smartphone app
<b>Data verification</b>	Taxonomic referees, vice-county recorders, database managers	(Presently unclear)
<b>Data access (DDb vs BRC)</b>	Restricted, multi-level (+ sensitivity option)	Open (+ sensitivity option)

Table 2: Key properties relating to data entry and access of MapMate + DDb compared with iRecord + BRC.

BSBI have long advocated use of MapMate, though support is gradually waning. Data entry is relatively straightforward, but the software must be purchased, has been developed by a single individual, and is available only to PC users (Table 2). MapMate is very much a product of the 20th Century whereas its main competitor, iRecord, is a brash young child of the 21st Century. Developed with substantial funding at the CEH/BRC in collaboration with the rapidly expanding “international” (but US-based) iNaturalist programme (iNaturalist 2023), the iRecord scheme bypasses the need for dedicated computer software by allowing data submission directly through its website or through a smartphone app. This flexible system

permits submission of data (including GPS coordinates) directly from field sites. The aesthetically appealing, user-friendly interface encourages deposition of a wider range of variables (summarised in Table 3), and multiple species records made at a particular site can readily be entered in batch mode. Data are supported by uploading digital images; supposedly more reliable examples of such images are labelled “research grade” in the database.

Field	Entry
Date	22/06/2022
Recorder Name	Richard M Bateman
Species	Dactylorhiza ‘traunsteinerioides’
Certainty (of identification)	Confident
Quantity	50
Sex (of organism)	(NA)
Stage (in life cycle)	Flowering
Identified By	BSBI Orchidaceae co-referee
Photos (upload)	Whole plant + flower head + habitat
Sensitivity (of record)	“Blur record to hectad”
Location	Ellerburn, North Yorkshire
Spatial Reference (or click on map provided)	NGR = SE8---8---
Habitat	Reliable calcareous springline
Comments	Altitude 70 m; population includes albinos and hybrids

Table 3: Data extracted from an entry for Pugsley’s Marsh-orchid input by me into the fairly comprehensive list of entry fields offered by iRecord; the only obvious oversight among the specific input fields made available by the online site is the omission of altitude, here relegated to a ‘comment.’

MapMate/DDb versus iRecord/BRC initially appears to be no contest, but only until you attempt to generate distribution maps for taxonomically controversial species from current data held in iNature versus the BSBI’s DDb. DDb reports 821 records

(331 post-2000) for *Dactylorhiza traunsteinerioides* (strictly, *D. francis-drucei*), which have recently been vetted by the BSBI's orchid co-referees (including me!). The collective records reflect the genetically-informed knowledge, first published by me as long ago as 2011, that *D. traunsteinerioides* does not occur south of a line linking the Severn to the Humber. In contrast, iRecord offers just 13 records (12 post-2000), six of which are located south of the Severn–Humber threshold. And of 12 images present on the website that are said to represent *D. traunsteinerioides*, at least seven – five of them regrettably labelled “research grade” – have definitely been incorrectly identified.

Also relevant is the field recording app currently in development by BSBI, which is likely to be released by early 2024. It broadly resembles iRecord but offers greater interactivity for the user. For example, when a field botanist inputs a record this will immediately prompt a dropdown menu informing them whether that species already has a post-2010 record for that monad (P. Stroh, pers. comm., 2023). This app could prove to be a game-changer, but will likely be made available only to BSBI members.

### **Whose data are they anyway?**

Arguably the most important differences shown in Table 2 between the two systems lie in which constituencies are permitted to deposit data and whether there exist subsequent verification systems ensuring data quality. Most data that eventually reach DDb pass through BSBI's system of vice-county recorders and, where necessary, taxonomic referees and database managers – a system that often slows data release but filters out most obviously erroneous records. In contrast, iRecord reflects the modern trend of pretending that all expressed views are equally valid; it is not even necessary to register with the organisation in order to submit records, and although a rudimentary verification system reputedly exists, it evidently has not yet addressed the issue of the present chaotic condition of *D. traunsteinerioides*. Both DDb and iRecord offer persons entering data the option of labelling particular records as sensitive, but beyond this constraint, iRecord offers open access. In contrast, anyone wishing to explore the contents of DDb is, at present, required to ask permission of the database managers and/or individual vice-county recorders, who retain much of their historical influence within BSBI.

My overall impression is that botanical recording in Britain and Ireland has reached a major crossroads. There is an urgent need to address the complexities of the network summarised in Figure 3, seeking to achieve not only an optimum balance between quantity and quality of incoming data but also an agreed prioritisation of the goals for further field mapping initiatives. The world may look very different when viewed retrospectively through the lenses of Atlas 2040 and Atlas 2060. It could perhaps be argued that, until these crucial issues are adequately resolved, HOS should hold back from making greater collective efforts to contribute to field mapping of native

orchids. On the other hand, an increasing sense of urgency surrounds the many initiatives that ultimately rely on well-populated distribution databases.

### **Summary**

British and Irish botanical records provide the essential framework for a wide range of research activities, land-use assessments and conservation initiatives. Thanks to both vice-county recorders and database managers, the interconnected BSBI and BRC databases contain exceptional quantities of high-quality, long-term distributional data. However, the present recording system used by BSBI is far from dynamic; casual data verification and slow transfer to core databases reflect overly complex networking that is presently subject to suboptimal information technology. The more modern, flexible iRecord data entry portal is becoming increasingly popular (other than with most BSBI vice-county recorders) but is presently unconstrained, encouraging input of seriously unreliable data. Accepting that data entry via MapMate is passé, it would probably be better if HOS waited for completion of BSBI's forthcoming app and associated online portal before making a concerted attempt to increase its efforts to contribute data.

In terms of accessing rather than depositing data, BSBI's DDb presently operates on a two-tier system of limited versus rarer unfettered access, and currently lacks specific guidelines regarding who is permitted any kind of access. An HOS member would undoubtedly raise an eyebrow if they accessed DDb only to discover that, when fed back to them, their own precious eight-figure records had been anonymised and reduced to tetrad resolution.

Despite such ongoing concerns, depositing reliable British and Irish field data for orchid taxa is surely an area where HOS could, and should, make a more significant contribution than at present. Similarly, it seems likely to me that further monitoring and resampling projects will be established in the near future, perhaps resembling that pursued with considerable success by Braithwaite et al. (2006); these too would surely benefit from HOS involvement. Lastly, I recognise that considerable field efforts are made by HOS members in continental Europe, and believe that we should develop a position on whether, for example, such observations should routinely be contributed to the 'Orchisauvage' initiative (FFO 2023).

### **Acknowledgements**

I thank Pete Stroh for critiquing this article and for much helpful advice; I apologise for not always taking it.

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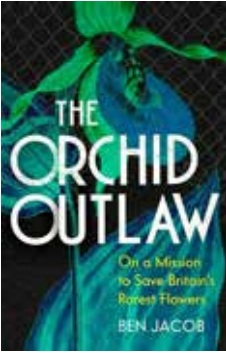
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‘Newmill: creating and managing an orchid meadow’

## *The Orchid Outlaw*

### Book Review by Richard Kulczycki



“*The Orchid Outlaw*” by Ben Jacob. Published by John Murray, Spring 2023, £20. Also available in ebook and audiobook formats. Paperback due in April 2024.

It’s night time as the darkly-dressed figure slips over the fence and stumbles into the field. He ducks as a car’s headlights illuminate the ground in front of him. He walks on and eventually finds what he is looking for. He takes out his trowel and starts to dig up the orchids he has found. Up till now this has been one of our common HOS member nightmares – orchids disappearing in the night, leaving only holes and shadows where they were yesterday. Why is Ben Jacob doing this?

“*The Orchid Outlaw*” attracted wide media interest in Spring 2023. The title is possibly a nod to Leif Bersweden’s “*The Orchid Hunter*”, which described Leif’s quest to see all our native orchids in one season. Similarly to Leif, and to Jon Dunn in his excellent “*Orchid Summer*”, Ben Jacob embarks on a journey, but in this case multiple journeys, to discover our native orchids.

Ben Jacob grows up fascinated by tales of the great nineteenth century orchid hunters, men such as Micholotz, Hooker and Roezl. After a disastrous experience in the tropics, however, and a freak accident back home, he comes across a Bee orchid in his parents’ garden. Struck by its beauty and knowing the complex evolutionary history of this plant, Ben is inspired to look for other native orchids. As Ben is familiar with many historical accounts by naturalists like Gerard and Darwin, he is surprised that there are no longer orchids in the places these authors describe them. This is repeated with a number of species he tries to see. Why is this? Does anyone care?

In order to help slow this decline Ben decides to rescue orchids that have been condemned by planning applications. So start the nocturnal missions and later the covert replantings. We have a journey to see our native orchids, alongside a journey to learn how to save them from further destruction. In order to make his translocations successful, Ben learns where orchids best grow and how to keep them alive. His purpose is not just to rescue the orchids, but to restore them to places where they were in the recent past. He wants people to come across them while going about their daily lives. Ben is drawn into growing orchids himself and then to learn to start them from seed. His very honest description of how that goes is quite fascinating – I

am sure that many will have had the same experiences of multiple failures, which are very honestly described. However, the journey to become an orchid grower is ultimately successful and soon Ben has many plants to put out. Growing plants from seed is a much more scalable strategy than translocating condemned plants.

Along the way there are very interesting descriptions of orchid biology. If, like me, you have found the short accounts in field guides of the parts of orchid flowers and plants difficult to understand, then this book explains their structure and uniqueness in very clear language.

Ben goes on to learn about the laws concerning our orchids and what is considered wildlife crime. In the second half of the book, Ben discusses a number of well-known orchid sites and their history. Ben visits Park Gate Down and writes about Hector Wilks's actions to preserve Kent's Monkey Orchids – he points out that this would not be legal in today's world. He finds inspiration from Samphire Hoe and how orchids can colonise new areas – very successfully and spectacularly in this case. This leads to a new strategy to spread seed in places undergoing development, with some success.

There is an interesting chapter on the Sainsbury Orchid Conservation Project, which started in 1983 and culminated in the efforts of Kew and Natural England to reintroduce the Lady's-slipper Orchid. Ben attempts to find out as much as he can about this, but points out that there is very little in the public record and his multiple approaches for information from Kew are not answered. He draws our attention to a statement on the Gait Barrows reserve web site, in January 2022, that all the Lady's-slippers raised and subsequently planted there have been officially uprooted as they contained continental material. Ben is incredulous and asks why. In recent wildlife reintroductions animals and birds have been brought in from other countries deliberately to increase genetic diversity. Without anyone setting out what the Project is trying to achieve, it is difficult to judge the Project's success. The author does not spell this out, but the irony of our leading conservation government body digging up orchids, while a private individual doing this is a criminal, cannot be lost on the reader.

This review has tried to set out some of the different strands in this continuously interesting book. If you step past the image the title conveys to us, this book has much to offer on many topics concerning orchids. The author has shared with us his personal journey with our native orchids, but, along the way, he has also challenged the conservation *status quo* concerning orchids in the UK.

Notes: <https://www.arnsidesilverdaleaonb.org.uk/gait-barrows-nnr-orchid-update-from-natural-england/> (Accessed 23/10/2023. Also contains very welcome news about other orchid species).



## Low Force and High Force Alec Latham

Inspired by Margaret Bradshaw's book '*Teesdale's Special Flora*', I visited Middleton-in-Teesdale in early June 2023 to explore the Teesdale assemblage, a unique grouping of UK alpine plants. Low Force and High Force are waterfalls along the river Tees where a popular walk is accessible from Wynch bridge, Bowlees.

Amongst lush manes of grass, I noticed my first orchid, a prong of tiny parachutes: Heath Spotted-orchid in all its sorbet blousiness. These spikes would end up in their thousands. Turning, I spied my next orchid: rising defiantly from an exposed gryke juttet two spikes of Early-purple Orchid with petals browning from the twilight of their season. They framed the white wrath of Low Force and the landscape rumbled in unabating turmoil. Other non-orchid angiosperms included the velvet splendour of Water Avens with corollas of richest butter. Also Globeflower, Yellow Pimpernel, Butterwort, Shrubby Cinquefoil, Alpine Bistort and the rare Rock Whitebeam growing from sheer cliff. Dippers skitted stealthily between torrent rocks but I clocked them nonetheless.



High Force (image above) is breath-taking and England's biggest waterfall. As you approach, it buffers you with its icy breath. Millions of gallons of cascading water



are pulverised to a mist. Despite this numinous brutality, delicate orchids spring from the surrounding whinstone. I noticed embers of intense crimson by the waterfall edge: Northern Marsh-orchids. I had to prone face-to-face to decipher their scarlet Rohrschach-blots. The lower petals were precision-sculpted shovels. Later, I also discovered their flouncier hybrid with Heath Spotted-orchid, *Dactylorhiza ×formosa*.

Beyond, the land turns to a vastness and the path disappears into a distant vanishing point over a summit. Black Grouse burble from bracken, Ravens' grunts echo in the sky's vault. Curlews' tremolos are ubiquitous and Redshank, a constant Teesdale presence, raise their hue and cry from drystone walls.

The return ramble brings you back to Bowlees visitor centre and an abandoned limestone quarry. Here I found Common Spotted-orchid rosettes and Twayblade, but signs of Greater Butterfly-orchid, historically documented there, eluded me. I had hoped for Small-white Orchid but unfortunately it hasn't been found in the assemblage since 2018.

An hour's drive south over the Cumbrian border takes you on safari through heather to unfrock Lesser Twayblade. An hour's drive north to Bishop Middleham gets you Dark-red Helleborine and Heath Fragrant-orchid. By appointment with Gosforth Park nature reserve, Coralroot Orchid is also within reach.

This walk follows the Pennine Way along the River Tees starting from Bowlees, near Middleton-in-Teesdale. It is nearly four miles out and back.

Fig 2: Early-purple Orchid

Fig 3: Northern Marsh-orchid

Fig 4: *Dactylorhiza ×formosa* the hybrid between Northern Marsh-orchid & Heath Spotted-orchid.

All images by Alec Latham

## HOS Seed Sowing Workshop

Sunday 18th August 2024

Hagbourne Village Hall, East Hagbourne, OX11 9LR

This one-day workshop will cover all aspects of seed sowing and aftercare of both summer and winter-green orchids. The tutor will be John Hagggar, renowned for his skill at hardy orchid seed propagation. A booking form and more details are on the HOS website: [www.hardyorchidsociety.org.uk](http://www.hardyorchidsociety.org.uk)

Any queries? Contact [moira.tarrant@outlook.com](mailto:moira.tarrant@outlook.com)

# Greenwings

## Wildlife Holidays

Forthcoming spring 2024 botanical tours include:

**Cyprus in Spring** 3 - 11 Mar £1,395

A visit to Cyprus, timed to experience orchids at their best, plus other flora, with highly experienced botanist & local Cypriot guide Yiannis Christofides.

**Greece: Rhodes Orchid Odyssey** 31 Mar - 7 Apr £1,395

Exclusive tour to explore the Dodecanese capital, Rhodes, to discover the impressive array of orchids, particularly in the *Ophrys* genus. Lots of other spring flowers to see too, such as the beautiful endemic Peony & Fritillary.

**Italy: The Gargano 'Orchid Paradise'** 6 - 13 Apr £1,595

Indulge in the botanical treasures of Europe's finest natural rock garden with Paul Harcourt Davies on our tour of the Gargano peninsula in Italy. The orchid bounty to find & enjoy includes numerous endemics & hybrids.

**Italy: Orchids & Flora of Sicily** 19 - 26 Apr £1,595

Join us in Sicily for a high quality tour focusing on the island's orchids & other spring flowers! Fine cuisine & archaeological sites to visit too!



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