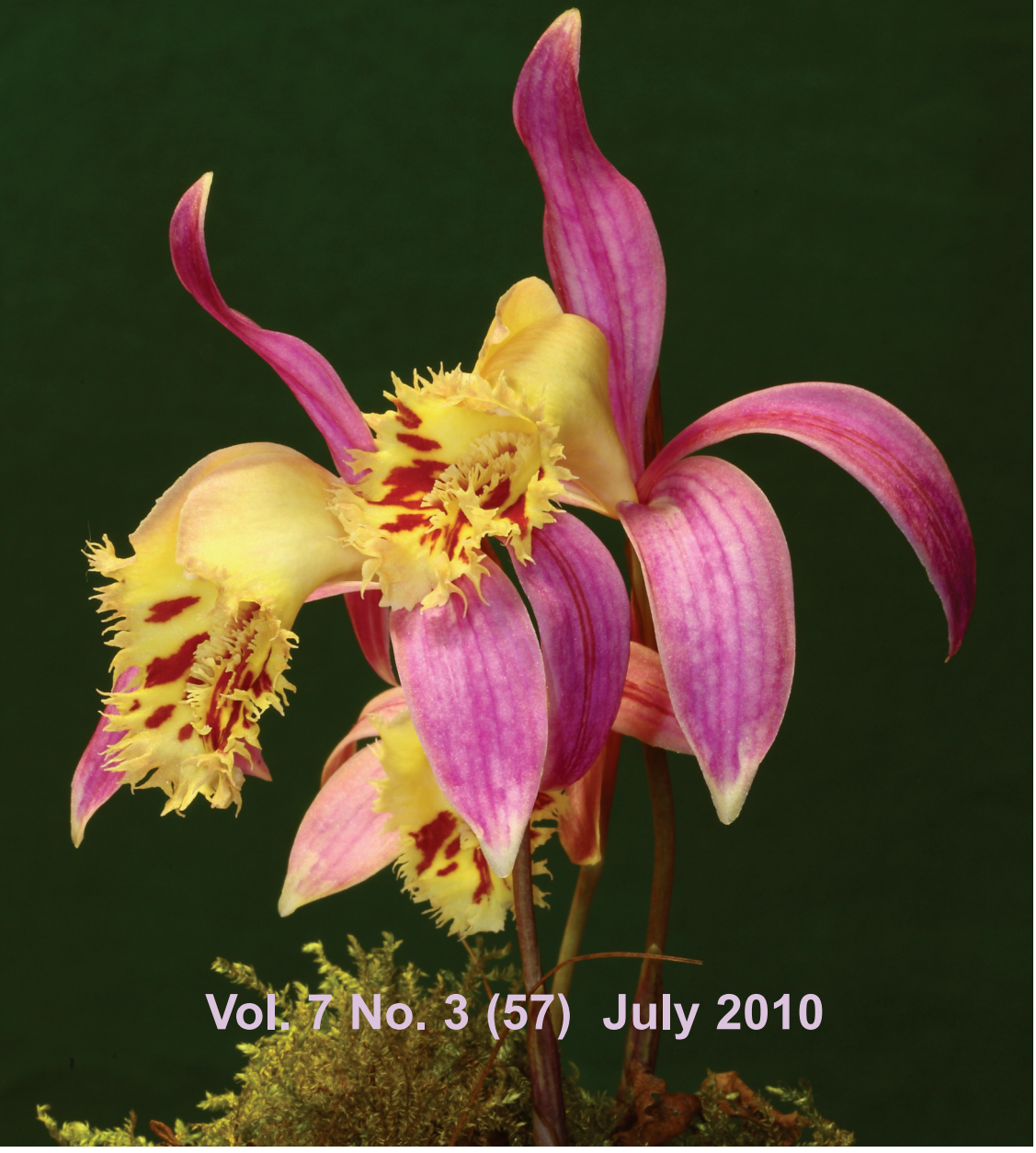
Journal of the HARDY ORCHID SOCIETY



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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 website **www.hardyorchidsociety.org.uk**, January 2004 Journal, Members' Handbook or contact the Editor). Views expressed in journal articles are those of their author(s) and may not reflect those of HOS.

The Hardy Orchid Society Committee

Front Cover Photograph

Pleione Leda – one of Kath and Peter Fairhurst's Class 4 winners in the Plant Show Photo by Mike Gasson

Contents

Editorial Note

As well as the second half of Celia Wright's interesting account of her recent visit to China, this *JHOS* has another *Cypripedium* connection in the form of an article co-authored by Phillip Cribb. I am really pleased to have a contribution from Phil and also to be able to include something a little different in the form of a historical perspective. And there will be more to look forward to in a future *JHOS*! Please look carefully at the updated details concerning the Autumn Meetings at Harlow Carr and Kidlington (not Wisley!). There is a date change for Harlow Carr. Also, there is information on changes to the slide classes for the 2010 Photographic Competition, as well as details of the submission deadlines.

I am hoping to include information about members' personal orchid-related websites in a future *JHOS*, so if you do have one and want it mentioned in the journal please send an e-mail with the website URL to moorend@globalnet.co.uk. I recently launched one myself (www.moorendnature.com) with orchid and other wildlife photography and as I know others have personal websites thought it would be of interest to make these more widely known.

Update on HOS Autumn Meetings

Celia Wright

Harlow Carr

The good news about our autumn meeting at Harlow Carr is that the new Education Centre is now open, so we shall have a larger room, allowing more members to come. The downside is that we have had to agree a change of date in order to get the room with blackout facilities fitted. The Harlow Carr meeting will therefore be held on Sunday 12th September 2010, not Saturday 11th September as previously advertised. I'm sorry if this change causes difficulties for anyone. We have traditionally held our Harlow Carr meeting on a Saturday, as the room used was adjacent to the library, open to RHS members on Sunday afternoons, and we were concerned about possible disturbance. I'd be pleased to hear from members whether they would prefer a Saturday or Sunday date for future years.

Kidlington

A reminder that our southern autumn meeting on 31st October this year is at Kidlington, not Wisley. Booking forms for both meetings are enclosed with this Journal and can also be downloaded from our website. Provisional programmes are on the back of each booking form. As the programmes are finalised they will be updated on the website.

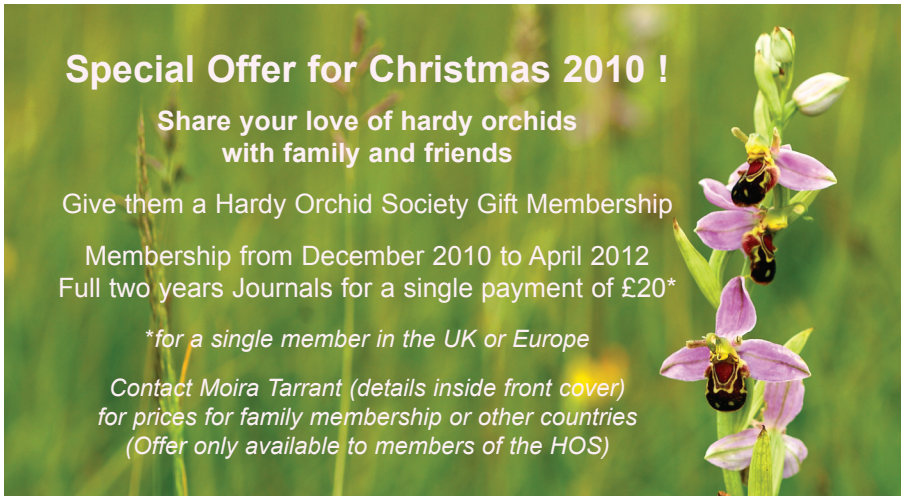
Photography Competition 2010

Details of the Photographic Competition Classes and Rules are available on the website where entry information and entry forms can also be found. There is one important change that will affect anyone wishing to enter the slide classes (Classes 9-12). Due to the falling number of entries in these classes all slides will be judged together with entries in their corresponding digital class (Classes 14-17). For this reason slides need to be converted into digital files by scanning. Entrants can do this themselves and then follow entry instructions for the digital classes or alternatively send their slides to: Mike Gasson, Moor End Cottage, Moor End, Stibbard, Norfolk, NR21 0EJ (moorend@globalnet.co.uk). They will be digitized using a high quality film scanner, submitted to the digital competition and the slides returned. Deadline for slide entry using this scanning facility is 3rd September 2010.

All digital entries (Classes 14 to 17), whether digitally captured or scanned from slides must be sent to: Mrs Ann Kitchen, Kincraig, Stonycroft Drive, Arnside, Carnforth, LA5 0EE (knak@kenak.plus.com) by 12th September 2010. This is the final entry date for the digital classes. The images should be put on a CD and posted with your name, contact details, a list of image titles and the classes for which they are entered. A note should be included naming the plant and providing any other information of interest to other members. None of this information should appear on

the image files themselves. Single images may be submitted by email. Remember that the maximum image size is 1400 pixels wide and 1050 pixels high (regardless of shape) and images need to be submitted as uncompressed jpeg files.

In the case of the print classes (Classes 1-8 and 13) an entry form must be sent to: Mrs Christine Hughes, Linmoor Cottage, Highwood, Ringwood, Hants., BH24 3LE (cchughes1.@onetel.com) by 21st October 2010. If you are not attending the meeting but wish to enter the competition, contact Christine Hughes well in advance to arrange staging.



Plant Show Results

Class 2 Three pots native European (not native to Britain) orchids, distinct varieties
1st Not awarded
2nd Michael Powell: *Ophrys sicula*, *Serapias orientalis*, *Neotinea tridentata*
Class 3 Three pots non-European orchids, distinct varieties
1st Kath and Peter Fairhurst: *Pleione* Alishan 'Merlin' (Photo 3a), *Pleione* Rakata "Shot Silk" (Photo 3b), *Pleione* Zeus Weinstein (Photo 3c)
2nd Kath and Peter Fairhurst: *Pleione* Ganymede × *Pleione grandiflora*, *Pleione* Brigadoon, *Pleione* Glacier Peak
Class 4 Three pots hardy orchids, distinct varieties, any country of origin
1st Kath and Peter Fairhurst: *Pleione formosana* "Cairngorm"(Photo 4a)
Pleione Leda (Photo 4b), *Pleione* Leda – different colour form (Front Cover)
Class 5 One pot native British orchid
1st Richard Manuel: *Neotinea maculata*
2nd Michael Powell: *Anacamptis laxiflora*

Class 6 One pot native European (not native to Britain) orchid
1st Michael Powell: *Orchis italica*
2nd Richard Manuel: *Ophrys tenthredinifera*
3rd Malcolm Brownsword: *Ophrys tenthredinifera*
Class 7 One pot non-European hardy orchid
1st Kath and Peter Fairhurst: *Pleione grandiflora* (Photo 7)
Class 9 One pot *Orchis*, *Anacamptis* or *Neotinea*
1st Richard Manuel: *Anacamptis longicornu* (Photo 9)
2nd Malcolm Brownsword: *Anacamptis papilionacea* × *Anacamptis morio*
Class 10 One pot *Ophrys*
1st Richard Manuel: *Ophrys sphegodes* (Photo 10)
2nd Malcolm Brownsword: *Ophrys lutea*
3rd Michael Powell: *Ophrys garganica*
Class 11 One pot *Serapias*
1st Malcolm Brownsword: *Serapias olbia* × *Serapias neglecta* (Photo 11)
2nd Michael Powell: *Serapias olbia* × *Serapias cordigera*
Class 12 One pot *Cypripedium*
1st Malcolm Brownsword: *Cypripedium formosanum* (Photo 12)
Class 13 One pot *Calanthe*
1st Maren Talbot: *Calanthe sieboldii* (Photo 13)
2nd Malcolm Brownsword: *Calanthe* Takane hybrid
Class 14 One pot *Pleione*
1st Kath and Peter Fairhurst: *Pleione* Piton (Photo 14)
2nd Malcolm Brownsword: *Pleione* Masaya
3rd Michael Powell: *Pleione* Shantung 'Ducat'

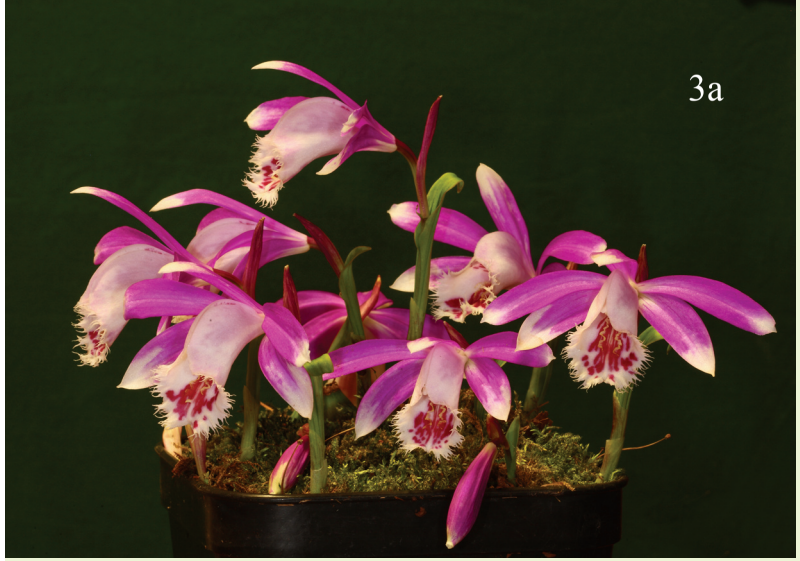
Winner of "Best in Show" Trophy
Kath and Peter Fairhurst for their winning Class 3 entry

Winner of RHS Banksian Medal
Kath and Peter Fairhurst with 12 points
(Malcolm Brownsword 15 points, Richard Manuel 11 points, Michael Powell 11 points and Maren Talbot 3 points [3 points for 1st, 2 for 2nd, 1 for 3rd]. Malcolm Brownsword and Michael Powell were not eligible under RHS rules, both having won in the previous 2 years.)

The judge was Mike Pollock.

The next three pages and the front cover display a selection of winning entries from the Plant Show. Numbers correspond to the Classes, with multiple entries in one class differentiated by a letter. The website carries a complete collection of the first-placed winners.

Photos by Mike Gasson


3a


3b


3c


4a


10


9


11


13


4b


12


7


14

Monster at the Plant Show

Mike Gasson

In addition to their aesthetic, floral interest, entries in the 2009 Plant Show included a hidden gem. The discerning eyes of Paula Rudall and Richard Bateman noted the presence of peloric flowers on an *Ophrys tenthredinifera* plant that was entered in Class 6 by Richard Manuel. It achieved a worthy second place but became the focus for some extra photography once all the "firsts" were captured. As shown in the accompanying images, this plant had a mix of normal and peloric flowers, making it an example of what has been termed "scattered peloria." In this case the peloric flowers have three lips, and as can be seen by comparing the two photographs; the extra two are formed at the expense of the two lateral petals. This type of morphological abnormality is referred to as "Type-A peloria" (Bateman & Rudall & 2006). It is evident that the two extra "lips" are smaller and incomplete compared with the true lip.

Peloric (top) and normal (bottom) *Ophrys tenthredinifera*
Photos by Mike Gasson

"Peloria", the Greek word for "monster", was first used by Linnaeus to describe a variant of Toadflax (*Linaria vulgaris*) in which its normally zygomorphic flowers had developed radial symmetry. Peloric orchid variants have been noted on numerous occasions but most frequently all flowers in an inflorescence share radially symmetrical flowers, a condition that is termed "complete peloria". An example of this was recorded recently by Tony Beresford and his description of his own "monster" discovery follows:

"In early May, Hardington Moor National Nature Reserve, near Yeovil, has stunning displays of Green Winged Orchids, together with fair numbers of Early Purple Orchids. A full range of colour forms is present and later in the season it is well populated with Pyramidal and Common Spotted Orchids as well as, reputedly, Bee Orchids. The reserve consists of three fields and the meadows are examples of species-rich unimproved neutral grassland covering some 20 acres. This par-

ticular Green Winged Orchid stood out from its many neighbours as odd, even from a distance. Closer examination quickly showed that the oddity was that there was a sepal in place of the lip on every flower. Not surprisingly it seemed to be the only such specimen!"

The presence of sepal-like structures in place of petals is termed "Type-C peloria" and there is another type in which a the third petal fails to develop into the characteristic lip, a phenomenon is termed "Type-B peloria" (Rudall & Bateman 2003).

Peloric *Anacamptis morio*
Photos by Tony Beresford

Peloric *Ophrys cretica*
Photos by Zissis Antonopoulos

Another example of a three lipped "monster", a peloric *Ophrys cretica,* was supplied by Zissis Antonopoulos, via Bill Temple. And not wanting to miss out on the monster hunt, Bill provided the image of a variant *Gavilea odoratissima* that was photographed during one of his recent Chilean adventures. Bill notes: "The *Gavilea* was photographed at the side of a road in Bernado O'Higgins National Park in Chilean Patagonia not far from the point were I photographed a pair of condors." Richard Bateman tells me that this is not peloria but a defect that causes entire-flowers to reiterate repeatedly until the lateral meristem is exhausted.

Peloric forms of our native orchids have been reported in the literature and include the late Derek Turner Ettlinger's description of several three-lipped Lady Orchids at one of the better known Kent sites for the species (Ettlinger 1987). As well as their interest as an orchid curiosity, peloric flowers are of significant scientific interest and have attracted the attentions of several professional botanists, including our own Richard

Variant *Gavilea odoratissima*
Photos by Bill Temple

Bateman (e.g. Bateman 2005, Bateman & Rudall 2006, Rudall & Bateman 2003). In particular, they provide useful clues about the evolution of the complex flower structures that are typical of orchids as the regression towards a symmetrical flower provides insights into the development of their asymmetric zygomorphic flowers.

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Bateman. R.M. (2005) Circumscribing and interpreting closely related orchid species: *Platanthera*, *Dactylorhiza* and the crucial role of mutation. *Journal of the Hardy Orchid Society* 2(4): 104-111.

Bateman. R.M. & Rudall, P. J. (2006) The good, the bad and the ugly: using naturally occurring terata to distinguish the possible from the probable in orchid floral evolution. *Aliso* 22: 481-496.

Ettlinger, D. T. M. (1987) Peloric and duplex examples of *Orchis purpurea* Hudson in Kent. *Watsonia* 16: 432.

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Notes on *Dactylorhiza hatagirea* (D. Don) Soó

David McCartney

Dactylorhizas are among the easiest hardy orchids to grow and propagate. They range across Eurasia from Madeira in the west, where *D. foliosa* is endemic, to Kamchatka in the east. One species, *D. aristata*, went further and made the crossing of the Bering land bridge into Alaska after the end of the last glaciation. Their northern limit is cold and ice, to which a few are well adapted, whereas their southerly distribution is curtailed by deserts, seas and the fecundity of the tropics. One species, *D. hatagirea*, has squeezed itself along the southern slopes of the Himalayan mountains east into Nepal, Bhutan and Sichuan, China. According to Flora of China (http://www.foc.org/china/mss/volume25/Orchidaceae_reviewing.htm) it "grows on shrubby slopes and grasslands along ravines at 600–4100 m"and it is in these areas that *D. hatagirea* is noticed, but not for its aesthetic value.

D. hatagirea is eaten by people. It is not a staple of anyone's diet, but is consumed as a medicine. It is listed in both Chinese and Ayurvedic pharmacopoeia. Put another way, half the world's population are potential users and the demand is causing problems with dwindling supply. There are some conservation efforts being made (Jeewan Singh Jalal *et al*., 2008), but the cultivation and propagation limits for Dactylorhizas mean the Chinese attitude to wild collections will predominate. The question is, for a plant in demand, what makes it so valuable?

The simple answer is that the tubers are consumed as an aphrodisiac. The claim has elicited some serious scientific research (Thakur & Dixit 2007), which compares a

Dactylorhiza hatagirea
Photo by Jeewan Singh Jalal

control group of laboratory rats with a group on testosterone and a group on an aqueous extract of the tubers. The results give a "friskiness" rating for the orchid and depending on the politeness of society, this facet of orchid lore may be discussed openly or in a covert way. It makes me wonder whether or not the word "tonic" drink is a euphemism for aphrodisiac when applied to the salep made from European orchid tubers. Historically, our herbal medicine was partly based on the "doctrine of signatures". Are there better plant parts than orchis tubers to represent a man's dangly bits and thereby a suitable means to address issues so arising?

Two wrongs do not make a right, but tonic or not, salep is a nutritious drink and huge quantities of orchids are harvested each year to satisfy demand, seemingly across Eurasia. There are conflicts in conservation, as well as placebos and blind hope in medicine, and *D. hatagirea* is mixed up in both. Is its status worth our concern? Is this southern population of the species different to the version which crossed into China (and beyond) via a route north of the Himalayas? The official Chinese flora lists three other species of *Dactylorhiza*: *D. fuchsii*, *D. incarnata* and *D. umbrosa*, which qualify as native for growing in the province of N. Xinjiang; whereas *D. hatagirea* is much more widespread. There does appear to be a geographical discontinuity between the Sichuan population and the others, adding creditability to the idea of a veritable pincer movement of colonisation around the mountains. Whatever molecular and morphological tests may show, *D. hatagirea* adds the most southern dimension to the Dactylorhiza range in eastern Eurasia and I would vote Yes to cultivation trials.

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Gilbert White's Orchids

Phillip Cribb and David Roberts

For almost 40 years in the second half of the 18th century, Gilbert White (1720–1793) made detailed observations of the animals and plants in and around the village of Selborne, Hampshire. Amongst his records can be found his observations on the flowering and habitats of some 12 species of orchid. Herbarium specimens of similar age, the other source of such records, are few and far between, and often have sparse information on flowering time and habitat.

Gilbert White holds a special place in the pantheon of great British naturalists and is considered by many to be the father of ecology. *The Natural History of Selborne and its Antiquities*, first published by his brother in 1789, is a classic of English literature and has inspired generations of readers to take a closer interest of their environment and its animals, birds and plants. It was written in the form of a collection of letters that White wrote to his fellow naturalists Daines Barrington and Thomas Pennant, both Fellows of the Royal Society and eminent zoologists. Apart from being beautifully written, what stands out is the detail and acuity of White's observations. It is amongst the most reprinted of all books in the English language with over 200 editions, a number that grows almost every year.

White returned to Selborne, a small village between the larger market towns of Alton and Petersfield in north-east Hampshire, from Oxford University as curate in 1755 and remained there on and off until his death. Selborne lies in a particularly advantageous position in the shadow of the chalk downs below the Hanger (Fig. 1) and to the south of the great Woolmer Forest, an area of acid soils and bogs. The variety of soil types, aspect and elevation of the environs of the village has resulted in a diverse flora and fauna found within walking distance of White's house, The Wakes (Fig. 2). As White wrote in July 1778 in Letter XLI of his Natural History of Selborne "Chalks, clays, sands, sheepwalks and downs, bogs, heaths, woodlands, and champaign fields, cannot but furnish an ample Flora." The house itself lies to the south of the main road through the village and has an extensive garden and large paddock, amounting to some 35 acres, which lies in the shadow of Selborne's large beech hanger.

Orchids do not feature greatly in *The Natural History of Selborne*. In discussing the rare plants found around the village, White (Letter XLI, 3 July 1778) included three orchids "*Ophrys spiralis* [=*Spiranthes spiralis*, Fig. 3], ladies traces – in the Long Lith, and towards the south-corner of the common; *Ophrys nidus-avis*, bird's nest ophrys, – in the Long Lith under shady beeches among the dead leaves; in Great

Fig. 1: The Hanger above Selborne Fig. 2: Gilbert White's house, The Wakes
Photos by Phillip Cribb

Fig. 3: *Spiranthes spiralis*
at Noar Hill
Photo by Phillip Cribb

Dorton among the bushes, and in the hanger plentifully; *Serapias latifolia*, helleborine, in the High-wood under the shady beeches."

Several further observations on orchids can be found in his other writing. Greenoak (1988) edited his previously unpublished journals (1768-1793), his brief *Flora Selbornensis* (1766) and his more extensive *Garden Kalendar* (1751-1767), all fertile sources of information that he mined for his famous book. In skimming the fascinating entries – whether about his observations of warblers and swifts, his latest attempts to grow melons in a hot bed, or the health of his tortoise, Timothy – one is struck by his frequent references to the weather and to the flowering of various wild flowers, including some 50 entries on orchids. In all he refers to 12 species in 11 genera.

Brewis *et al.* (1996) listed 32 species of orchid recorded from Hampshire, of which *Spiranthes aestivalis* is now extinct, having last been seen in the county in 1959. Of these, 25 species grow in northeastern Hampshire in the area around Selborne. Bearing in mind that the distinctions between the two *Platanthera* species, the various *Dactylorhiza* and some *Epipactis* species were not or only poorly understood and, even today, can be the subject of vigorous debate, White's observations on orchids are substantial if not comprehensive. His records of eight species, *Cephalanthera damasonium*, *Epipactis helleborine*, *Gymnadenia conopsea*, *Neottia nidus-avis*, *Neottia ovata*, *Platanthera bifolia*, *Dactylorhiza fuchsii* and *Ophrys apifera*, are listed by Brewis *et al.* (1996) as the first records for the county of those species. Some notable and easily recognised species

Fig. 4: Albino *Ophrys insectifera*
at Noar Hill
Photo by Phillip Cribb

that were not recorded by him include *Dactylorhiza* (*Coeloglossum*) *viridis*, *Ophrys insectifera* (Fig. 4, albinistic plant found) and *Herminium monorchis*, all found on Noar Hill which lies a kilometre or so east of Selborne, *Epipactis palustris*, which is still found locally abundant to the west and north of Selborne, and *Cephalanthera longifolia*, still found in the woods and hangers some way south of the village.

Fig. 5: *Orchis mascula* at Noar Hill
Photo by Phillip Cribb

The nomenclature used by White for each entry usually comprises a Latin name and an English vernacular name. The early Latin names used are pre-Linnaean, mostly acquired either from the third edition of John Ray's *Synopsis methodica Stirpium Britannicarum* (London: 1724) or from Caspar Bauhin's *Theatri botanici* (Basel: 1623). However, White acquired a copy of William Hudson's *Flora Anglica* (1762) in 1766 and from then onwards used Hudson's Latin binomials for orchid names. The vernacular names also follow Hudson, most conforming closely to modern names, such as Bird's nest, Butterfly orchis (sic) and Common twayblade, but a few are names that are no longer used, for example "Ladies' Traces" for *Spiranthes spiralis*, "Female Satyrion Royal" for *Dactylorhiza fuchsii*, "Purple Late-flowering Orchis" for *Anacamptis* (then *Orchis*) *pyramidalis*, "Female Fool-stones" for *Anacamptis* (then *Orchis*) *morio* and "Male Fool-stones" for *Orchis mascula* (Fig. 5).

Gilbert White made some of the earliest observations of orchids in Hampshire and the country as a whole. The orchids recorded are all still found in and around the village, a remarkable testament to the durability of the species in a changing landscape, although one where the changes are possibly less than in many other regions. His careful recording of flowering times, over a long period, is an early example of collecting phenological information that is now being increasingly utilised to see if climate change is affecting plants and their habitats. White's enthusiasm for plants was perhaps less than his passion for birds and animals but the continuing interest in his writings suggests that acute observation will continue to play a role in biology, even in this age of electron microscopes, DNA analysis and the internet.

The table on the following three pages presents orchid flowering times taken from Gilbert White's journals about Selborne in Hampshire (Greenoak. 1988). Latin names used by White are from Hudson's *Flora Anglica* (1762).

Year	Date	Species	Gilbert White's Notes
1761	21 June	*Platanthera bifolia*	Discovered a curious orchis in the hollow shady part of Newton lane, just beyond the Cross. It is *Orchis alba bifolia minor, calcari oblongo*; grew with a very long stem; & has been in flower some weeks. I brought away the flower, & mark'd the root, intending to transplant it into the Garden, when the leaves are wither'd.
1765	5 September	*Spiranthes spiralis*	On the Lythe I found a few days since in full bloom the *Dentaria aphyllos, seu Anblatum*, a peculiar plant, of the same class with the *Orobanche*. Hill says it begins flowering in may. This was ladies tresses.
1766	24 April	*Orchis mascula*	
	2 May	*Listera ovata*	Common twayblade*, bifolium majus, seu ophris major*, spindles for bloom.
	16 May	*Anacamptis morio*	*Orchis morio foemina*, female fool's stones, begin to flower.
	24 May	*Listera ovata*	Twayblade, *ophris*, blows.
	13 June	*Platanthera bifolia**	Butterfly-orchis, *Orchis alba bifolia minor calcari oblongo*, in flower
	14 June	*Dactylorhiza maculata***	Female handed-orchis, or female Satyrion Royal. *Orchis palmata specio-siore thyrso, folio maculata*, in bloom
	8 July	*Anacamptis pyramidalis*	Purple, late-flowering orchis, *Orchis purpurea spica congesta pyramidali*, flowers.
	2 August	*Epipactis helleborine*	Common bastard hellebore*, Helleborine latifolia montana*, blooms.
1768	23 April	*Dactylorhiza maculata*	*Orchis maculata*
	3 July	*Spiranthes spiralis*	Letter LXXXIII to Hon. Daines Barrington: "In a district so diversified with such a variety of hill and dale, aspects, and soils, it is no wonder that great choice of plants should be found. Chalk, clays, sands, sheep walks and downs, bogs, heath, woodlands, and champaign fields, cannot but furnish and ample Flora…. A short list of the more rare, and the spots where they are found. Ladies' Traces (*Ophrys spiralis*), in the Long Lythe, and towards the south corner of the common."

	6 August	*Platanthera bifolia**	*Serapias bifolia*
1769	21 April	*Orchis mascula*	*Orchis mascula*
	3 July	*Gymnadenia conopsea*	*Orchis conopsea*
1770	4 July	*Ophrys apifera*	*Ophrys apifera*
	7 July	*Gymnadenia conopsea*	*Orchis conopsea* abounds on dry banks of the corn fields.
1774	24 May	*Neottia nidus-avis*	Letter to his brother Thomas: *Ophrys nidus-avis*. This curous plant was found in bloom in the Long Lythe.
	24 May	*Neottia nidus-avis*	Planted one of the *Ophrys nidus-avis* with a good root to it in my garden, under a shady hedge.
1776	13 June	*Cephalanthera damasonium*	*Serapias latifolia*
1777	11 June	*Neottia nidus-avis*	*Ophrys nidus-avis*
	27 June	*Neottia nidus-avis*	*Ophrys nidus-avis*
1780	12 September	*Spiranthes spiralis*	*Ophrys spiralis*, Ladies' tresses, blows plentiful in the Long Lithe from commons near the beechen-grove adjoining to Mr Yalden's.
1781	16 September	*Spiranthes spiralis*	*Ophrys spiralis*, Ladies' traces, seed.
1782	26 June	*Cephalanthera damasonium*	*Serapias latifolia* blooms in the Hanger, & High Wood.
	28 June	*Platanthera chlorantha**	Butterfly orchid blow in the High Wood.
1783	12 June	*Neottia nidus-avis*	*Ophrys nidus-avis*, many bloom on the Hanger, alongside the side of ye Bostal.
	13 June	*Cephalanthera damasonium*	*Serapias latifolia* begins to blossom in the hanger. The *Serapias* transplanted last summer from the hanger to my garden grow, & thrive.
	30 August	*Spiranthes spiralis*	*Ophrys spiralis* blows, ladies-traces.
1784	20 June	*Platanthera chlorantha**	Butterfly-orchis in the Hanger.

Year	Date	Species	Gilbert White's Notes
1786	2 June	*Cephalanthera damasonium*	*Serapias latifolia* in bloom.
1787	5 September	*Spiranthes spiralis*	Ladies traces, *Ophrys spiralis*, blows.
1789	26 May	*Neottia nidus-avis*	*Ophrys nidus-avis* in the hanger budding for bloom.
	11 September	*Spiranthes spiralis*	*Ophrys spiralis*, ladies traces, is in bloom in the Long Lythe, & on the top of the Short Lythe
1790	30 May	*Cephalanthera damasonium*	*Serapias latifolia* blossoms: a fine plant.
	4 June	*Neottia nidus-avis* *Ophrys apifera*	*Ophrys nidus-avis* & *Ophrys apifera* blossom
	1 September	*Spiranthes spiralis*	*Ophrys spiralis*, Ladies traces, begin to flower.
1791	24 May	*Neottia nidus-avis*	*Ophrys nidus-avis* blows in Comb wood.
	1 June	*Neottia nidus-avis*	*Ophrys nidus-avis* blows in the Hanger
	13 June	*Cephalanthera damasonium*	*Serapias latifolia* blows in the hanger
	25 August	*Spiranthes spiralis*	*Ophrys spiralis* blows.
1792	3 July	*Cephalanthera damasonium*	*Serapias latifolia* blows in the hanger
	30 August	*Spiranthes spiralis*	*Ophrys spiralis*, triple ladies traces, now blows in the Long Lythe, on the Short lythe, & on the S end of the down.

* *Platanthera bifolia* was not distinguished from *P. chlorantha* in Hudson's *Flora Anglica*. Both grow around Selborne.
** *Dactylorhiza fuchsii* and *D. maculata* were not distinguished by Hudson; both occur around Selborne.

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Cypripediums in SW China Part 2: Sichuan

Celia Wright

After just over a week in Yunnan, we drove back to Kunming and flew to Chengdu in Sichuan. Another small bus and a new set of drivers later (this pair really appeared to be having a holiday with us, buying and wearing cowboy hats to celebrate!) we initially drove due west to Luding near Gongga Shan. The following morning we took a trip in four wheel drive vehicles up the slope above the Dadu River to see a real rarity – *Cypripedium wardii.* This little gem (the plants we saw were up to 20 cm tall, large for this species) is named after Frank Kingdon-Ward, who first found it in Tibet in 1913. It has since been found in scattered, small colonies in Yunnan and nearby areas of Sichuan, but is a highly threatened species in the wild. The colony we saw contained about a dozen plants, some with two flowers on the stem. The flower and stem are entirely covered in fine hairs.

From Luding we drove north over the Abba grasslands. These vast, open, wet plains at an altitude of 3000m and more are home to a number of terrestrial orchid species, but it is too waterlogged for cypripediums. After an overnight stay at Songpan, we drove over several passes at 3500-4000 m to reach Huanglong in the Ming Shan. Holger has worked at the Huanglong national nature reserve since 2001 as an ecologist and senior advisor in the management of the reserve, a UNESCO World Nature Heritage site. We had a whole day (not long enough, as ever) to explore the Huanglong Valley at the heart of the reserve. This contains spectacular tufa ponds and waterfalls as it rises from an altitude of 3100 m up to 3600m. A boarded walkway leads up the valley, allowing excellent views of the vegetation, including many thousands of cypripediums, mainly *C. flavum* and *C. tibeticum*, but also *C. calcicola* and *C. bardolphianum*. We were privileged to be shown round the research area of the reserve away from the boardwalk and so could walk among the orchids on the tufa, something that cannot be allowed in the rest of the valley as the footfall would damage this fragile environment very rapidly.

Fig. 1: *C. wardii* country Figs. 2 & 3: *C. wardii*
Fig. 4: (above) *C. calcicola* at Huanglong
Photos by Celia Wright

C. calcicola, a close relative of *C. tibeticum*, differs from it by the narrower and more acute petals, the wider opening to the pouch, never with a white edge, and the very deep pouch. It was formerly described as *C. smithii*, a name that was subsequently realised to be invalid.

C. bardolphianum is another tiny treasure. It is found in the *Sinopedilum* section, along with *C. micranthum* that we were to see the following day in the Danyun Gorge. The defining characteristic of this section is the nature of the pollen which is formed into pollinia, whereas in all other slipper orchids it forms less well structured pollen masses. All the *Sinopedilum* section have creeping rhizomes that branch frequently, with internodes quite widely spaced so that the resulting shoots are well spread out. In other ways, these species are similar to those in the *Trigonopedia* section, such as *C. margaritaceum*, though much smaller in size.

C. bardolphianum was named by Reginald Farrer who found it in 1914. Its name has a Shakespearean derivation, the warty lip of this tiny 2 cm flower reminding Farrer of the "bubukles, whelks and knobs" on the nose of Bardolph in Henry V. The type plants from southern Gansu were predominantly yellow with red markings, but those at Huanglong are heavily marked and appear maroon in colour, as do the edges of the leaves. The flowering plants are only 10 cm tall, but after pollination, the flower stalk elongates to over twice this height.


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The following day we drove along the Danyun Gorge and saw more cypripedium species in a day than we had anywhere else on the trip. *C. flavum, C. calcicola* and *C. guttatum* were familiar, but *C. micranthum*, *C. sichuanense*, *C. palangshanense* and *C. fasciolatum* were all new to us, though unfortunately, the flower on the only example of *C. fasciolatum* we saw had gone well over.

The habitat where we saw *C. micranthum* was a very fragile one, up a steep bank covered in a thin layer of very loose leaf litter under quite dense but low growing trees with moss covered limestone rocks among them.

Fig. 5 (above): Tufa pools at Huanglong
Fig. 6: A group of *C. bardolphianum* at Huanglong
Fig. 7: *C. bardolphianum* close-up Figs. 8 & 9: *C. micranthum*
Photos by Celia Wright


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Although the shiny green leaf and bract are a fair size, the flower is the tiniest of all the cypripediums we saw, the wonderfully hairy lip measuring less than 1 cm long. Not far from this colony, in a similar area of shade, high humidity and perfect drainage, we found the closely related *C. sichuanense* with its very dark flowers and huge spotted leaf and bract that can span 40 cm. The flowers, in contrast, are smaller than those of the other spotted leaf cypripediums in the section Trigonopedia with a much longer pedicel that bends over, allowing the flower to rest on the leaf beneath.

C. palangshanense was the only example we saw from the section *Enantiopedilum* (or, according to Phillip Cribb's classification, the closely allied section *Retinervia*). The nodding flowers are dark maroon and 2cm or less across, the leaves bright green and unmarked, and the whole plant stands only a few centimetres tall, so is not easy to find. The site was in open shade on the edge of woodland and relatively flat compared to the steep locations of the previous two species. Holger scattered seed in this safer location away from the path some years ago. It is good to see a new colony springing up about 10 m away from the parent group.

The Wanglang National Panda Reserve, the last area we visited in Sichuan, was, in some ways, the best of all. Its prime purpose is the conservation of habitat for pandas, but they need huge areas in which to roam and feed, keeping well clear of human habitation, so we never saw evidence of their presence. About 200 km from Huanglong, the reserve was difficult to reach, as part of the only access road had slipped into the reservoir below in several places, so we used smaller vehicles driven by the park rangers to get up to the ranger station. From here we were driven about 25km into the park to the Baisha valley. Our main target here was *C. farreri*. It took a steep climb up to get to the limestone cliffs where it grows at over 3000 m, but on the way we were able to enjoy large stands of *C. flavum, C. tibeticum*, *C. calcicola* and *C. bardolphianum*. The flowers of *C. bardolphianum* had more yellow in their colouring than they had at Huanglong.

Fig. 10 (above): Yellow form of *C. bardolphianum*
Figs. 11 & 12: *C. sichuanense*
Fig. 13: *C.* ×*wenquingiae* Fig14: *C. farreri*
Photos by Celia Wright


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Fig. 15: *C.* ×*wenquingiae*
Photo by Celia Wright

We were quite high here at 3180 m, possibly the reason why we found only one *C. farreri* flower fully open. The few plants were growing in the shade on small sloping patches of grass growing in fine limestone gravel between the rocks.

C. farreri was the final cypripedium species we saw, but on the way back I found some unusual cypripediums that I did not recognise. Holger identified these as *C.* ×*wenquingiae*, a natural hybrid between *C. tibeticum* and *C. farreri*. Holger had found this hybrid previously and named it after his wife, Wenqing. We then called Wenqing over to see the flowers, whereupon she found several more! They are quite variable in colour, but all are attractive. This cross is now being remade artificially.

Orchid growing in Sichuan

Holger Perner started work on a conservation project at the Huanglong Reserve in Sichuan in 2001, but soon realised that development of mass propagation methods for Chinese slipper orchid species would be essential if they were to be made available to an expanding and demanding international market without being stripped from the wild. He had already set up a growing facility for the upland orchid species, especially cypripediums, at Huanglong. Two years later, he started Hengduan Mountains Biotechnology Ltd. in Chengdu, where threatened native orchids could be raised from seed. Cypripedium plants cannot be raised in Chengdu as the low altitude makes the climate inappropriate.

During our trip we were able to visit Holger's laboratory in Chengdu and see the excellent modern facilities there. He picks seed pods when green, 56 days from fertilization. After immersion in bleach for 2 hours, the pod is briefly flamed, the seed removed and sown. Holger has developed his own culture media, available from him commercially as powders. Details can be found on his website http://hengduan-biotech.com. Deflasking is carried out in late autumn or early winter. The young

Fig. 16: Different forms of *C. tibeticum* in brighter light in the shade house
Fig. 17: *C. shanxiense* in dappled shade
Fig. 18: Holger's raised beds Fig. 19: Shade house
Photos by Celia Wright


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plants are washed in water and then treated with fungicide before refrigeration in batches of 20-30 in zip lock bags for 4-5 months before spring planting. Holger finds that shorter periods of refrigeration may not initiate growth the following season.

At the Huanglong nursery, Holger grows his seed-raised cypripediums in shade houses where he can best mimic their natural habitat, using double shade cloth to give 70% shade cover for his seedlings. Fully grown plants can cope with a little more light. Climatic conditions here are similar to those the plants would encounter in the wild. The key differences from European weather are the patterns of ambient temperature and rainfall. In winter (November to March or April) the plants are essentially dry as rainfall almost ceases. The ground temperature will not rise above 4^0C and the soil may be frozen solid but dry for some months. Rain arrives in spring as growth restarts, and is heavy all summer during the monsoon, but the plants and soil dry quickly as there is usually a breeze. Additional watering is necessary only if there is dry weather in the growing season. At an altitude of 2900m, the daytime temperature in the shade houses rarely rises above 15^0C.

Holger grows his cypripediums in raised beds. At the base of these he puts a 20cm layer of coarse limestone gravel or pebbles. This is covered with a 30-45cm layer made up of a mixture of 4-5 parts perlite, 1 part turf peat from the grasslands and one half part tufa sand, which is essentially pure ground lime. More tufa sand is added if needed to bring the pH up to at least 7. *C. flavum* prefers a pH of 8, so for them, more tufa sand is added. In order to keep the pH at this level, a little more tufa sand is sprinkled on the beds twice each year. Above this layer is the third layer of 2cm of pine needles; this controls moss formation. When planting the young cypripediums, the pine needles are removed, the mineral layer compressed slightly, the roots spread out on the top, and more mineral mix added to cover the roots but leave the buds showing. The pine needle layer is then replaced. The roots often grow between the mineral layer and the pine needles, as they would in the wild. Plants are not lifted annually as Holger finds that this slows their growth rate. Undisturbed, *C. tibeticum* will flower in 3-4 years, whereas *C. flavum* takes a year or two longer. When plants must be lifted, this is done in the autumn.

Holger has recently adjusted his fertiliser regime to improve the plants' growth rates. Previously he gave 0.5g/l of a balanced fertiliser with trace elements every 3-4 weeks throughout the growing season. He now makes his own fertiliser that supplies more potassium but less phosphate in relation to the nitrogen content, using a higher overall amount of 0.76g/l. This supplies 100mg/l nitrogen. He fertilises every 2 weeks in summer and occasionally in spring and autumn. In the past, fungal infection in the shade houses has resulted in significant plant losses, as it can in flower beds in Europe. Holger waters with double strength carbendazine (carbendazim) in early spring, and with normal strength after 4-6 weeks and again at the end of the

growing season. He is not certain that the double dose is essential, but it has prevented further problems. Amateur growers in the UK will need to seek an alternative, as carbendazim, easily purchased in China, is only available for very restricted commercial use in the UK.

We returned from China fired with enthusiasm for cypripediums, both in the wild and in cultivation. For that we thank Holger and the AGS.

Gargano – Further Findings and Musings

Paul Harcourt Davies

When I began writing the piece for the JHOS (April 2010) on *Gargano – Europe's Finest Natural Rockery* I was anticipating the coming orchid season, for winter had not yet shown the slightest sign of leaving. In fact, it persisted until some time later and, during our annual orchid tour to that "rockery", we suffered the kind of weather that brings out the fortitude in the British and multiple opportunities for photography of raindrops on flowers (hint – carry a tissue to soak up excess moisture on the labellum and prevent reflections!)

A request came from Leonardo Battisti, an excellent photographer and good friend who lives in Gargano, to run a workshop with author and photographer Claudio del Fuoco – lots of orchids and macrophotography. So, this year we had the excuse to explore Gargano in the third week in May, a month later than usual. The plants were drying off but this is a time when several very interesting species of orchid come into flower and the display of annuals and flowering shrubs is still rich. Butterflies and other insects are also in greater abundance and, over three days we discovered and photographed an incredible number. Thanks to Leonardo, Claudio and Matteo Perilli we discovered parts of Gargano that we had not explored before.

Fig. 1:
Ophrys scolopax subsp. *conradiae*
Photo by Paul Harcourt Davies

The first of the *Ophrys* was one I had previously not seen: *Ophrys scolopax* subsp. *conradiae* (syn. *Ophrys scolopax* subsp. *sardoa* and *Ophrys conradiae*). This taxon has a very limited distribution and was first found in Sardinia and Corsica – the name '*conradiae'* honours Marcell Conrad (1897-1990), a Corsican botanist. It is extremely local in Gargano and was first found at the western end of the peninsula by Claudi del Fuoco, who then began a series of measurements to establish its identity. However, another "gentleman" claimed that he had discovered it and went into print.

The second of the *Ophrys* is a particular favourite of mine, *Ophrys lacaitae* (syn. *Ophrys fuciflora* subsp. *lacaitae*, *Ophrys holoserica* subsp. *lacaitae*). In recent years, this rare species has been discovered in other locations, extending its range from Sicily and the area of Salerno near Naples down into the toe of Italy (Calabria) and onto the spur (Gargano) and into the heel (Puglia). Most of the discoveries were made by 'amateurs' who explored outside the traditionally accepted times for orchid holidays in those regions: as a plant in flower in mid to late May it had been missed. Flowers show a remarkable homogeneity between plants – a sure sign of a long-established species. They possess a characteristic triangular labellum, broadly-edged in yellow with a basal speculum/pattern on a rich brown background. It is a striking species which occurs in good numbers in some of its populations.

I had known about the Gargano finds for some years but could never get down to see them at the right time. Matteo Perilli, who lives near one site, has an incredible 'nose' for finding hybrids of all sorts and he had discovered a hybrid swarm between *Ophrys lacaitae* and *Ophrys fuciflora* subsp. *gracilis* (a rather tall taxon with few flowers). The area of hillside they inhabit is very small but the sheer diversity of 'forms' got me thinking. I happen to know well a site in Sicily where there are large numbers of *Ophrys lacaitae* and also various curious plants clearly of the *Ophrys fuciflora* lineage. You can identify *Ophrys oxyrrhynchos* subsp. *oxyrrynchos* (broad labellum, green to white

Fig 2 (above):*Ophrys lacaitae*
Fig 3:*Ophrys fuciflora* subsp. *gracilis*
Figs 4 - 6: Hybrids between *Ophrys lacaitae* and *O. fuciflora* subsp. *gracilis*
Photos by Paul Harcourt Davies


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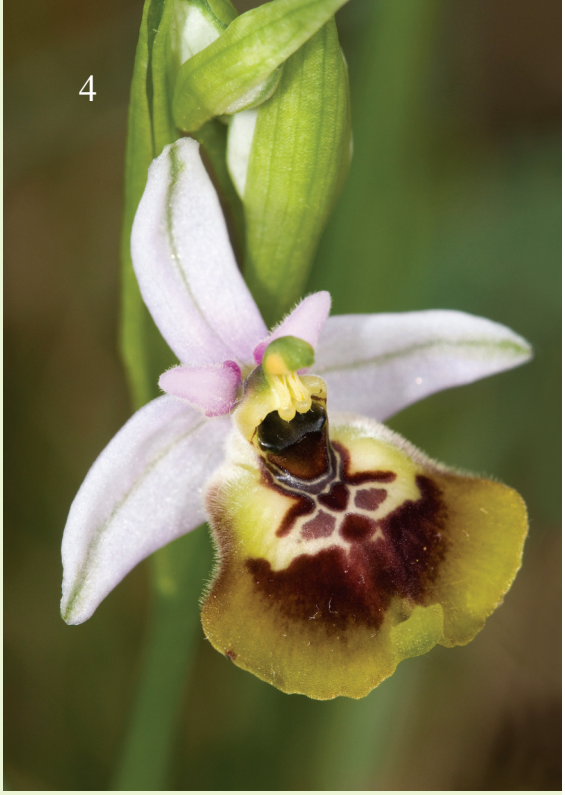
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tepals) as well as *O. oxyrrhynchos* subsp. *calliantha* and *O. oxyrrhynchos* subsp. *biancae.* It would have been easy to photograph, selectively, plants in that hybrid swarm and find the results indistinguishable from those various subspecies/species claimed for Sicily. Clearly, many taxa are created by hybridisation and then, over time with co-evolution of pollinators, to become "exclusive" they may (or may not) become species in the accepted sense (whatever that is with *Ophrys*). I suggest that where there are two "stable" taxa such as *Ophrys lacaitae* and *Ophrys fuciflora* subsp. *gracilis* there might well be continued regeneration of "species" that are of hybrid origin and that they have appeared (and been lost) on numerous occasions. Seeing such variation in a very small area emphasises the dynamic nature of evolution in the genus *Ophrys*.

"Lily beetles" on a hybrid between *Ophrys lacaitae* and *Ophrys fuciflora* subsp *gracilis* Photo by Paul Harcourt Davies

And then there was one extremely interesting factor – the presence of small orange "lily beetles" on many of the plants – both hybrids and putative parents. Many of them carried pollinia that they had detached when wandering over the flowers. This is not the first time I have seen beetles carrying pollinia in this way – I was shown a hillside in German many years ago where there was a hybrid swarm of *Ophrys holoserica* and *Ophrys insectifera*, both orchids were being visited by small beetles. In neither case were these "early" flowering taxa and I thought then, as now, that this "accidental" pollination was something to be considered as a mechanism for creating hybrids.

For anyone who would like to see more of these and other Gargano hybrids then take a look at the remarkable photography of Matteo Perilli. Matteo travels light with a Lumix camera and, having just returned from carrying 20kg plus of equipment around the Dolomites, it has me thinking seriously – very seriously! I have also written a detailed two-parter on Gargano that you can find on the blog I share with Niall Benvie and Andrew Parkinson: it is an expanded version of the article that appeared in the April 2010 *JHOS*. They can be found via the following links:
Part 1 http://imagesfromtheedge.com/blog/?page_id=5096
Part 2 http://imagesfromtheedge.com/blog/?page_id=5121
Matteo Perilli website: http://www.flickr.com/photos/perillimatteo/