The Hardy Orchid Society Newsletter

DACTYLORHIZA fuchsii.

No.25 July 2002

Contents

Cover Illustration: Dactylorhiza fuchsii by Mr Ted Unsworth

Evolutionary relationships and conservation biology of Neottieae (Helleborines and their relatives) By Prof Richard Bateman

Richard first thanked all those members of the Society who had helped him in his recent research projects on orchid phylogenetics and on floral mutants.

He began his talk with a brief introduction to the biochemistry of DNA, outlining how genes work by translating sequential groups of three DNA bases (reflecting four possible types, A, C, G or T) into amino-acids that are then assembled into proteins. The four letters can be translated directly into evolutionary trees (phylogenies), but it is also possible to investigate evolutionary relationships by studying the proteins generated by the DNA. These proteins, termed allozymes, can be characterised by starch gel electrophoresis, in which each different protein moves a different distance in a given time using a particular voltage between two electrodes.

He also explained that the research he was presenting had been heavily funded by the Natural Environment Research Council as part of its Taxonomy Initiative, and had been spearheaded by Dr Peter Hollingsworth at the Royal Botanic Garden Edinburgh. Its primary objectives had not been taxonomic, but rather were to understand two key types of evolutionary transitions that appeared to have occurred repeatedly among these orchids:

(1) Between cross-pollination (allogamy) and self-pollination (autogamy);
(2) Between photosynthetic nutrition (autotrophy) and parasitism of mycorrhizal fungi (mycoheterotrophy, more colloquially known as saprophytism).

Richard discussed both DNA sequencing and allozyme analysis, initially focusing on the contribution of sequencing to our understanding of phylogeny:

The basal divergence in the neottioids is between Cephalanthera and the remaining genera. The genus includes at least one self-pollinating species (C. damasonium) and one saprophyte (the American C. austiniae).

The next divergence separates the primary target of the research, Epipactis, from the three remaining genera, Limodorum (a wholly saprophytic genus including at least one self-pollinating species but resembling Cephalanthera in floral morphology), Listera (all photosynthetic) and Neottia (all saprophytic).

It appears that Neottia may have evolved from Listera (specifically, from an ancestor resembling L. ovata; they have similar flowers), in which case Listera would be taxonomically sunk into Neottia to create an expanded genus that would contain both photosynthetic and non-photosynthetic species.

Epipactis, which lacks saprophytic species, is differentiable into two widely-recognised groups of species, epitomised by E. palustris and E. helleborine respectively. All members of the palustris group are thought to be cross-pollinated, but the helleborine group includes a mixture of cross- and self-pollinated species. It has suffered recent radical taxonomic inflation in works such as the second edition of Delforge.

Taking the neottioids as a whole, the saprophytes have diverged markedly in DNA sequences from their nearest non-saprophytic neighbours, presumably because much of the genetic material associated with chlorophyll production and photosynthesis is no longer needed to maintain them. Richard then expressed a keen interest in seeing more examples of the rare variant of Epipactis purpurata ("var. rosea") that is chlorophyll free, as comparative studies of this and the normal form offer our best opportunity to understand the mechanism that allows saprophytic orchids to evolve from photosynthetic ancestors.

Richard then proceeded to discuss a series of case-studies on Epipactis that utilised both DNA sequence and protein-based allozyme data:

Firstly, he discussed to origin in the late 19th century of Epipactis helleborine in the USA, where it is now seriously invasive. Surprisingly, its genetic diversity in North America is as great as that in Britain (see Amer. J. Bot. 88 (2001): 1409>), suggesting that many immigrants were involved in its presumed westward migration. Genetic "fingerprints" of American plants are a closer match to those of the Low Countries than to those in Britain. No doubt it would be a great relief to some politicians to know that what the Americans call a "noxious weed" did not originate from the UK!

The controversial UK endemic Epipactis youngiana is supposed to be self-pollinated but its genetic profile shows that it is cross-pollinated. It always occurs with the much more widespread E. helleborine, and the two taxa are essentially genetically identical at all sampled sites. It can therefore be concluded that the "species" E youngiana is in fact only a form of Epipactis helleborine, and does not merit the extensive conservation attention that has been lavished on it.

By contrast, the former UK endemic species E. dunensis, mainly inhabiting dune systems in NW England and Wales, was reduced in status to a mere variety of the south-

ern beechwood species E. leptochila a few years ago. However, the genetic data demonstrate that E. dunensis is clearly and consistently separable from E. leptochila, and should be restored to a full endemic species meriting enhanced conservation attention.

A small, controversial Epipactis population found on Lindisfarne (Holy Island), which was previously thought to be either E. dunensis or the exclusively Continental species E. muelleri, is actually similar to, but different from, E. dunensis. Morphological study is needed to determine whether it is best treated as a new species or a subspecies of dunensis.

With regard to the original goals of the project, the study showed that repeated transitions occur from photosynthetic to non-photosynthetic nutrition, and from cross- to self-pollination, but never in the opposite directions. This suggests that both saprophytism and self-pollination are irreversible conditions. Richard used the term "evolutionary dead-end", making it clear that it was meant to signify that the more highly evolved species were irrevocably committed to a saprophytic or a self-pollinating existence, not that he was predicting that they were destined for imminent extinction.

All of the species presupposed to be self-pollinated (the British E. phyllanthes, E. leptochila, E. dunensis, plus many Continental species such as E. microphylla and E. muelleri) did indeed prove to be self-pollinated. Most or all probably evolved independently from E. helleborine at different locations across Europe. Likewise, most of the species thought to be cross-pollinated (the British E. helleborine, E. atrorubens, E. purpurata and their Continental segregates) were indeed cross-pollinated. The one exception was the marsh and dune-slack specialist, E. palustris, which has the morphology of a self-pollinated plant but the genetic profile of a cross-pollinated plant, thus encouraging further research.

Richard ended by noting that E. helleborine has the lowest ratio of pollen to seed "flow" (put simply, a measure of whether pollen or seeds travel greater distances) of any plant so far examined. Among the highest values are for oaks, which have small pollen grains adapted to wind-pollination but have large seeds (acorns) that rarely travel significant distances, without animal assistance. In contrast, orchids have pollen grains massed into large pollinia, which travel relatively short distances attached to insects, whereas the minute seeds are well adapted to long-distance dispersal in air currents. Thus, the exceptional pollination biology of orchids neatly explains some of their more atypical genetic patterns.

Bill Temple

Report of the 10th AGM of the Hardy Orchid Society

Sunday 28th April 2002 at Horticulture Research Internationmal Wellesbourne

The Chairman in his report noted that there has been a net gain in membership over the past year with a number of people not renewing membership, but more joining. He questioned why people do not wish to re-join the society. One departing member commented about insufficient advice on cultivation.

The meeting in November 2001 was successful with many entries for the photographic competition. Doreen Webster was thanked for overseeing the show. The website still attracts much interest from abroad and it has been acknowledged on numerous occasions that it is continually updated. Tony Hughes was thanked for his contribution.

The Treasurer Tony Beresford reported that the past year was reasonable successful.There were two high one-off costs - the printing of the new membership cards and publicity. The balance to date is £5200.

The membership secretary Nick Storer reported that at the end of March 2002 there were 374 paid members. 57 members did not renew, but 86 new members joined. Members were thanked for renewing and all members were encouraged to pay by standing order.

Rule Changes - as outlined in the April newsletter. The changes are to be made as members who do not renew their membership receive free copies of the newsletter and this is a way of preventing these losses.

Rule 3 Membership to be open to all. Membership may be refused or withdrawn at the discretion of the Committe. Anyone whose membership is refused or withdrawn to have the right of appeal to the Society in General Meeting.

Rule 4. Subscriptions to be determined at a General Meeting and payable from 1st May each year. Any member whose subscription remains unpaid at 31st December shall cease to be a member of the Society, will have to rejoin (i.e pay a joining fee in order to rejoin), and will not receive a newsletter during that time. Members will be entitled only to newsletters published in the year for which the subscription has been paid.

ELECTION OF OFFICERS

This year several committee members had reached the end of their three year term therefore there was a need to find replacements for the posts in question. Sarah Marks our hard working secretary, Colin Clay who has been in charge of the successful organisation of the twice yearly meetings and Moira Tarrant, newsletter editor were thanked for their contribution to the continuing successful growth of the Hardy Orchid Society. As with many societies the replacement of committee members is never an easy task, but this year the vacant posts were filled. Norman Heywood offered to take on the Minutes Secretary post on a temporary basis until the end of this year so a new Minutes Secretary will have to be found for next years' meetings. Roger Gelder offered to stand as Meetings secretary and Patrick Marks as Newsletter Editor. All other Committee members were voted back on block with Tony Hughes becoming Vice Chair. Nigel and Maureen Denman were voted on as the auditors again.

President	Prof. Richard Bateman
Chairman	Richard Manuel
Vice Chair	Tony Hughes
Secretary	Norman Heywood
Treasurer	Tony Beresford
Membership Secretary	Nick Storer
Meeting Secretary	Roger Gelder
Show Secretary	Doreen Webster
Conservation Officer	Bill Temple
Newsletter Editor	Patrick Marks
Ord Member Newsletter Distributor	Barry Tattersall
Ord Member Fungus Bank	Ted Weeks
Ord Member Publicity	Simon Tarrant
Co-Opted Member, BOC Rep	Eric Webster

A discussion about future meetings then took place with a decision to hold the Autumn meeting on Sunday 27th October at Wisley being confirmed. This will be the day after the Cyclamen Society meeting. Wisley has a lecture room for the main meeting and sales tables, a small side room for the competition and catering facilities. Membership cards will be required to gain entry at the main gate. Lunch can be provided by franchise caterers at a cost of £12.99. Drinks to be organised by volunteers. The majority of members said they would happily travel to Wisley, though the possi-

bility of a future meeting further north was raised. It was pointed out that two thirds of the membership lived in the south of the country, but about twenty members indicated a willingness to attend a meeting in the Leeds/Huddersfield area and Loughborough was also suggested as a possible venue.

Cultivation will be a main topic of the Autumn programme, possibly more as a forum than an invited speaker.

Among AOB discussed was a query from a member about the possibility of accessing a membership list. In reply it was stated that members should contact Nick Storer directly with any request. Some discussion about the pros and cons of circulating the list took place with issues such as Data Protection, cost, concerns about theft etc being aired. The issue will be raised at the next committee meeting.
A member asked that the size of photographs in the competition be changed and it was suggested that the class be changed from 10 x 8 to 12 x 8 to avoid the necessity of cutting down photos.
Digital photography was also discussed and a requirement for a speaker on this issue was identified. It was also suggested that a whole day could be organised to cover this subject in depth. This possibility will be discussed at the next committee meeting.

Flower-hunting in the Algarve
Tony Hughes
(based on a talk given at the HOS Spring Meeting, April 2002)

The Algarve, the southernmost strip of Portugal which stretches about a hundred miles from the Spanish border in the east to Cape St. Vincent in the west, is best known as a holiday destination. Diana and I went there last year, for the two weeks from 5th to 19th April, not seeking sand, sea and sun (though they were a bonus), but intent on hunting out wild flowers (orchids in particular), birds and anything else with wings or legs. We stayed near Albufeira, centrally placed on the coast, and were delighted to find Bee Orchids (Ophrys apifera) on the scrubby cliffs outside the hotel, in the middle of a local roundabout, and in a nearby sand quarry.

The landscape of the Algarve is extremely varied. From Faro eastwards the coastal strip is very flat, with extensive sandbars sheltering the coastal lagoons, mud-flats, dunes and salt-pans. A large part of this area is designated the "Ria Formosa Natural Park", though we could not be sure on which side of the boundary some of the lavish developments of villas and golf courses were situated! Moving to the west of Faro,

low crumbly cliffs start to rise, reaching their spectacular best around Praia da Rocha, where all the best postcard pictures are taken. In the far west, around Sagres and beyond, the cliffs are of hard limestone, tall and sheer, well able to withstand the full ferocity of the ocean storms. A few miles back from the coastal strip, a range of limestone hills runs east-west, with the highest peak at Foia, some 900m up near the town of Monchique.

Our little hire car was bright pink (which did little for our image), but it took us from end to end of the caostal region and to many inland destinations on a surprisingly meagre ration of petrol. For most of our stay the weather was superb with blue skies and unbroken sunshine; the few small clouds we saw usually rapidly evaporated! Unfortunately, the heat frazzled the orchids, so for our last few days we converted hastily to ornithology - and with over 100 species seen that was pretty good too. For convenience, this report follows an east to west progression (though that was not the sequence of our meanderings) describing just a selection of the many places we visited.

The coastal regions east of Faro are not noted for vast numbers of orchids, but proved rewarding for so many reasons: Flamingos and Avocets on the salt pans at Castro Marim, Fiddler Crabs in all the mud flats, brilliant Yellow Broomrapes (Cystanche phelypea) in the salt marshes, Storks' nests perched precariously on telegraph poles, Terrapins and a single Chameleon at Quinta do Lago, tiny red-beaked Waxbills and Azure-winged Magpies at Olhao, and so on. It was just one delight after another. But now for some orchids .....

Just to the east of Loule lies Morgado Hill, a site that should not be missed. Narrow country roads decked with white Iris albicans and blue Scilla peruviana meander around it, but the rich northerly slopes are readily approached from the main road to Sao Bras de Alportel. Our brief visit revealed large numbers of several Ophrys species (O. bombyliflora, dyris, lutea, picta and speculum). O. picta was new to us, rather like a half-size version of O. scolopax. Orchis italica, Serapias parviflora and S.strictiflora were also present in large numbers. S. parviflora turned up at most of the orchid sites we visited, and was remarkable with nearly half of the specimens being of the creamy-white colour variant.

Further inland lies the prominent ridge of Rocha da Pena, with well-marked walks taking in excellent view-points and a good range of orchids. This was the only place we saw Orchis olbiensis - unfortunately they were on a south-facing slope and the shrivelling flowers were only just recognisable. Further east one is in Cork Oak (Quercus suber) country. Just beyond Barranco do Velho, a moist grassy slope shel-

tered a magnificent collection of Serapias cordigera, many of the flowers having lips of a beautiful pink shade. It was here that we spotted a spherical brown 'Earth Ball' fungus - our name for it of Dungus donquianus seemed quite appropriate!

Returning nearer the coast, the village of Tunes lies about 8km due north of Albufeira. A little road runs east from Tunes Station, past abandoned clay pits and brick kilns. The north-facing slopes beside this road proved most rewarding, with many species growing right down to the verge. For several days we had been looking closely at Mirror Orchids, not convinced that any could be labelled Ophrys vernixia. On these slopes there was no doubt that two very distinct species were present - the "normal" O. speculum, and the much more robust O. vernixia with its distinctively curved labellum.

Moving to the west, the stretch of coast between Portimao and Alvor is most spectacular, with wide sandy estuaries, richly coloured cliffs and sheltered bays. We managed to find a few orchids still surviving between the modern hotels and villas, but the only rarity was a single clump of a strange parasitic plant called Cynomorium coccineum - our alternative name of 'Poochipoopoos verticalis' seemed visually more accurate!

Moving inland again, a good road climbs from the hill town of Monchique through exotic Eucalyptus woods to the top of Mount Foia. A couple of kilometres from the summit, many leafy rosettes of Epipactis dotted the roadsides. Most were probably E. tremolsii, but were well short of flowering. However, a couple of rather lax-looking specimens were in flower and we were happy to call them E. lusitanica - though not with great confidence! Nearer the summit, a patch of Early Purples, Orchis mascula, grabbed our attention while dozens of plants of Anacamptis (Orchis) champagneuxii sheltered demurely among the short grass. Along the edge of the road were bright blue heads of the tiny Scilla monophyllos with occasional pale spikes of the Dense-flowered Orchid, Neottinea maculata, while in more scrubby areas the brilliant crimson globes of Paeonia broteroi shone out. The summit itself seemed a disaster area, littered with every conceivable type of radio, TV and radar installation, but when we turned our backs on the ironmongery a marvellous collection of flowers was revealed.

A little further west another road heads inland from the coast to the great reservoir behind the Barragem de Bravura. Our progress inland was quite slow, largely due to a neglected meadow full of enormous Pyramidals (Anacamptis pyramidalis), but we eventually reached the dam. The surrounding hillsides were cloaked in Gum Cistus bushes (Cistus ladanifer), their huge white flowers having characteristic dark central blotches. The area around the dam yielded few orchids, but a couple of kilometres back down the road were numerous Anacamptis (Orchis) morio and an amazing for-

est of Serapias, mostly S. strictiflora. A few S. cordigera were also present, but colour variations were not as great as elsewhere, although the lips of some plants had an attractive pale border around the rich chestnut centre.

In the far west, we took a small road from Vila do Bispo leading down to an exposed beach at Castelejo where the endemic Thrift, Armeria pungens, covered the cliffs with its enormous pink lollipop flowerheads. But the real purpose of this diversion was to explore some of the pinewoods beside the road. Here were several vigorous clumps of Gennaria diphylla, their seeds already dispersed - perhaps we need to revisit in January!

Cape St Vincent, the most south-westerly tip of the European mainland, seemed like a world apart. The acres of flat rocky landscape above the massive cliffs have no protection from the ferocity of the Atlantic storms, so over the centuries the plants have evolved a ground-hugging style of growth. Orchids were few and far between, and we were too late for the dwarf narcissi, but the vast array of other plants kept us absorbed for hours. Most memorable was the brilliant blue of Anagallis monellii, beautifully set off against the gleaming white of the local endemic Cistus palhinhae, which is rather like a prostrate Gum Cistus with unblotched white petals. The confusingly named Brown Bluebell (Dipcadi serotinum), which we had found at many other places along the coast, grew alongside Astragalus lusitanicus, a large Milk Vetch with inflated seed pods whose only other location is in Cyprus!

And so our journey ends. Twenty-two orchid species in a fortnight was not a great haul, but some were quite special and the vast quantities at some sites were unforgettable. Serapias parviflora occurred at nearly every location, Ophrys lutea, O. picta and O. speculum cropped up quite frequently, while most of the others were found at comparatively few locations. Finally, I am delighted to record our sincere thanks to Hans and Inge Feld and to Richard Manuel who fed us so much information - without their notes, maps and local insight we would have missed so much.

(See illustrations of some of Tony's findings in colour insert)

HOS Show Results, 28 th April 2002

A smaller show than last year with one category receiving no entries at all. However the plants displayed by 10 competitors were up to the usual high standards, with some interesting plants such as Richard Manuel's hybrid Serapias olbia/Anacamptis morio. Barry Tattersall carrying away four firsts and oalso "Best in Show" with his Cypripedium fargesii as illustrated on the web site and in the centre pages. Thanks go to Colin Clay for sorting out the facilities, to all cntributors for their lovely plan-rts and to our judge for a difficult job in deciding the winners.

No	Class	FIRST	SECOND	THIRD
1	Six pots hardy orchids distinct varieities	Barry Tattersall Cyp segawai Cyp parv. ssp pubescens Cyp x ventricosum Cyp fargesii Cyp palangshanense		
3	3 pots European (non-British) distinct varieties	BarryTattersall Anacamptis (Orchis) papilionacea ssp albertis Orchis quadripunc Serapias lingua x neglecta		
4	3 pots non-European orchids, distinct varieties	Michael Powell Cyp macranthos Cyp japonicum Cyp segawai		
5	3 pots hardy orchids any country	Doreen Webster Calanthe tricarinata Cyp parviflorum Serapias demadesii		
6	One pot native British orchid	Barry Tattersall Cypripedium calceolus	John Haggard Anacamptis(Orchis) morio	Doreen Webster Cypripedium calceolus
7	One pot native European (non-British) orchid	Colin Clay Anacamptis (Orchis)papilionacea var grandiflora	Liz Copas Anacamptis (Orchis) papil-ionacea var grandi-flora	

Ophrys mammosa as in Bateman & Rudall's article on floral mutants where additional labella had been expressed in the lower halves of each lateral sepal. Photo by Tony Hughes

Ophrys picta, Algarve, photo by Tony Hughes

Serapias cordigera - ALgarve
Photo by Tony Hughes

Serapias stricta -Algarve
Photo by Tony Hughes

Class 9 Dactylorhiza incarnata
Nigel Denman

Class 8 Cypripedium fargesii
Barry Tattersall
"Best in Show"

Class 7 Anacamptis (Orchis) papilionacea
var grandiflora
Colin Clay

Class 11 Ophrys fusca
Liz Copas

8	One pot non-European hardy orchid	Barry Tattersall Cypripedium fargesii	Alan Dash Calanthe sieboldii	Doreen Webster Cypripedium parviflorum var Makasin
9	One pot Dactylorhi-za	Nigel Denman Dactylorhiza incarnata	Colin Clay Dactylorhiza maculata	Colin Clay Dactylorhiza sambucina
10	One pot Orchis	Colin Clay Orchis mascula	John Haggar Anacamptis (Orchis) morio	Harry Gill Orchis papilionacea var grandiflora
11	One pot Ophrys	Liz Copas Ophrys fusca	Richard Manuel Ophrys iricolor	Colin Clay Ophrys hygrophila
12	One pot Serapias	Michael Powell Serapias lingua 'Yellow Form'	John Haggar Serapias cordigera x lingua	Doreen Webster Serapias lingua
13	One pot Cyp	Nick Storer Cypripedium parviflorum	Doreen Webster Cypripedium flavum x reginae	Barry Tattersall Cypripedium x Giseala
14	One pot any other genus of Hardy Orchid	Richard Manuel Serapias olbia x Anacamptis (Orchis) morio		

THE BOX HILL BOOK OF ORCHIDS
BY ANN SANKEY

In the year 2000 the Friends of Box Hill published this attractive soft back book written by Ann Sankey whose love and knowledge of the orchids of Box Hill shines through in the book. As an introduction to orchids generally it can be recommended as it takes an approach of guiding the reader from the structure of the flower, to pollination methods, a year in the life of an orchid, the mycorrhizal affiliation of many orchids, growth from seed to adult, reproduction, how long lived and a look at the scarcer species and historical records for their prescence. The book is attractively illustrated with colour, photos of every species and attractive line drawings. The problems of management and conservation are sensitively commented upon. Overall this is a lovely book,and to my mind is worth Society members adding to their libraries at a very reasonable cost .

A Year in the Life of Two Fields
Kay Dinsdale

This is a story that is going to make a lot of members green with envy. Over the past year I have been introduced to hardy orchids in a most intimate and romantic way.

In September of the year 2000 we bought a bungalow with two fields in the Derbyshire Dales. We were not intending to purchase fields when we set about house-hunting in the spring of that year but since we discovered that acquiring any reasonable size of garden was very difficult, we eventually succumbed to owning two fields. I have to admit that during the second viewing a cursory glance over the nearest field in late June revealed quite a few Common Spotted Orchids (Dactylorhiza fuchsii) and that this convinced me that this was a property worth bargaining for. Can I really admit that the fields sold me the house?

In the September of that year we moved in. We quickly discovered that this was a cold and leaky house and so spent the next few months slaving and spending in order not to live miserably. This is still ongoing! After a few months of wind, driving rain, and very reduced visibility, I was wondering whether I had made an expensive mistake.

We let our fields to an eighty-year-old for his two Shetland ponies, Billy and Judy, for the princely sum of £10. We rather insulted him by making him sign a contract. Sitting down at our kitchen table, he told us that he was "as good as his word" and that he had rented our fields since 1968. The year after I was born!

Like much of the Derbyshire Dales our fields are on limestone. They face eastwards and are steeply sloping down from about 1000 feet in altitude. Totalling approximately two and a half acres they are surrounded by tumbledown limestone walls. They do not have the emerald green look of most pastureland in this country, as the surveyor reported he thought they looked "rather overgrown".

One evening in springtime I was looking up at the fields through the kitchen window which does give a satisfyingly rustic view, and said to my husband, "I can see some funny yellow spikes all over the top field". A peek through our binoculars confirmed that I was indeed looking at "yellow spikes". Twenty minutes later, (we have two young children so expeditions take time), we strode up to see hundreds of cowslips covering the top field. My husband announced that this was "a special site". More tantalisingly, there were dozens of leaf whorls in the short grass, and on closer inspection I could see two types. Many had spotted leaves corresponding to all the Common

Spotted Orchids in my memory, but in a large area there were quite a number of plain bright green whorls. Later in the house I could only guess what they could possibly be as I studied our wildflower book.

As spring progressed I visited the fields every few days on my own in the short time between the children's bedtime and darkness. Those leaf whorls in the grass grew too slowly for my impatient mind. One evening in June I saw the first flower spikes of Common Spotted Orchids. Over the next weeks hundreds and hundreds flowered over the entire area. There were variations in colour in many of the flower spikes including a few white individuals. The plain green whorls developed into a few hundred Twayblade spikes (Listera ovata).

My mother came to visit a few weeks later. She noticed a taller unopened flower spike at the top of the field, right underneath the wall. It looked different from everything else in the field. We promised to return to this one and mentally placed it in our minds. Two days later we went back up to see if it had flowered. We could not find it. We walked backwards and forwards along the top of the field trying to find it. After twenty minutes searching we concluded that Billy or Judy had eaten it!

July came and one evening on my usual apres-bedtime stroll I happened to glance at a peculiar and exquisite pink flower out of the corner of my eye. I bent down and looked at its extraordinary beauty. It was not much more than six inches high and consisted of two pink wings and strange insect-like part to it. Realising that I had never seen such a flower anywhere in the wild before, let alone my humble field, I tore back down the field to the house in search of my trusted wildflower book. Usually I have to watch where I put my feet as not to trod on anything noteworthy, so as I ran I thought maybe inadvertently squashing the odd spike of Common Spotted Orchid was excusable in my rush to get down the hill.

I raced in the front door and said breathlessly to my husband "I have found something amazing up the field". We rushed back up with the book. I knew that there were several insect-like orchids in the book and quickly decided that ours was a Bee Orchid (Ophrys apifera). Ten minutes later we had found a few more spikes dotted around.

The next morning it was beautifully sunny and I tentatively took my two and three-year-old boys up the field along with my camera and camcorder. The youngest one was as fascinated as I was with this strange flower and so I have an incongruous photograph of a very blonde toddler pointing at a Bee Orchid.

My in-laws happened to visit us the next week. My mother in-law is a farmer's daugh-

ter who grew up and still lives in Wensleydale and so has memories of the sort of pastureland that we now own. One evening we decided to walk into a nearby disused quarry so that I could look for more Bee Orchids. I could not find any more around but I found some flower spikes of a new species that I had not seen before. They were of a bright clear pink but each floret had an arching green spike behind it. A careful study of the wildflower book indicated that they might be Fragrant Orchids (Gymnadenia conopsea). Another week later a friend of ours visited who is a keen naturalist. Even he was impressed with the Bee Orchids, but then I found a few spikes of Fragrant Orchid in the top field.

The next few months I watched as the different orchids matured into seedpods. The Common Spotted, Twayblade and Fragrant Orchids formed small rounded pods while Bee Orchids produced long upward-pointing ones. After several weeks my mother noticed that most of the Twayblade spikes had vanished. It seemed that Billy and Judy may have been rather partial to them!

We went to France for our summer holiday to a house in Burgundy. It was even more rural than our part of Derbyshire, with birds and butterflies galore. However with my newly acquired skill of spotting spent orchid seed heads at fifty paces my holiday seemed rather more exciting than usual. My eyes light up at the sight of fields containing horses, which look a bit overgrown. Usually, even at the edges orchid flower spikes can be seen.

So our house with the "overgrown paddock" contains a multitude of wildflowers with four types of hardy orchid growing in it! I have lived through a year of surprises, anticipation and most of all joy. I feel incredibly lucky to have come into the ownership of meadows such as ours. I presume they are amongst the 3% of unimproved grassland still in existence in this country. Towards the end of the summer our tenant spent a few days in hospital, and it struck me what a responsibility I have acquired to keep the fields in the condition they are in now.

As I write this it is now winter and now I have to wait for next summer to come. I have found that I have been afflicted with a new and enjoyable interest. My Collins wildflower book opens naturally at the Orchidaceae page. Will they all come up next year? What about that unidentified one which was eaten before its prime? I cannot wait.

Kay Dinsdale

Orchid-hunting in Öland, Sweden
Matti Niissalo

I am a new member of this Society and would like to introduce myself: my name is Matti Niissalo and I live in Finland. I have, in my knowledge, the largest Finnish collection of terrestrial orchids, but that is only because we have so few growers of these plants here. I also use a lot of time in nature trying to find orchids. I had seen wild orchids only in Finland, until I went to Öland, Sweden last summer with three friends of mine. This story is about our wonderful trip.

After a long time of preparing, we were finally on our way to Öland. We left Finland on 10. June. Our ferry landed to Stockholm the next morning and with the car of one of the travellers we reached Öland in the afternoon. The trip through eastern Sweden gave as a good picture of what we would see. Although we didn't notice any orchids on the road, there were tens of other plants which are very rare in Finland. We had to stop the car time-by-time to photo these flowers, and even when we did a lot of that, we had plenty of time the same evening to go and find some orchids. The ride from Stockholm to the city of Kalmar took about 6 hours with the stops, if I remember right. From Kalmar there is a bridge to Öland, to a place called Färjestaden. We got a small cottage at Färjestaden and after eating, it was time to go into the field. We didn't go far away from the cottage when we saw the first orchids. They were Dactylorhiza sambucina, which weren't in flower anymore. Other orchids were also present in this ancient graveyard of the Vikings (Epipactis helleborine, Platanthera spp.) but none had flowers. Therefore we were soon able to proceed to the place we were actually looking for.

In the map of Öland ("Karta över Öland") there is a caption "Kråketorp" near to the centre of Färjestaden. Under that caption, there is a small parking place. I had heard that this place had lots of interesting orchids. It was near to our cottage and we decided to see this place first. Right after parking the car, when we were crossing the road, the first orchid appeared: Orchis militaris was in full flower. It is an extremely rare species in Finland, growing in few places only, and despite searching I had never seen it before. In this place there were only a few specimens, but later on we saw many more Military Orchids. We had, as we saw, parked at the western side of Stora Alvaret. It is a huge, dry, stony field with a lot of lime and even more orchids. It didn't take too long to find more species, Anacamptis (Orchis) morio, Neotinea (Orchis) ustulata, Orchis mascula, Dactylorhiza sambucina and lots of closed Platantheras. All of them grew in masses, and this site was one of the best places we visited. The Anacamptis, Dactylorhiza and Orchis were mostly staring to wither. Only a single

flowering D. sambucina (or Adam and Eve as the Swedish call it) was present. This one had red flowers. I haven't seen good plants of yellow Elder-flower Orchids in years now.

On the same day we also went to Södra Utmossen, which was a marsh nearby. We did see many orchids (Orchis militaris, some of which were enormous, Platanthera spp., Neotinea (Orchis) ustulata, Dactylorhiza incarnata, Orchis mascula) but this was not a particularly interesting place. I had heard that there would be some Gymnadenia odoratissima in here, but at least we couldn't find any. This place was the only one I remember having grazing horses, elsewhere (almost everywhere in the island...) cows did this job. In some places lots of orchids were eaten or bitten off by cattle.

The next day we drove further north, first to Halltorps Hage, a grove of very old oaks and other interesting trees. At first we only found a few orchids. Dactylorhiza fuchsii, Neottia nidus-avis and Listera ovata were new species for this trip. We tried to search for Cypripedium calceolus which should have grown here, but with no success. We got bored with this dark wood quite soon. Fortunately we saw from a guide-map that there was a meadow nearby. We couldn't stop ourselves from going there. It was a beautiful place, a protected and well-cared meadow with nice Hazel trees, climbing Ivies and other plants which are exotic in the eyes of a Finn. Lots of orchids were in flower: Dactylorhiza fuchsii in great amounts, Orchis mascula (including one with greenish white flowers), O. militaris, Neotinea (Orchis) ustulata, Neottia nidus-avis, Listera ovata, Platanthera bifolia (the only flowering Butterfly Orchid we saw, this was probably ssp. latiflora). Epipactis helleborine didn't flower. We also found two new species, Ophrys insectifera and Cypripedium calceolus in full flower. Halltorps Hage was, with the part of Alvar in Kråketorp, the best place in Öland we found.

Next stop was Knisa Mosse, a marsh which has lots of orchids, including Dactylorhiza sphagnicola which we didn't find. Instead, there was lots of Military Orchids, some of them had a wonderful pale pink colour. The largest Dactylorhiza incarnatas we saw also grow here. Gymnadenia conopsea was a new species, but it wasn't flowering yet. Also lots of young shoots of Epipactis palustris were seen, but they won't flower before July.

Next destination was an airport in the northern Öland. We had heard that there would be some Cephalanthera longifolia in there. But for our wonderful surprise, we soon noticed these white flowers growing along the road. They were magnificent plants, and as there were lots of them in the whole of northern Öland, they are a very good reason for everyone to visit the island. It is a pity though, that we didn't go to the air-

port after all. Later on I found out that there are also lots of Spiranthes spiralis (not in flower at that time of the year, of course) so I have yet to see this plant.

Anacamptis pyramidalis should have grown in one field at the north, but we didn't find it. Instead there were some flowering Gymnadenia conopsea over there, but as many much more interesting sites can be easily found, I won't try to explain where this place is. On the same evening we also went to see the famous Echium vulgares at the northern end of the island. They were not in full flower yet. After this and collecting some fossils from a rocky beach we went back to out cottage to make some food. We only ate our packed lunch while on the road and therefore we were pleased to have proper food after a long day.

In the third day we first went to Böda Sand (long sandy beach at the north) to find Liparis loeselii in one marsh, but as we didn't spot it, the place was not that interesting, we only managed to find Dactylorhiza maculata as a new species. It is a common flower in Finland so it wasn't too fascinating. One plant had peloric flowers.

Möckelmossen in the middle of Stora Alvaret was the second place we went to. It is a bog surrounded by short, grazed grass. The place seemed perfect for Herminium monorchis, which we also found without any search. We were quite lucky, as we only saw less than ten plants in two groups, each about two inches high. They smelled good, but as the wind was strong we had to get close to the flowers to smell them. For myself this was the most important of all of our findings, because it has become extinct from Finland. Soon later we found our last new species, a few Dactylorhiza cruenta flowered among tens or hundreds of D. incarnatas. After Möckelmossen we also saw some flowering Adonis vernalis, not an orchid but one of the goals we had to this trip. We only had one photo and fairly inexact words of where the photo was taken helping us to get to this plant. We didn't even have to find the place for too long, and we soon found ourselves looking at the same plants which were in the photo of our book!

These approximately 20 species may not feel as any magnificent number, but knowing that we were only three days in the island might make our trip feel more wonderful. Lots of thanks to all of you around Europe who helped us to get all the information we needed! In our eyes Öland was a perfect world. Orchids were everywhere and most of the species also in great numbers. Of course, Gotland has many species which don't grow in Öland, but I think it is well worth considering Öland as a second option when thinking of an orchid-trip to Sweden.

The lack or great rarity of some of the most common Finnish orchids was surprising. Listera cordata, Corallorhiza trifida and Dactylorhiza maculata are such plants. I

would have loved to see also Anacamptis pyramidalis, Liparis loeselii, Dactylorhiza sphagnicola and the flowering of all those Platantheras would have been a wonderful sight (and a joy for the nose). Fortunately we had such a good year for Platanthera bifolia here in Finland!

The web address of us who travelled is http://kammekat.tripod.com, and you can contact me at orkoti@yahoo.com.

Local Heroes?
Some thoughts on regional orchid floras
by Richard Bateman

As the number of books focusing on terrestrial orchids grows exponentially, I often receive free copies. I would like to think that this generosity reflects my role as HOS President, but I suspect that it relates more closely to my still highly controversial (and ongoing) reclassification of European orchids into truly natural genera. Whatever the reason, these literary windfalls have helped me to discern some interesting trends.

The obvious temptation is to analyse in excruciating detail the new edition of what is in danger of becoming the European orchid 'bible', namely Delforge (2001) (reviewed by Richard Manuel in HOS Newsletter 23, p. 18). Suffice it to say that I preferred the 1994 old testament, wherein the author made (fairly well-) educated guesses at the identities of natural groups, relative to the new testament, wherein he has chosen to ignore the identities of the actual natural groups that have been demonstrated in the interim. Perhaps of greater general interest is the current trans-European bloom of regional orchid floras, most notable for a remarkable improvement in production quality.

British orchid enthusiasts could perhaps identify as the transition point here the glossy volume (associated with the 14th World Orchid Congress in Glasgow and subsidised by the late-lamented HMSO) covering the orchids of Scotland by Allan et al. (1993). This was soon followed by a series of well-produced softbacks on the orchid floras of particular counties, most recently Lang's (2001) highly personal account of the orchids of Sussex. But over the past year I have been sent no less than seven such volumes from Italy, France and Greece; of these, four are sound in content and remarkably well presented, yet affordable in price. All feature full colour throughout, and use photographic montages to good effect in illustrating variation within species. Less

constructively, all have largely abandoned infraspecific ranks, though all are less prone to taxonomic 'splitting' at species level than Delforge.

The multi-author volume effectively edited by Ferlinghetti (2001) covers the province of Bergamo, which encompasses the south-central Italian Alps and their foothills. The A4 format allows the high quality of the full-page photographic plates to stand out, but the true value of the book lies in the remarkable range of information provided about the habitats and ecological interactions of the orchids depicted, reaching details as fine as statistical analyses of altitude and aspect. Sadly (from my viewpoint), the taxonomy remains anachronistic.

This accusation cannot be so easily levelled at the two A5-format 'semi-softbacks' covering eastern Mediterranean islands that were produced in quick succession by Kretzschmar et al., the first on Rhodes (2001: also reviewed by Richard Manuel in HOS Newsletter 24, pp. 19-20) and the second on the Cretan island cluster (2002). These too offer excellent introductory chapters on ecological topics but also include a detailed account of recent taxonomic research, though like Ferlinghetti they fight shy of actually applying that research to the systematic accounts. Distributional data are especially well presented and analysed, and adding postage-stamp sized coloured reproductions of individual flowers to the traditional dichotomous keys is inspired. Moreover, the concluding travelogues describing specific orchid-rich sites will soon persuade readers that any orchidologist who hasn't visited Profitis Ilias on Rhodes, or the Lefka Ori or Kedros Hills on Crete, simply hasn't lived.

The last contribution considered here is an 'A4.5' softback edited for the French orchid society by Dusak & Pernot (2002) that covers the Paris region (Ile-de-France). This follows the general trend in being lavishly illustrated, beautifully formatted and dealing comprehensively with orchid distribution, biology and ecology, but adds for good measure a useful glossary and a district-by-district species list. And - miracle of miracles! - it not only describes and endorses but also actually applies the new generic classification! Eh bien.

It is difficult to see how much more progress can be made in orchid publications in the near future, unless holography improves more rapidly than is generally expected. Some technophiles might consider Web-based publishing a further step forward, but for me the ability to perform keyword searches on 'virtual books' does not compensate sufficiently for the difficulty of reading them in bed. For now, I am thoroughly content with my lot, and eagerly awaiting my next unsolicited unbirthday present.

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Survey of floral mutants in terrestrial orchids: an update

by Richard Bateman and Paula Rudall

A year ago (HOS Newsletter 21, pp. 4-5), we asked HOS members to help us with our current survey of mutant floral forms in European orchids. Although the 2001 response was modest in quantity (setting aside bumper crops of images from Tony Hughes and Graham Goodfellow), it scored well for quality. Most commonly, the examples given represented type A peloria (replacing the lateral petals with two additional labella), though pseudopeloria (relatively undifferentiated labellum) was also frequent.

In terms of genera affected, Orchis and Corallorhiza yielded single examples and Dactylorhiza and Platanthera multiple examples, but a remarkable two thirds of the images submitted represented Ophrys, from both British and Mediterranean localities. This fact raises the interesting question of whether Ophrys is especially prone to mutation or (more likely, in our view) mutants are easier to recognise in Ophrys populations because the labellum is so well differentiated from the other perianth segments. Having said that, this interpretation cannot wholly explain why almost half of all the mutants submitted belonged to the Ophrys sphegodes group.

Some of the examples did not fit conveniently into the three categories of mutant that we outlined in HOS Newsletter 21. For example, Lorraine Harrison sent a fascinating example of an entire O. sphegodes flower being expressed ectopically on the labellum of a subtending flower, and Tony Hughes offered two intriguing O. mammosa

plants, one where expression of the lateral sepals had been extended into one third of the labellum (to create what the late Derek Turner Ettlinger fondly termed a lusus), and another where the converse phenomenon had occurred: additional labella had been expressed in the lower halves of each lateral sepal. This plant is illustrated in colour in our forthcoming treatise on mutation and the origins of the orchid flower (Rudall, P. J. & Bateman, R. M. 2002. Roles of synorganisation, zygomorphy and heterotopy in floral evolution: the gynostemium and labellum of orchids and other lilioid monocots. Biological Reviews, in press).

We would of course welcome any further contributions of such images during the 2002 season, either by snail mail or electronic mail (Dept. of Botany, Natural History Museum, Cromwell Road, London, SW7 5BD: r.bateman@nhm.ac.uk). Just to cite one phenomenon that would be especially welcome, there are rare records of ectopic expression of pollinaria on the labellum. In the meantime, we hereby take this opportunity to thank profusely those HOS members who have already contributed significantly to our research.

Member Asks

I am planning a raised bed for my orchids outdoors. I am going to divide the bed into three parts: one is for Dactylorhizas and other swamp-species, the earth will be mainly peat and place would be kept damp at least in summer.

Second would be for "Mediterranean" plants including Orchis, Ophrys and similar plants. The ground would probably be made of loam and sand, perlite and a little garden-soil and it wouldn´t be kept as damp as the Dacs. To the third part I would like to plant a few Cypripediums and Calanthes, supposing that I will find a place in our garden where I could grow both Cypripedium and Dactylorhiza. If you will find something to correct about my plans, I would like to know about this.

But my question is about Bletilla and Pleione. They are quite unhardy plants up here and I will only try them because a few successful overwinterings have happened in Finland too. But to survive, these two need to be very dry in winter I believe. The question is: to which section should I plant species of the two genus ? Should I be afraid that some of the plants mentioned above will suffer from too dry winter? Also I am interested to know if the two genera like or dislike lime/high pH Thank you!

Matti Niissalo, orkoti@yahoo.com

Printed by Parchment (Oxford) Ltd
Printworks, Crescent Road, Cowley, Oxford, England OX4 2PB
email:Print@parchmentuk.com www.printuk.com