

BSBI News

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Edited by Trevor James & Gwynn Ellis



Epipogium aphyllum (Ghost Orchid) in v.c.36.
Photo T.C.G. Rich © 2009 (see p. 7)



Ghost Orchid (*Epipogium aphyllum*), in
Buckinghamshire (v.c.24) in 1986, a year
before it was seemingly lost from the site.
Photo R. Bateman © 1986 (see p. 9)



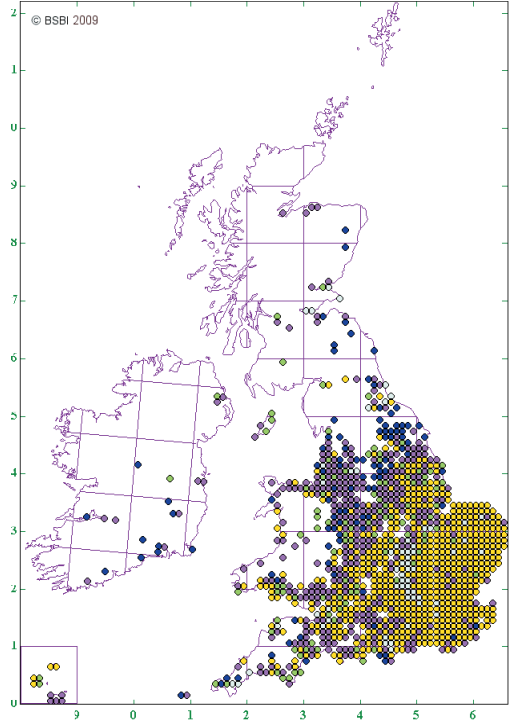
Mutant Bee Orchid (*Ophrys apifera*) nr Aveley
(v.c.18). Photo P. Smith © 2007 (see p. 19)



Ophrys apifera in Galloway (v.c.73).
Photo A. Barbour © 2009 (see p. 20)



Orobanche lucorum in St Andrews Botanic Garden (v.c.85). Photo R. Cormack © 2000 (see p. 57)



Conyza canadensis (Canadian Fleabane) hectad distribution map from BSBI website. See text (p. 88) for details



Orobanche lucorum by Sports Centre in St Andrews Botanic Garden (v.c.85). Photo R. Cormack © 1985 (see p. 57)



Former *Agrostu-Festucetum* grassland, now almost pure *Cotula alpina* (v.c.65).
Photo L. Robinson © 2009 (see p. 53)



Cotula alpina showing flowering stems beside track on Kirkby Malzeard Moor, Yorks. Photo L. Robinson © 2009 (see p. 52)



Cotula alpina Polbain, Wester Ross (v.c.105). Photo A. White © 2009 (see p. 54)

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MICHAEL WALPOLE FCA

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As we go to press we learn with deep regret of the death of Michael Walpole, after a long battle with cancer. There will be an Obituary in *Watsonia*.

Mike was Hon. Treasurer of BSBI from 1971 until 1997, and during those years he was the father figure to the Society and BSBI activities. When the time-consuming task of membership Secretary became too much for a voluntary Hon. Officer, and after our first commercial replacement plan proved unsatisfactory, Mike took on this problem, setting up a programme on his new computer. With this he was Membership Secretary for many years until 2003.

In 1991 Mike was elected as an Honorary Member of BSBI, and apart from being on Council for all the years that he was Treasurer, he was also Chairman or a member of many of the Committees including: BSBI Co-ordinating, later the Executive Committee, the Publications Committee, Chairman 1991-1997, and the Committees for the Welch Bequest, the BSBI Database (Leicester), and the Warburg Fund. Mike was also BSBI Referee for Herbals and Local Floras of the British Isles, and he gave a memorable lecture on early local Floras at the BSBI Conference on Local Floras held in Liverpool in 1991.

I recall Mike coming to London for many meetings and often he would have spent a little time on the way hunting down some treasure for his botanical library, which was acknowledged as the best privately

owned collection in Britain. We would then have the privilege of admiring his new find, and sharing his pleasure in this, often a very tiny book, before the business of the meeting began.

We are grateful to Chris Boon for the following note on Mike's funeral.

A Service of Thanksgiving for the life of Mike Walpole took place on 22 December 2009 at Emmanuel Church, Loughborough. The BSBI was represented by Richard Gornall, John Bailey and Chris Boon.

As part of the service some "Memories of Mike" were given in a presentation by his son Chris. He told of his father's love of the countryside and natural history, in particular botany. There were many searches as a family for rare and unusual species – a particular story related to Lady's-slipper Orchid which is to be found in its only natural site at *****. After an unsuccessful hunt the family sat down to enjoy a well-earned picnic and caused the warden to rush from his tent to remonstrate with Mike that they had chosen the exact location of the plant (probably a bit too near) to spread their rug. Luckily no damage was done – the plant had yet to appear! Chris also told of the honour that Mike and Ann felt to represent the BSBI at a Buckingham Palace Garden Party. Also mentioned was the book hunting side to Mike's life which, many-a-time, resulted in the purchase of a volume already in his possession.

<p>Cover picture – Ghost Orchid (<i>Epipogium aphyllum</i>), part of an extensive and vigorous population in the Black Forest, Germany. Photo P. Gasson © 2008 (see p. 9)</p>
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EDITORIAL

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David Pearman

On January 1st we said goodbye to David as Hon. General Secretary and now welcome Lynne Farrell to the post and wish her well.

David will continue as Chair of Records Committee and his involvement with the BSBI Plant Unit and he remains the contact point for the Panel of Vice-county Recorders

However, I can't let this moment pass without paying a personal tribute to David who has helped me enormously in my work for the Society. I know that any success I may have had as editor of *BSBI News*, Membership Secretary or Hon. General Secretary was/is due in no small measure to his constant encouragement, advice and, most of all, friendship.

Thank you David, I couldn't have done it without you, and I'm relieved that you will still be only a phone call away!

Membership number

As membership secretary I often get asked for a membership number. This can always be found in the List of Members in the *Year Book* and is also printed on the first line of the address label on all mailings but as there are two or more numbers on that line, the following explanation should remove any ambiguity.

71641 Mem. No. 016607 v.c. 041

The first number (71641) refers to a Royal Mail Postcode; the second number (016607) is the membership number and the last number refers to the vice-county.

Hybrid names

Some contributors query the position of the multiplication sign when used in hybrid names in *News* and I repeat here the paragraph that appeared in *BSBI News* 96: 6. "The St Louis edition of the International Code of Botanical Nomenclature recommends that when hybrid binomials are printed using a multiplication

sign × (as distinct from the letter x), the sign may be placed adjacent to the epithet (*i.e.* without a space); this practice is followed in *BSBI News*. Thus *Vaccinium × intermedium* becomes *Vaccinium ×intermedium* or *Vaccinium x intermedium*, but not *Vaccinium xintermedium*.

Referees postage

We have been asked by a referee to remind members that the rules (and prices) for postage have changed, and it is now important to know not only the width, length and weight of a package but also the depth. This referee has, in the past few months, taken delivery of several packages from BSBI members on which excess postage had to be paid either at the door or on collection from a Royal Mail depot which may be some distance away.

All our referees are volunteers and it is very important that the correct postage is applied to all packages, especially if posted directly into a post box and is also enclosed with the specimens if they are to be returned. It would also be courteous to enclose a stamp or stamped addressed envelope for any reply.

Congratulations to at least two of our members whose names appear in the New Years Honours List 2010.

Professor Alastair H. Fitter, Pro-Vice-Chancellor for Research at the University of York is awarded the CBE 'For services to Environmental Science.'

Professor Mary Gibby, the Director of Science at the Royal Botanic Garden Edinburgh is awarded the OBE 'For services to Botany.'

If anyone knows of other members whose names also appear, please let us know.

And finally, apologies to those members whose contributions have had to be held over to the next issue through lack of space.

NOTES

The new molecular classification: relevance to the flora of the British Isles

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The arrangement of species in any floristic work is a matter of personal preference. Purely artificial sequences are sometimes favoured, e.g. alphabetical order (as in the current *Flora of Canada*) or grouping by flower colour (e.g. the *RHS gardeners' encyclopedia of plants and flowers*). The advantages of such a policy in special circumstances are obvious, but they are outweighed by the equally obvious disadvantages in most situations (e.g. variation in flower colour within a species, radical alphabetical re-ordering necessitated by name-changes). All 'serious' (i.e. botanically rigorous) floras in this country have been arranged in systematic sequence, often (but not always) the one most in favour at the time, and this situation is not about to change.

The classification of vascular plants most widely accepted at any one time has changed radically over the past two centuries, as the amount and nature of available data have increased. During the nineteenth century the system of Bentham & Hooker was most favoured. During the twentieth century this became increasingly modified to produce a less artificial, more natural, system, that of Cronquist (1981) ultimately being most widely championed, and the one that was followed in the first two editions of my *New flora of the British Isles* (1991, 1997). From the late 1990s onwards, however, our ideas on plant relationships (and therefore classification) have been revolutionised by the use of molecular data, mostly the base sequences of certain regions of DNA. Whilst this has largely confirmed previous ideas on the *circumscription* of most families, some unexpected novel features have emerged (e.g. the dismemberment of the Scrophulariaceae),

and there are even more divergences in family *relationships* from those expressed in the pre-molecular systems, which demand a re-sequencing of the families. Many changes at the generic level are also indicated, e.g. the separation of *Ficaria* from *Ranunculus*, and the amalgamation of *Malva* and *Lavatera*. A radically new classification should not be adopted lightly, but the nature of the data now being utilised is such that it seems certain that classifications based on them will robustly stand the test of time. This is not the place to discuss the justification and the methodology of molecular taxonomy, but there can be absolutely no doubt that the DNA data being accumulated do indicate the evolutionary pathways and therefore the true relationships of plants. The need for all botanists to come to terms with the new classification is therefore obvious and overwhelming.

Without using the technical language or propounding the theoretical reasoning of molecular taxonomy, and at the real risk of over-simplification, the circumscription of taxa (families and genera) has been changed when the DNA sequences indicate either:

□ that a taxon (A) is represented by two or more subtaxa (A1 & A2) that are separated by or otherwise associated with other taxa not in the original taxon A, usually leading to a splitting of taxon A into A1 and A2, e.g. *Ranunculus/Ficaria* and *Rorippa/Nasturtium*. (A different solution is also possible, viz. the continued recognition of taxon A but with the addition of the other taxa enmeshed with it, e.g. *Ficaria* could continue in *Ranunculus* providing some other genera, e.g. *Myosurus*, were included in it too.)

or:

□ that two or more taxa (A & B) are not separated by a simple split but are more intricately entwined, usually leading to the amalgamation of taxa A and B, e.g. *Lavatera/Malva* and *Artemisia/Seriphidium*. (Sometimes the continued separate acceptance of most species of taxa A and B might be made possible by recognising extra segregate taxa that have been causing the entwining: C, D, etc.)

The existence of two (opposite) alternative solutions in both situations exemplifies an important fact about molecular (or any other taxonomic) data, i.e. that they do not always dictate the precise taxonomic outcome, but that differences of opinion (e.g. splitters and lumpers) will still exist, because both views express the molecular data equally faithfully (hooray!).

The third edition of *New flora of the British Isles* (early 2010), as far as I know, will be the first British *Flora* to adopt the new molecular classification of families. The version it uses will be the latest one now available (known as APG-III, 2009), produced by the large informal international consortium, the *Angiosperm Phylogeny Group*. The linear sequence of families derived from this (and set out in my *Flora*) is known as LAPG-III, also published in 2009. There is also much subjectivity associated with deriving a linear sequence from the evolutionary tree. In particular, where the tree branches into two, either portion may precede the other in sequence.

One of the main discoveries in angiosperm evolution associated with the new molecular taxonomy is that the angiosperms did not divide at the start into dicots and monocots, but before this event several families, formerly considered primitive dicots, split off. This group of diverse families (in our flora only Cabombaceae, Nymphaeaceae, Saururaceae, Aristolochiaceae and Lauraceae; for some time Ceratophyllaceae were also placed with these but are now considered true dicots) are termed primitive angiosperms, for which

the term pre-dicots may be coined. The rest of the former dicots are termed eudicots. In the linear sequence, the pre-dicots must start the angiosperms, followed by the eudicots and monocots. In LAPG-III the monocots are placed before the eudicots, but I prefer to place the monocots at the end, as this is much the more familiar arrangement and equally valid.

In the pteridophytes it has been discovered that the fundamental split is between lycopods and all the others, including true ferns, horsetails and even whisk-ferns. Within the ferns the division between eusporangiate (in our flora only Ophioglossaceae) and leptosporangiate families (considered of great significance 100 years or so ago) apparently occurred before that between horsetails and ferns. The new sequence in our flora is thus lycopods, Ophioglossaceae, horsetails and the rest of the ferns.

In order to familiarise those readers who have not already acquainted themselves with the new molecular classification, I am listing below the most important changes in family circumscriptions within our flora. Apart from the changes advocated in the previous two paragraphs, I shall not cover re-sequencing, nor changes in circumscription at the generic level. A few of the latter are mentioned in previous paragraphs, but there are many more. Mention could be made of the amalgamation of *Lloydia* and *Gagea*, and of *Lepidium* and *Coronopus*, and the division of *Peucedanum*, *Helictotrichon* and *Thlaspi* into three, three and four different genera respectively.

Adiantaceae included in Pteridaceae
 Onocleaceae (*Onoclea* and *Matteuccia*)
 separated from Woodsiaceae
 Taxodiaceae included in Cupressaceae
 Fumariaceae included in Papaveraceae
 Escalloniaceae separated from Grossulariaceae (and placed far from it)
 Parnassiaceae (*Parnassia*) separated from
 Saxifragaceae (and placed far from it)

Caesalpiniaceae & Mimosaceae included in Fabaceae
 Nothofagaceae (*Nothofagus*) separated from Fagaceae
 Hypericaceae separated from Clusiaceae (the latter no longer in our flora)
 Aceraceae & Hippocastanaceae included in Sapindaceae
 Tiliaceae included in Malvaceae
 Viscaceae included in Santalaceae
 Chenopodiaceae included in Amaranthaceae
 Montiaceae (*Montia* and *Claytonia*) separated from Portulacaceae
 Garryaceae (*Aucuba*) and Griselinaceae (*Griselinia*) separated from Cornaceae (and the latter placed far from it)
 Empetraceae, Monotropaceae and Pyrolaceae included in Ericaceae
 Hydrophyllaceae included in Boraginaceae
 Cuscutaceae included in Convolvulaceae
 Calceolariaceae (*Calceolaria*), Veronicaceae (11 genera), Phrymaceae (*Mimulus*) and Paulowniaceae (*Paulownia*) separated from Scrophulariaceae sensu stricto (*Verbascum*, *Scrophularia*, *Phygelius* and *Limosella*)
 Buddlejaceae included in Scrophulariaceae sensu stricto
 Semi-parasitic Scrophulariaceae (tribe Pediculariae/ Rhinanthae) transferred to Orobanchaceae
 Plantaginaceae, Callitrichaceae and Hippuridaceae are placed in Veronicaceae (often as Plantaginaceae) in APG-III, but I have kept them separate
 Adoxaceae, Caprifoliaceae, Valerianaceae and Dipsacaceae are amalgamated in APG-III, but I have kept them separate
 Hydrocotylaceae separated from Apiaceae (alternatively these two and Araliaceae could be amalgamated, or Hydrocotylaceae could be transferred to Araliaceae)
 Acoraceae (*Acorus*) separated from Araceae
 Lemnaceae included in Araceae in APG-III, but I have kept them separate
 Najadaceae included in Hydrocharitaceae
 Zannichelliaceae included in Potamogetonaceae

Liliaceae segregated into 9 families dispersed in 4 orders:

Tofieldiaceae (*Tofieldia*) in order Alismatales;

Nartheciaceae (*Nartheceum*) in order Dioscoreales;

Melanthiaceae (*Paris*), Alstroemeriaceae (*Alstroemeria*), Colchicaceae (*Colchicum*) and Liliaceae sensu stricto (5 genera, only *Gagea*, which includes *Lloydia*, native) in order Liliales;

Xanthorrhoeaceae (5 genera, only *Simethis* native), Alliaceae (13 genera) and Asparagaceae (11 genera) in order Asparagales

Agavaceae included in Asparagaceae

Sparganiaceae included in Typhaceae

The families most disturbed are clearly Scrophulariaceae and Liliaceae. In contrast, it is worth noting that the limits of very many well-defined and long-established families (e.g. Asteraceae, Brassicaceae, Caryophyllaceae, Cyperaceae, Lamiaceae, Orchidaceae, Poaceae, Ranunculaceae), as well as some that show a huge range of morphology (e.g. Rosaceae), remain unaffected by molecular data.

As expected, in the 13 years since the second edition of *New flora of the British Isles* was published, many taxonomic changes have accumulated, but it would be wrong to assume that a high proportion of these are the result of molecular research. In all cases that have been investigated, however, the decisions are backed up by the molecular data. For example, the separation of *Schedonorus* (the three broad-leaved fescues) from *Festuca* is equally supported by morphological, cytological, hybridisation and molecular characters. In addition, in the coming years many more taxonomic changes will be necessitated. Indeed, some have already become apparent since the third edition was finalised in July 2009, e.g. separation of *Helosciadium* from *Apium* (only *A. graveolens* remaining in the latter).

These are certainly exciting times, but challenging ones too.

Haunted Herefordshire: the “Ghost” reappears in Britain after an absence of 23 years

PETER GARNER, Lea Cottage, 233 West Malvern Road, West Malvern, WR14 4BE

There were five of us together in the wood, and it was 7.30 a.m. on the morning of 22nd September 2009. Some swore under their breath, others giggled with poorly suppressed excitement, but how had Mark Jannink reacted when he had first seen the Ghost Orchid a couple of days earlier? I asked him what great words he had prepared for this very special moment - the ultimate dream of every British botanist, and he told me “Hello you - so there you are!”

Many have searched for it. I have, but, I admit, without conviction. Local botanists are aware of the sites where *Epipogium aphyllum* has appeared in the past, some as recently as 1982, and others as long ago as the 1850s. Mark, however, prepared with great care and a sense of optimism, assisted by his friend Paul Stanley. They identified auspicious weather trends for 2009 - some continuous periods of sub-zero temperatures during the previous winter, followed by a warm spell. The centre of the world distribution of *Epipogium* is Central Europe, where cold winters and warm summers are the norm. Our warm spell didn't arrive this year until September! Mark carried out detailed research into all previous Ghost Orchid discoveries - their preferred habitat, time of flowering and weather patterns. Then he staked out ten possible sites and visited them regularly throughout the summer. His efforts and conviction were finally rewarded by the discovery of one diminutive specimen.

One can only marvel at his powers of observation. Even when he directed us to within a couple of metres of the plant, it was not immediately apparent. When he first found it on September 20th it was not fully out and he likened it to a snow-flake. The closest comparison I can make is to a single leafless white violet. It had a 5cm tall white stem

with one translucent triangular scale and a single white flower. There was quite faint but clearly discernible pink spotting or blotching on the inside of the spur and to a lesser extent on the lip, which faded as the plant aged; otherwise the flower was white (see inside Front Cover).

The plant was lying at an oblique angle to the bare mud of the sloping gully floor and so the flower was only 1 cm above the ground. The woodland floor where it was growing was much less strewn with leaf-mould than I had expected. In fact the stem could be seen emerging directly from the dry compacted earth. It was in a very sheltered spot, where it would receive very little direct sunlight. Although near the bottom of the gully, it grew about two feet up the gently sloping north bank. The wood includes hazels and oaks. Soil taken in the gully *c.* 1m from the orchid had a pH of 4.5, indicating a surprisingly acidic soil. This is reflected by some of the associated plants - *Vaccinium myrtillus* (Bilberry), *Blechnum spicant* (Hard Fern) and *Luzula sylvatica* (Great Wood-rush). *Lonicera periclymenum* (Honeysuckle), *Rubus fruticosus* (Bramble) and *Sorbus torminalis* (Wild Service) were also nearby.

Mark returned a couple of times to the site during the following few days and the plant gradually faded and “browned”, until on his last visit the stem had been eaten through by slugs. The remains were collected and dried and have been deposited with photographs in the herbarium at the National Museum of Wales (NMW), where they may be seen on request to Dr Tim Rich. Full details are held separately in the NMW archives. Exact details of this site are not being released except on a need-to-know basis in order to protect the plant and its habitat.

The Ghost Orchid vividly illustrates why the term ‘extirpation’ is an essential element of plant conservation

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On 15th October 2009, Plantlife launched ‘The Ghost Orchid Declaration’, a much-needed initiative designed to re-invigorate rare-plant conservation in the British Isles and spearheaded by Prince Charles. Here, I explore why I consider it doubly unfortunate that this generally laudable declaration begins with the assertion, underlined by Prince Charles’s endorsement letter, that “With no sightings for 23 years, Ghost Orchids are the latest of the UK’s native wild plants to have become extinct.”

I have an especially strong personal interest in this issue because, as far as I know, I was the first person to formally suggest that the Ghost Orchid, *Epipogium aphyllum* Sw., may no longer occur in the British Isles. I made such a statement at the BSBI conference held in Leicester in 2003 to mark Clive Stace’s retirement, and then published my concerns in the ensuing conference volume (Bateman 2006), noting that the evidence at the time suggested that Ghost Orchid had “not been seen in Britain for over a decade”. My comments may have encouraged categorisation of *Epipogium* as ‘Extinct’ in the Vascular Plant Red Data List for Great Britain (Cheffings & Farrell 2005). This status is defined under IUCN criteria as: “Extinct (EX): a taxon is extinct when there is *no reasonable doubt* that the last *individual* has died” (my italics). However, I also made a determined plea in the article that we should carefully distinguish between the terms and associated concepts of extinction and extirpation. I feel obliged to repeat that plea here, given recent salutary events surrounding the occurrence of the Ghost Orchid in the British Isles.

Firstly, the word itself. Most effectively popularised by zoologists and palaeontologists, including the well-known American naturalist Stephen Jay Gould, the term ‘extirpation’ is synonymous with, but in my view greatly preferable to, the phrase ‘local extinction’ (e.g. Koford *et al.* 1994). Most importantly, it allows the term ‘extinction’ to

retain its full potency. I spent much of my youth occupying an increasingly faded T-shirt that rightly proclaimed that ‘extinction is forever’, a usefully unequivocal statement that, for example, firmly precludes any possibility of instituting reintroduction programmes thereafter. That threat of irrevocably losing a species from the Earth is justly one of the greatest motivators for conservationists worldwide. In contrast, accusing an organism of having been extirpated means that, by definition, the species is performing better elsewhere in the world. It may, for example, reflect losses along the margin of the distribution of the species where one or more populations have fallen victim to natural, environmentally induced fluctuations in range. It certainly does not carry the same immediacy of threat that accompanies the correct use of the term ‘extinction’. To conflate the two concepts renders far more difficult attempts to prioritise species for conservation action. Today, conservation is rightly seen as an international activity requiring global assessment. Admittedly, conservation responses may well operate best at national or local level, but most authorities would agree that *assessment* of the conservation requirements of species should focus on the global scale.

Secondly, the chosen case-study. The Ghost Orchid is a particularly problematic species to choose as a “loss leader” for a rare-plant conservation initiative. Although its orchidaceous nature, its remarkable appearance and its even more remarkable biology undoubtedly confer great charisma, they also make it exceptionally difficult to determine whether a particular population has become extirpated. Most terrestrial orchids routinely sulk underground for a year if they feel so inclined (e.g. Wells *et al.* 2008), but *Epipogium* is renowned for happily pursuing a subterranean existence for decades. This is made feasible by its life history as an obligate mycoheterotroph: its rhizomes and roots are especially well adapted

for a strong symbiotic relationship with the mycorrhizal fungi that are its only source of nutrition (Roy *et al.* 2009). Indeed, I have even observed it flowering beneath leaf litter, thus attempting to mimic the famous Australian ‘underground orchid’ *Rhizanthella*. Those of us who annually survey well-known and long-standing beechwoods in Buckinghamshire and Oxfordshire that supported *Epipogium* into the 1970s and 1980s are hoping that the plant has merely sulked for an unusually long time, perhaps still reeling from the combined insults of the 1987 beech-uprooting storm, the subsequent beech-bark disease, and the hot dry summers of the late nineties and early noughties.

When I speculated on the extirpation of the Ghost Orchid from Britain in 2003–6, the most recent widely documented sightings appeared to be from Oxfordshire in 1979, the Welsh Borders in 1982 and a single three-flowered plant in Buckinghamshire in 1987 (e.g.: Ettliger 1998, p. 50). My own last UK sighting was made in 1986 (see inside Front Cover). Many of us maintained our annual pilgrimage for several subsequent years, and some of us continue this practice, even after 22 years of consistent failure (in my case, ‘Ghost hunting’ gradually became a euphemism for consoling myself with a post-prandial ale). There were many other more recent supposed spectral sightings, from these and other localities (*cf.* Harrap & Harrap 2005), but none was verified to my satisfaction. Given this sporadic record of sightings, and my knowledge of its biology, I assessed the likelihood of the Ghost Orchid being genuinely extirpated from the British Isles as about 50:50. What I most hoped to achieve through my (deliberately low-key) announcement of its possible demise was to flush out verifiable post-1987 records of this remarkable species that would happily prove me wrong.

In the meantime, British field botanists became ever more deeply divided into two camps: smug individuals such as myself who had seen *Epipogium* in the UK and an expanding band of increasingly forlorn individuals who had not! Some of us

reminded ourselves of the appropriate search image by visiting selected examples of the many excellent localities for *Epipogium* that persist in mainland Europe, the most popular being a wood in the Black Forest near Huefingen where abundant Ghost Orchids flower alongside fruiting Lady’s Slippers, and single coralline rootstocks can generate up to two dozen inflorescences (see inside Front Cover). Such experiences taught us something we should already have known: although the Ghost Orchid remains marvellously challenging and unpredictable to find, it is widespread and locally common across Eurasia (e.g. Pridgeon *et al.* 2005). For me, this knowledge raises a real question of how much gnashing of teeth should take place if the Ghost Orchid becomes ‘locally extinct’ in the UK, and challenges internationally-oriented conservation bodies to develop, either individually or collectively, ‘best practice’ responses to such extirpation events.

However, the story does not end with this particular conundrum. In late September 2009, less than a month before “The Ghost Orchid Declaration” was made public, rumours began to circulate among the cognoscenti that *Epipogium* had been re-discovered in the British Isles. These rumours carried more credibility than those of the previous 22 years and spread widely, though the precise location of the find remained a closely guarded secret (the wisdom of, and motivation(s) for, maintaining such secrecy merit separate, lengthy discussions). An exhibit at the November 2009 BSBI Exhibition Meeting placed formally on record the rediscovery of *Epipogium* in Britain on 20th September 2009: a tiny stem bearing a single flower in surprisingly acid woodland in Herefordshire (Garner 2009). Had this new find occurred serendipitously at an unrecorded locality, we would have speculated over whether this represented a previously overlooked population or a recent immigrant from Continental Europe, perhaps carried across the Channel in high-level air currents (Bateman 2006). However, as I had hoped, the discovery was actually made at a previously known locality, as a result of a carefully planned systematic survey of several

known and likely localities on the Welsh Borders. This success should reinvigorate those of us who still regularly survey potential Chiltern localities. Unfortunately, this welcome revelation at the BSBI Exhibition Meeting did not enjoy the depth of media penetration that was achieved by the more pessimistic ‘Ghost Orchid Declaration’ a month earlier.

For me, this story conveys three crucial lessons. Firstly, if conservation organisations wish to best utilise the commitment and enthusiasm of field botanists, extreme secrecy is counter-productive. One is unlikely to actively seek something that one does not believe exists. In this particular case, many of us ceased to believe in ghosts some time ago! Secondly, even given cunning statistical methods of assessment (e.g. Roberts & Solow 2003), it is extremely difficult to determine whether a particular species is truly extirpated (or indeed extinct), making this decision doubly difficult when dealing with a cryptic obligate mycoheterotroph that rarely raises its head above the ground. And thirdly, in developing maximally objective conservation plans, it is vital to distinguish between extirpation and extinction. Such over-simplifications encourage backlashes that cite exaggeration and ‘crying wolf’ as ongoing features of the conservation movement.

Thus, to proclaim that “one in five wild flowers in Great Britain today is at risk of extinction” (Plantlife 2005) is ludicrous. By definition, only endemic species could become truly extinct here, and we possess precious few of those in our exceptionally youthful and depauperate post-glacial flora. However, given the ‘double whammy’ of renewed population growth in the UK and our particular vulnerability to climate change, there is much greater validity in recasting those threats more accurately in a ‘local’ (?= national) context, and instead issuing a statement that “one in five wild flowers in Great Britain today may be at risk of *extirpation*.” Carelessness with concepts and associated terminology risks undermining the vital messages contained within “The Ghost Orchid Declaration”, which is at heart a manifesto that deserves massive and sustained support.

I thank the late Stephen Jay Gould and Sean Cole for useful discussions, and the late Derek Turner Ettlenger and Peter Gasson for the loan of images.

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***Phytophthora ramorum* and *P. kernoviae* in Scotland**

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Over the last few years, *Phytophthora ramorum* and *P. kernoviae*, both serious fungal pathogens, have received increasing publicity in the UK as their effects upon diseased areas have resulted in severe control methods. The first confirmed report of an infected tree was in England in 2003. Although the diseases have been present in the UK for some time now, it is important we continue to adopt a precautionary approach.

To date, it has been recorded at several locations in Scotland, including several National Trust for Scotland (NTS) gardens, such as Brodick, Culzean, Inverewe and Arduaine. In some cases, such as at Brodick, very robust control methods have been adopted, including the large-scale removal of *Rhododendron*. This has resulted in a significant impact on the landscape of these gardens – many of which are listed on the Inventory of Gardens and Designed Landscapes.

The outbreak is centred around the west coast, especially Argyll, where suitable cool and damp conditions for its spread exist, in addition to easy availability of a key host plant, *Rhododendron ponticum* agg. *P. ramorum* is also responsible for ‘sudden oak death’ in the USA. In Scotland, the pathogens have the potential to infect a wide range of native and introduced plants in the Scottish countryside. One pathogen (*P. kernoviae*) has already been recorded in *Vaccinium myrtillus* (Bilberry – ‘blaeberries’) in Cornwall and Merkland Wood, Arran. Once present in natural or semi-natural habitats it will be very difficult to eradicate, and the consequences for native vegetation, especially heather moorland and woodland, is uncertain at the moment but has the very real potential to be devastating. As a result, organisations like the BSBI Scotland, NTS and Plantlife Scotland have been strongly recommending that the Scottish Government do more to control pathogen outbreaks as well

as increasing their surveillance. We are also keen to see more resources put into *Rhododendron ponticum* agg. control in Scotland, especially around key wildlife sites. The disease could be spread by natural means or by management staff and the public – including BSBI members!

Biology of the disease

The disease has been known to infect a wide range of trees and shrubs but is particularly associated with *Rhododendrons* and heathland species (Table 1). The susceptibility of each varies, and the two pathogens are known to affect the same species differentially. The susceptibility of common heathland species is shown in Table 2.

The disease is most likely to spread in cool, damp conditions, which may explain why it has mainly been recorded from the south west. It spreads by the movement of infected plant material (alive or dead) or infected soil. It can also be transmitted in water, either flowing or in droplets blowing in the wind. In the USA it has been shown to be carried in material adhering to hikers’ boots. Typically, in *Rhododendron*, the disease causes a brown to black discoloration that can spread into the leaves via the petioles. Further details of the disease and symptoms (including photos) can be found on the Scottish Government website and, specifically, at: <http://www.fera.defra.gov.uk/plants/publications/plantHealth/documents/newram.pdf>

Table 1. Plant species confirmed susceptible to *Phytophthora ramorum* or *P. kernoviae*

Acer pseudoplatanus (Sycamore)
Viburnum lantana (Wayfaring Tree)
Viburnum opulus (Guelder Rose)
Rhododendron ponticum (Rhododendron)
 Rhododendron hybrids
Castanea sativa (Sweet Chestnut)
Fagus sylvatica (Beech)

<i>Quercus ilex</i> (Holm Oak)	<i>Arctostaphylos uva-ursi</i> (Bearberry)
<i>Quercus petraea</i> (Sessile Oak)	<i>Calluna vulgaris</i> (Ling)
<i>Aesculus hippocastanum</i> (Horse Chestnut)	<i>Empetrum nigrum</i> (Crowberry)
<i>Fraxinus excelsior</i> (Ash)	<i>Erica cinerea</i> (Bell Heather)
<i>Syringa vulgaris</i> (Lilac)	<i>Erica tetralix</i> (Cross-leaved heath)
<i>Salix caprea</i> (Goat Willow)	<i>Vaccinium myrtillus</i> (Bilberry, Blaeberry)
<i>Taxus baccata</i> (Yew)	<i>Vaccinium vitis-idaea</i> (Cowberry)

Table 2. Comparison of the susceptibility of heathland species to *Phytophthora ramorum* and *P. kernoviae*

Heathland species	<i>P. kernoviae</i> susceptibility	<i>P. ramorum</i> susceptibility
<i>Arctostaphylos uva-ursi</i>	Highly susceptible	Tolerant
<i>Calluna vulgaris</i>	Slightly susceptible	Highly susceptible
<i>Empetrum nigrum</i>	Slightly susceptible	Resistant
<i>Erica cinerea</i>	Tolerant	Tolerant
<i>Erica tetralix</i>	Tolerant	Tolerant
<i>Vaccinium myrtillus</i>	Highly susceptible	Highly susceptible
<i>Vaccinium vitis-idaea</i>	Highly susceptible	Slightly susceptible

Advice for BSBI members and recorders

Clearly, those working in and visiting the countryside need to be aware of these pathogens. The disease is notifiable and where it has been confirmed, whether in a garden normally open to the public or in the wider countryside, quarantined areas will be created and there will be public notices. The best advice is to steer well clear of areas where there have been known outbreaks. Wherever boot disinfectant facilities are provided you should use them - on entry and exit. You should routinely clean footwear, taking care to remove all mud, between field visits - particularly to west coast sites. Finally, if you think you may have seen

an infected plant, please report it to the following agencies:

SEERAD Horticulture and Marketing Unit, Edinburgh: (Tel: 0131 244 6303 Fax: 0131 244 6449); (hort.marketing@scotland.gsi.gov.uk) (Website: www.scotland.gov.uk/Topics/farming_rural/Agriculture/plant/17937/Phytophthoras)

Or if you suspect the presence of the disease on trees you should contact: Forestry Commission Plant Health Service, Edinburgh: (Tel: 0131 314 6414 Fax: 0131 314 6148) (Website: www.forestry.gov.uk/planthealth)

With thanks to Richard Luxmoore and Jim Wightman (both of NTS), on whose research and guidance this article is based upon.

***Monotropa* – a correction**

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At the end of the article on *Monotropa* in the September 2009 issue of *BSBI News* it is stated that: “On the phone Phyl Abbot[t] informed TGE that Grass Wood, Yorkshire, also produced an unexpected, large colony of *Monotropa* this year.”

Oops! There had obviously been a misunderstanding. It wasn't *Monotropa hypopitys*

(Yellow Bird's-nest) which appeared in Grass Wood, after an absence of a decade, but *Neottia nidus-avis* (Bird's-nest Orchid); and three spikes is not a very large colony, but better than none.

Fortunately both Trevor and I have a sense of humour. I think we're still friends and we both apologise for the confusion.

Tubular Water-dropwort on the Sefton Coast sand-dunes, Merseyside

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Introduction

Tubular Water-dropwort (*Oenanthe fistulosa*) is a perennial member of the carrot family associated with damp or wet habitats on fine-textured, usually fertile soils, often where the land floods in winter. It occurs particularly on the flood-plains of rivers, in marshes and fens and in fringing vegetation by rivers, streams, canals, ditches, lakes and ponds. Found mainly in the eastern half of England, the plant is very local in Scotland and Wales and flowers between July and September (Garrard & Streeter 1983; Southern & Wigginton 2002; Tutin 1980).

National status

O. fistulosa has appreciably declined in Britain because of drainage and the reseeded of old grassland or its conversion to arable agriculture, most losses being since 1950. Braithwaite *et al.* (2006) suggest that this decline may be continuing, as 21% of a sample of tetrads lost this species between 1987 and 2004. However, their small sample size means that confidence limits on the above figure are high. They describe *O. fistulosa* as a small herb which may have declined as eutrophication and a reduction in grazing have led to denser, taller swards in wetland sites. Southern & Wigginton (2002) give *O. fistulosa* a Change Index of -1.18, while the species is listed in the Vascular Plant Red Data Book as “Vulnerable”, meaning that it is considered to be facing a high risk of extinction in the wild (Cheffings & Farrell 2005).

Regional status

O. fistulosa is notified as a Species of Conservation Importance in North West England (Regional Biodiversity Steering Group 1999). In South Lancashire (v.c.59), this plant is described by Savidge *et al.* (1963) as “frequent but mainly confined to the coastal plain below 130m”. These authors also list the plant with other characteristic species of the moister dune

slacks and their drainage ditches on what is now the Sefton Coast.

The *New flora of South Lancashire* (vascular plants section) describes *O. fistulosa* as once frequent along the coast from Ainsdale to Birkdale, but now much reduced in the dune system to a few small populations. Inland, the plant has declined significantly, but a few localised populations occur between Southport, Preston and Chorley. There are no recent records in the Manchester area, where the species was once occasional (D.P. Earl *in litt.* 2009).

The Sefton Coast survey

Because of its rapid recent decline, *O. fistulosa* has been targeted for detailed study by the BSBI’s Threatened Plants Project (TPP). Accordingly, it was decided to conduct a survey of the plant on the Sefton Coast sand-dune system in July 2009. Seven sites at which this species has been recorded in recent years were visited and data collected using TPP methodology, standard record forms being completed for each site. The target species was not re-discovered at Hightown reedbed (SD295.035) and Tagg’s Island, Birkdale (SD315.154). A breakdown of site details, habitats and colony sizes for the five localities where *O. fistulosa* was found is shown in Table 1. All are situated in the north-central part of the dune system in four tetrads (21V, 21W, 31B, 31C), within a linear distance of 4.5km. About 1280 plants were counted in a total area of just over 1000m², the largest colony numerically being in Birkdale Sandhills Local Nature Reserve (LNR) slack 14, while the most extensive was found in Ainsdale Sandhills LNR slack 174. All sites are situated in dune-slacks, most plants being associated with ditches, drains or scrapes where human activity has lowered the ground surface, creating wetter conditions than would otherwise occur (see Colour Section, Plate 1)

Table 2 lists the 52 vascular plants associated with *O. fistulosa* at the study sites. Those with the greatest frequency of occurrence are *Hydrocotyle vulgaris* (Marsh Pennywort), *Mentha aquatica* (Water Mint) and *Salix repens* (Creeping Willow) (5 occurrences), *Rubus caesius* (Dewberry) (4) and *Carex nigra* (Common Sedge), *Equisetum fluviatile* (Water Horsetail), *E. palustre* (Marsh Horsetail), *Ranunculus flammula* (Lesser Spearwort) and *Salix cinerea* (Grey Willow) (3). All are common species in wet or semi-aquatic slacks on the Sefton Coast (Smith 2009). Unsurprisingly, the largest number of associates (23 species) was found in the large slack 174, while only nine were recorded at the small scrape in slack 43.

Discussion

The above findings accord with the published information on the habitat of *O. fistulosa*, in particular its association with seasonally flooded sites and the edges of ditches, ponds, etc., though this species is not specifically listed as a component of dune-slack vegetation by Rodwell (2000). Ellenberg indicator values show that the plant requires well-lit or partially shaded sites ($L = 7$), water-saturated soils ($F = 9$), weakly acid to weakly basic conditions ($R = 7$), sites of intermediate fertility ($N = 6$) and is absent from saline sites ($S = 0$) (Hill *et al.* 2004). These requirements are consistent with the species' habitat in Sefton Coast sand-dune wetlands.

There is relatively little information on the history of *O. fistulosa* on the Sefton Coast, though it may well have been much commoner in the distant past. Thus, Hall (1838) writes "In ponds and ditches, very common", while Dickinson's (1851) description is almost identical: "In ponds and ditches, common".

In her detailed study of dune-slack flora, Blanchard (1952) describes the plant as one of the most abundant and successful species in the freshwater marsh community of Massam's Slack in what later became Ainsdale Sand Dunes National Nature Reserve (NNR). This large slack was then about 50 years old and often flooded deeply in the winter. However, *O. fistulosa* was evidently quite localised,

being known from only three sites in the area. Indeed, Blanchard considers that *O. fistulosa* had only recently become established in Massam's Slack and had not had time to spread to other areas. Twenty years later, this species had markedly reduced in quantity, except in the wettest parts of the slack, which was becoming dryer and showing signs of becoming colonised by scrub (Knowles 1971). Perhaps the last record of *O. fistulosa* there is that of Edmondson *et al.* (1988/89) who list this species in a 1988 Target Note for a scrape in Massam's Slack. During the late 20th century, the slack was progressively destroyed by coastal erosion and sand-blow (Smith, 2009) and *O. fistulosa* is no longer found there.

In recent times, the plant has been recorded mainly in the Ainsdale-Birkdale dunes, though I have one record outside this area at Hightown dunes in a transitional zone between a reed-bed and salt-marsh on 20th July 1982. The present study shows that this site is now too dry and too densely colonised by *Phragmites australis* (Common Reed) to support *O. fistulosa*. The *New flora of South Lancashire* database has two records for the Tagg's Island area of Birkdale dunes (Anon. 1998; D.P & J. Earl 2000) but, although there still appears to be some suitable habitat, I was unable to refind *O. fistulosa* at this locality.

Edmondson *et al.* (1993) list *O. fistulosa* as well-established in wet slacks and scrapes in Ainsdale NNR and Ainsdale & Birkdale Sandhills LNR, but do not give locations. It was not recorded during Smith's (1983) survey of the Birkdale frontal dunes, but was present twenty years later in the slack 43 scrape, where it was first recorded in July, 2003 (Smith 2006). The slack 14 site at Birkdale has been known for about 20 years, but the Ainsdale NNR and LNR sites were first noted as recently as July 2004, while the Green Beach drain pond was not colonised until 2007.

Conservation

The locations of all current Sefton Coast colonies are protected by SSSI/Natura 2000 designations and benefit from management structures within an NNR or LNR. At most sites, habitat condition appears favourable for

O. fistulosa and, although quantitative data are lacking, the plant appears to have increased at several of the localities in recent years. It also seems readily to colonise suitable adjacent new habitat, such as the drain pond at Birkdale Green Beach, which is only about five years old (personal observations). Indeed, it is evident that, without the presence of excavated ditches, scrapes and ponds, *O. fistulosa* would be much rarer or extinct on the Sefton Coast. However, like many other wetland plants, it may be susceptible to natural slack infilling, vegetation maturation and atmospheric nitrogen deposition (Smith 2009). For example, the Ainsdale NNR slack 17 ditch is being colonised by *Salix cinerea*, which may soon smother the *O. fistulosa* colonies. It is intended that the bushes will be removed in the near future by volunteers. At all sites, the maintenance of the dune water-table and control of competitive vegetation, such as willow-scrub and tall herbaceous plants, will be beneficial to this species' future status on the Sefton Coast.

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Table 1. Site and colony information from the Sefton Coast survey of *O. fistulosa*

Site	Grid Ref. (SD)	Approx. no. of plants	Approx. area occupied (m ²)	Habitat
Ainsdale Sandhills LNR slack 174	296.120	230	785	Large wet-slack and small scrape
Ainsdale Sand Dunes NNR slack 17	288.108	110	20	Old ditch in wet-slack
Birkdale Green Beach surface-water drain	303.138	170	13	Small drain pond
Birkdale Sandhills LNR slack 43	305.141	300	15	Small scrape in wet-slack
Birkdale Sandhills LNR slack 14	305.141	470	188	Scrape and drain in large wet-slack
Total		1280	1021	

Table 2. Relative abundance of vascular plants associated with *O. fistulosa* on the Sefton Coast r = rare; o = occasional; f = frequent; a = abundant; d = dominant; l = locally. Numbers refer to slacks. a, b = separate samples. GB = Birkdale Green Beach drain pond.

Taxon	English name	174	17	GB	43	14a	14b	Total occurrence
<i>Agrostis stolonifera</i>	Creeping Bent-grass	f	f					2
<i>Alisma plantago-aquatica</i>	Water Plantain	r						1
<i>Apium nodiflorum</i>	Fool's Watercress			f				1
<i>Berula erecta</i>	Lesser Water-parsnip						a	1
<i>Caltha palustris</i>	Marsh-marigold		o					1
<i>Carex disticha</i>	Brown Sedge	a						1
<i>Carex nigra</i>	Common Sedge	a			a	a		3
<i>Centaurium erythraea</i>	Common Centaury		o					1
<i>Cirsium arvense</i>	Creeping Thistle	o						1
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	r						1
<i>Eleocharis palustris</i>	Common Spike-rush			lf	a			2
<i>Epilobium hirsutum</i>	Great Willowherb					o	lf	2
<i>Epilobium palustre</i>	Marsh Willowherb	f						1
<i>Epilobium parviflorum</i>	Hoary Willowherb		r					1
<i>Equisetum arvense</i>	Field Horsetail					la		1
<i>Equisetum fluviatile</i>	Water Horsetail	a				a	a	3
<i>Equisetum palustre</i>	Marsh Horsetail	a	f			o		3
<i>Equisetum ×litorale</i>	Shore Horsetail	o						1
<i>Euphrasia nemorosa</i>	Eyebright		o					1

<i>Filipendula ulmaria</i>	Meadowsweet	o						1
<i>Galium palustre</i>	Marsh Bedstraw	o	r					2
<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	f	f		o	f	o	5
<i>Hypericum tetrapterum</i>	Square-stalked St. John's-wort		lf					1
<i>Juncus articulatus</i>	Jointed Rush			o				1
<i>Lotus corniculatus</i>	Bird's-foot-trefoil		f					1
<i>Lycopus europaeus</i>	Gypsywort		o					1
<i>Lythrum salicaria</i>	Purple Loosestrife	o	f					2
<i>Mentha aquatica</i>	Water Mint		o	o	o	o	f	5
<i>Oenanthe crocata</i>	Hemlock Water-dropwort							1
<i>Persicaria amphibia</i>	Amphibious Bistort	a						1
<i>Poa pratensis</i>	Smooth Meadow-grass		r					1
<i>Poa trivialis</i>	Rough Meadow-grass		o					1
<i>Potentilla anserina</i>	Silverweed		o					1
<i>Potentilla palustris</i>	Marsh Cinquefoil	a						1
<i>Prunella vulgaris</i>	Selfheal		r					1
<i>Pulicaria dysenterica</i>	Common Fleabane				f			1
<i>Ranunculus flammula</i>	Lesser Spearwort		o	o	o			3
<i>Ranunculus lingua</i>	Greater Spearwort					f		1
<i>Ranunculus repen</i>	Creeping Buttercup		o					1
<i>Rubus caesius</i>	Dewberry	o	o			o	a	4
<i>Rumex conglomeratus</i>	Clustered Dock			o				1
<i>Rumex crispus</i>	Curled Dock	r		o				2
<i>Salix cinerea</i>	Grey Willow		ld		r		r	3
<i>Salix repens</i>	Creeping Willow		la	lf	o	o	o	5
<i>Salix ×friesiana</i>	Hybrid Willow						la	1
<i>Samolus valerandi</i>	Brookweed			f				1
<i>Schoenoplectus tabernaemontani</i>	Grey Club-rush	f					a	2
<i>Solanum dulcamara</i>	Bittersweet	o						1
<i>Trifolium repens</i>	White Clover			f				1
<i>Typha latifolia</i>	Bulrush	o			r			1
<i>Vicia cracca</i>	Tufted Vetch	o						1
Total taxa: 52		23	22	11	9	10	10	

Bisexuality in *Salix ×friesiana* on the Sefton Coast (v.c.59: South Lancashire)

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Willows and poplars (Salicaceae) are characteristically dioecious, with male and female flowers (catkins) on separate plants. I was therefore surprised on 16th April 2009, when visiting a population of the rare hybrid *Salix ×friesiana* (*S. repens* × *S. viminalis* (Creeping Willow × Osier)) at Cabin Hill National Nature Reserve near Formby, to find a bush with bisexual catkins (at O.S. grid ref.: SD28412.05082). This individual was essentially female, but, in a sample of 103 catkins, 35 (34%) showed bisexual characters, the top of the catkin being female and the base male with a fairly sharp horizontal division between the two sexes. Styles, stigmas, filaments and anthers appeared normal, but the proportion of male and female sections varied, some catkins having more of one sex than the other (see plates). This bush was one of several hybrid willows retained when a 1ha dune-slack was cleared of dense scrub, mainly *S. cinerea* (Grey Willow), in November/December 2005 (Smith & Kimpton 2008). Only one of 29 bushes known to be of this taxon in the vicinity had bisexual catkins, and I have not previously noticed this feature in about 200 bushes of *S. ×friesiana* studied in recent years on the Sefton Coast (see Colour Section, Plate 2).

A (limited) literature search provides conflicting evidence on the frequency of this phenomenon. Thus, in his comprehensive “Handbook” Meikle (1984) makes no mention of bisexual catkins but does refer to androgyny (i.e.: mixed male and female flowers) in *Salix ×pendulina* and *S. ×sepulcralis*. Stace (1997) states: “Bisexual catkins are not rare, especially in hybrids, including some of those noted as ‘female only’”. Newsholme (1992) finds that: “exceptionally, the flowers of one catkin may be bisexual, or catkins may produce both male and female flowers, as sometimes occurs in *S. aegyptiaca*.” In a detailed paper, Falinski (1998) describes an increasing frequency of bisexuality in Polish

Salix myrsinifolia, with 600 specimens out of over 3300 investigated showing this character. Over a period of nine years, many marked individuals that were originally monosexual became bisexual. He states that, until recently, bisexuality was rare, only 2.3% of 1887 examples of this taxon in herbaria showing bisexual catkins. Subsequently, Rottenberg (2007) found an “extraordinary” polygamous population of *S. acmophylla* in Israel, where all individuals are bisexual. The Neotropical willow *S. martiana* is habitually monoecious (Rohwer & Kubitzki 1984). In Australia, where introduced willows are becoming a major ecological problem, bisexuality is described as quite widespread, especially in hybrids, such as *S. ×sepulcralis*, *S. ×pendulina* and *S. matsudana* × *S. alba*, but also *S. aegyptiaca* and some forms of *S. alba* (Cremer 2003). Falinski (1998) does not consider that bisexuality is necessarily associated with hybridisation. Neither, however, is he able to provide a convincing explanation for its occurrence, suggesting “anthropogenic influences in the environment that are hard to identify at present” or “pressures to which individuals and populations of the given species on the edge of its geographical range are subject.”

While bisexuality in willows has been described since the early 19th Century (Falinski 1998), it seems to be relatively rare in most taxa, though it may be increasing in frequency. I should be particularly interested to hear of any other examples in *S. repens* and its hybrids known to readers.

Acknowledgements:

I am grateful to Mike Wilcox for helpful advice and references, including a copy of Falinski’s paper.

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Mutant Bee Orchid

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Reading the interesting article titled ‘Teratology – a revival?’ by John Presland in *BSBI News* **112**, September 2009, I was reminded of a find a few years ago.

Three pictures of this strange plant (see inside Front Cover) were taken by my husband on 20th June 2007, at TQ5720.8245 in Belhus Woods Country Park, near Aveley, South Essex (v.c.18). One of the rangers had pointed it out to me, and he wanted to know what it was. It grew by a stony path on sandy soil with little vegetation, among several normal Bee Orchids. Bee Orchids often appear in various sparsely vegetated places in the Park.

At first glance, from a distance, it looked like a small Lily, but closer inspection showed it was a Bee Orchid with 6 identical pink tepals, 3 outer and 3 inner, just like a Lily, and with no ‘bee’ or diminutive petals. The column was normal and the flower was self-pollinating in the usual way, as can clearly be seen in the picture. All the flowers lower down the stem were the same, but not yet fully open. The mutant was probably one of the type described as peloria, but I am open to correction here. I was not able to check it later in the season, so I do not know if seed was set. Looking in the same area each year since has produced nothing abnormal, but I am not sure how long the seeds take to form plantlets and later

flowers, so annual checking will need to be done for several more years yet.

I assume the self-pollination that happens in this species across the UK would allow production of many kinds of mutants fairly frequently, and this is indeed so, at least in comparison with other *Ophrys* taxa (see particularly *Orchids of Europe, North Africa and the Middle East* by Pierre Delforge, A&C Black, 2006). The mutant depicted here is not shown or mentioned in this book. The same species grows in the Mediterranean area, where the *Eucera* bees (the pollinating insect) live. Delforge says that the flowers are often self-pollinated across its entire range, but clearly sometimes the bees do the job. Do the Mediterranean plants produce far fewer mutations than are seen in UK? I would be interested to know if anyone has any information on this aspect.

I live only about 3 miles from the site. I have botanised most of the surrounding area for several miles in each direction, and elsewhere in South Essex, over the last decade. Although I have encountered many Bee Orchids, I have never seen a mutation of a Bee Orchid like this before or since. Has anyone else ever seen one of these?

***Ophrys apifera* (Bee Orchid) in The Stewartry of Kirkcudbright!**

TONY BARBOUR, *8 Lovers' Walk, Dumfries, DG1 1LP*

As an amateur wildlife enthusiast, I have a particular love of plants. On my annual visit to Turkey in May 2009 I found and photographed about thirteen species of wild orchid, some of which seemed to be doing particularly well after a more than usually wet winter. In June I visited some sites in Galloway where I had seen orchids in the past, including on the 9th an impressive stand of some 150 Northern Marsh Orchids spotted while driving past them in 2008. My attention was drawn to a bare patch of ground nearby and I realised to my astonishment that I was looking at a flowering spike of *Ophrys apifera* (Bee Orchid) (see inside Front Cover). This struck me as rather exotic for our region, although I knew the species was found further south, and a similar orchid is on my Turkish list.

On further inspection I counted roughly seventy plants, and on returning with the head of Dumfries and Galloway E.R.C., Mark

Pollitt, we made a careful count of ninety flowering spikes! I was delighted to read “absent in Scotland” in the first reference book we consulted. However, only days later, *The Times* of 13th June reported that, amongst various native orchids doing well for a variety of reasons, “for the first time the fabulous bee orchid is spreading into Scotland” and that “global warming may be behind exotic revival”.

My delight at perhaps being the first person to spot these orchids in our region is tinged with unease at this local evidence of a climate change which may be the harbinger of more drastic and unfortunate effects yet to come. Nevertheless, the discovery of this stunning orchid on my doorstep in South West Scotland was the cause of considerable excitement. I have of course sent photos to my friends in Turkey.

***Anthoxanthum nitens* (Weber) Y. Schouten & Veldk. (*Hierochloa odorata* L.) (Holy-grass): a habitat correction**

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Having received my copy of the very fine new *Grasses of the British Isles* by Tom Cope and Alan Gray, (BSBI Handbook 13), I naturally turned to look at the treatments of the rarer species which I know. I was sorry to see that some of the old Latin names had been replaced by unfamiliar less descriptive ones and of course *Hierochloa odorata*, now *Anthoxanthum nitens*, comes into that category. A list of its varied habitats is given, including “raised bog”, presumably referring to Alan Gray’s account in British Red Data Book: 1 *Vascular Plants*, 3rd edition, compiled and edited by M.J. Wigginton (1999), where the habitat of “raised mire” is given for the Ale Water site in Selkirkshire (v.c.79).

I have known this Ale Water site since 1965, when I first discovered it there, and it has

remained as a large stable and healthy colony. It is situated on the fertile alluvium beside an old, deep drainage channel, and, although there are the remains of a small much modified raised mire set back from the channel, the *Hierochloa* can hardly be described as being associated with the acid conditions of the mire. I have been unhappy with the “raised mire” description since it was originally published in the Red Data Book and should really have mentioned this before. It was only when I read the account in the new grass book that I felt it should be corrected. I have been in touch with Alan Gray and he tells me that, at his early visit to the site, the full extent of the colony was not apparent, and added that he was not sure where the notion of the grass being in a raised bog came from originally. It was not his phrase.

Meadow restoration works and arable plants at Ferndown LNR, Clayton, Staffordshire

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This article describes meadow restoration techniques at Stafford Borough Council's "Ferndown" Local Nature Reserve (LNR), between 2007 and 2009. The site consists of 6.5ha of amenity and rough grassland, with areas of scrub and woodland.

The most obvious solution to developing and enhancing the site was to work on the grassland. This included one amenity field mown regularly, plus other areas of coarse grasses that had not been managed in any way for over thirty years. The latter areas consisted mainly of *Arrhenatherum elatius* (False-oat), *Rumex acetosa* (Sorrel) and *Urtica dioica* (Nettle). The mown field had provided better conditions for finer grasses such as *Cynosurus cristatus* (Crested Dog's-tail) and *Anthoxanthum odoratum* (Sweet Vernal-grass), and had some *Cardamine pratensis* (Lady's Smock) and *Carex flacca* (Glaucous Sedge).

The first step in management was to take a summer hay cut in August 2007. It was decided that trying to encourage species rich meadows by just taking a hay cut could be a very slow process, with no guarantee of success. This was followed therefore by sowing seed from *Rhinanthus minor* (Yellow-rattle) to help improve diversity. The Yellow-rattle took well in the formerly mown field, but very poorly in the rougher grassland. In 2008, the site was awarded funding from Breathing Spaces for further restoration works. It was decided to create nutrient-poor conditions on the central area of rough grassland by inverting the soil profile, burying 400mm of topsoil beneath the clay subsoil. This meant we had to then sow a wildflower seed mix. A local company was chosen to provide an appropriate mix that included species already found on site like *Centaurea nigra* (Black Knapweed), *Vicia cracca* (Tufted Vetch) and *Achillea millefolium* (Yarrow). Of botanical interest, a colony of *Epipactis helleborine* (Broad-leaved Helleborine) was found in the main wooded area at this time.

Due to the poor weather conditions in 2008, the field was not sown until April 2009. By July the field was growing nicely and included some surprise finds: *Centaurea cyanus* (Cornflower), *Agrostemma githago* (Corn Cockle) and *Chrysanthemum segetum* (Corn Marigold). The company providing the seed were asked if it was possible that their mix was contaminated with the above. They answered that this was not the case, but the County Recorders for v.cc.39 and 40 both suspected that this "ideal" combination must have come from the seed provided. Many other arable plants appeared, including *Viola arvensis* (Field Pansy), *Spergula arvensis* (Corn Spurrey), *Fallopia convolvulus* (Black Bindweed), *Myosotis arvensis* (Field Forget-me-not), *Chaenorhinum minus* (Small Toadflax) and *Anagallis arvensis* (Scarlet Pimpernel). Of greatest interest was the discovery in early August of *Lithospermum arvense* (Field Gromwell). This was only the second record for Field Gromwell in Staffordshire. Was it possible that the soil inversion had unearthed a long dormant seed bank? The fields were originally enclosed in the nineteenth century with a history of arable use until the early 1960s. Due to the presence of rare arable plants it was decided to amend the management plan and plough a strip every autumn in the hope of maintaining them.

Of note, *Amaranthus retroflexus* (Common Amaranth) and *Guizotia abyssinica* (Niger) were also recorded in this area, and must have had their origin from the nearby bird feeding station.

On the former field of amenity grassland, a good population of Yellow-rattle developed. This area appeared to provide the right conditions to try green hay-strewing from the donor site, Motte Meadows SSSI. In July, three bales of green hay were spread, with plenty of help from local volunteers. We will monitor how all the fields develop in the coming years.

***Lycopodium annotinum* (Interrupted Clubmoss) growing on fallen *Pinus sylvestris* (Scots Pine) in Abernethy Forest, Scotland**

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In Britain, *Lycopodium annotinum* (Interrupted Clubmoss) is a nationally scarce species, recorded from 88 hectads post 1987 (Preston *et al.* 2002). Apart from a single recent record from northern England, it is restricted to the Highlands of Scotland. In the Cairngorms area, it is most frequent in heathland within a rather narrow altitudinal band, from c.750 to c.900m A.O.D. In Strathspey, on the north-western flank of the Cairngorms, *L. annotinum* is also occasionally found in native Caledonian pinewoods and plantation *Pinus sylvestris* (Scots Pine) woodland. In Scandinavia, *L. annotinum* ssp. *annotinum* is mainly a forest plant, and is rare in open heathland where it is replaced by ssp. *alpestre* (Jonsell 2000). Subspecies *alpestre* is not confirmed from Britain.

Abernethy Forest is the largest of the remnant Caledonian pinewoods, and in the RSPB Abernethy National Nature Reserve, 13 stands of *L. annotinum* at 10 locations are currently known, within c.4000ha of woodland. Median area for 11 stands, measured between 2004 and 2009, was 10m² (range 1 – 512m²).

In November 2009, while surveying bryophytes with Oliver Moore, we came across a new site for *L. annotinum*. A c.1m² patch was growing on the trunk of a large windblown Scots Pine (see Colour Section, Plate 1). The *Lycopodium* was growing a little above the root-plate, where the top of the trunk was c.75cm above the surrounding ground. It had clearly germinated and become established on the downed log, and on one side had reached the ground, becoming established there (lower right of photo). I can find no records in the literature of *L. annotinum* growing in such a situation.

Abernethy Forest is of exceptional importance for its dead wood dependent fauna and flora. However, dead wood volumes and

frequencies in more natural forests in Scandinavia and north-western Russia are at least 10 times those currently found in Abernethy (e.g.: Rouvinen *et al.* 2002; Karjalainen & Kuuluvainen 2002; Edman & Jonsson 2001; Jonsson 2000). RSPB management at Abernethy seeks to increase dead wood volumes towards those expected in forests with a more natural structure. This is being achieved through non-intervention in semi-natural areas of the forest, and active creation of dead wood in former Scots pine plantations. As large sized fallen dead wood increases in frequency, we may gain a greater understanding whether such regeneration niches are a currently under-represented feature in the forest.

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Giving a Co. Carlow hawkweed a little helping hand

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Megan Morris sent me a text saying she had found a hawkweed on a river bridge in Co. Carlow. To her amazement I replied that she must be at Killedmond. I had not told her that I had a copy of *The Flora of Co. Carlow* (Booth 1979) in front of me.

A year later Megan was again doing her freshwater pearl mussel survey of the Mountain River near Killedmond and found to her surprise that the ivy was now hanging down the side of the bridge like a curtain, shading out the hawkweed. A few days later, on 26th September 2009, Megan returned to the bridge, this time with me, and we were able to confirm that it was *Hieracium sabaudum* (as Booth had named it in her *Flora*), as it matched the material we took along that I had grown in my garden from seed from a Co. Wexford site. We were armed with a pair of secateurs, but neither of us had long enough arms to reach

down to cut the ivy. We went to the nearest house, which had an extremely large vegetable garden adjoining the river bank by the bridge, to ask the lady living there if she had a billhook she could lend us. With the three of us at work the ivy was soon cleared and the Hawkweed now has a chance of survival again.

The owner of the vegetable garden ran it as an organic business and when the council had come along to spray the ivy from the bridge she had stopped them because of her business interests, not wanting the spray to drift onto her vegetable garden.

It is very pleasing to think a member of the public had stood up to the council and that in the future she will keep an eye on the hawkweed.

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Juncus acutiflorus – a disappearing act?

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In response to Mike Wilcox's plea (*BSBI News* 113: 7-8), I have been searching on Bute for convincing specimens of *J. acutiflorus* (Sharp-flowered Rush) in fruit, and have failed to find a single one. This despite having recorded the plant in 136 of the 154 1km squares on the island. When fruiting heads are inspected in autumn it is apparent that in every case many capsules have failed to develop at all, and those that have are usually empty or malformed. A small proportion of plants have a few fruits of passable *acutiflorus* type, and it would be interesting to know if these contain viable seed, and whether they would in turn produce fertile offspring. Be that as it may, it is clear that the extensive swathes of a jointed-type rush that clothe so many hollows and slopes in Bute should be re-recorded as *J. ×surrejanus* (hybrid of Sharp-flowered and Jointed Rush), and that my records for *J. acutiflorus* should be deleted. As to other areas, I await with interest Mike's report on the results of his request for true

J. acutiflorus material. (Mike has since told me that he is still awaiting his first sight of this (allegedly common) species.)

I should add that *J. articulatus* (Jointed Rush) is a common but very much less abundant species on Bute, and is restricted to localities with some degree of base-enrichment and significant water movement. It is a well-defined taxon, which does not appear to introgress, and always has well-formed capsules and apparently good seed. It is also perhaps worth noting that *J. ×surrejanus* shows great morphological variety, possibly linked to habitat. There is a type of inflorescence with branches diverging at about right angles, found on large plants often in fen-like conditions, and a type with very acute angles between the branches, usually found on much smaller plants on slopes. Between these extremes there is a range of intermediates, and I have found no convincing link between morphology and capsule formation.

Rock Sea-lavender *Limonium recurvum* at Rhosneigr, Anglesey

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Limonium binervosum agg. (Rock Sea-lavender) plants with rough scapes have been found alongside others with smooth scapes near Rhosneigr, on the south-west coast of Anglesey (v.c.52). In the key by Ingrouille & Stace (1986), scape roughness is one of the features discriminating the *L. recurvum* part of the aggregate from those in the *L. procerum* / *britannicum* part, the latter two being the only ones previously recorded in Anglesey. Biomolecular evidence quoted by Ingrouille (2006) showed the local microspecies of *L. recurvum* to be well separated from the overlapping *L. procerum* and *L. britannicum* ones, and thus likely to remain a valid species after the expected re-grouping of others. Searches in 2009 showed that about a fifth of the *L. binervosum* agg. inflorescences in the sandy saltmarshes of the Afon Crigyll estuary near Rhosneigr had rough scapes. They were found in all four of the tetrads that intersect here, most being in monad SH3174 (see Colour Section, Plate 2).

With experience, clumps of *L. recurvum* could be recognised at a distance by the denser clustering of the inflorescences, before checking by feeling the scapes (see Colour Section, Plate 2). Typically the inflorescences were <15cm high and usually had sterile branches in the lower half. At each node the lead section of scape often deviated more than the branch so causing it to zig-zag. The spikes were short (8-12mm) and often sub-divided or at least turned down at an angle where partially sub-division occurred.

Although rough scape plants were not noticed in the Crigyll estuary until 2006, there is a herbarium sheet in the National Museum of Wales with a specimen showing marked resemblance to the ones now ascribed to *L. recurvum*. This was originally labelled as *Statice recurvum* when collected from Anglesey in the late 19th century by J.E. Griffith. Griffith (1895) mentioned several

places near Rhosneigr for other maritime species so, although only Anglesey was given on the herbarium sheet, his 19th century specimen may have come from the Crigyll estuary locality. A note was later added to the herbarium sheet by C.E. Salmon refuting the original identification, probably by comparison with plants from the species type locality (Portland, Dorset) and before the propensity by *L. binervosum* agg. to develop many local microtaxa was fully realised.

Four subspecies of *L. recurvum* were recognised in the British Isles by Ingrouille & Stace (1986). *L. recurvum humile*, whose type locality is St Bees, Cumbria, is geographically the closest to Anglesey. Comparison with specimens in the Lancaster University herbarium shows the Rhosneigr ones have similar branching patterns and leaf shapes, but much shorter spikes than those from the St Bees. Ingrouille & Stace (1986) indicated that sometimes this sub-species has very short spikes and recognised three varieties. They included drawings of some of the variants of *L. recurvum*, of which that shown from Malin Head, Donegal has most similarity to the Anglesey plants. Given the distances from the other localities, biomolecular evidence would be needed to determine where the Anglesey ones might fit into a biogeographic hierarchy of microtaxa.

Acknowledgements:

I am grateful to Ian Bonner for encouraging me to seek out and try to discriminate the colonies of Sea-lavender in Anglesey. Martin Ingrouille confirmed from images that the rough scape plants at Rhosneigr were a form of *L. recurvum*. Tim Rich drew my attention to the disputed 19th century herbarium specimen in the National Museum of Wales and provided photos of it. Geoffrey Halliday made available Lancaster Univer-

sity herbarium specimens of *L. recurvum humile* from St Bees, Cumbria.

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On the flora of railway banks

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Like Jean Combes (*BSBI News* **112**: 9, September, 2009), I am also a diligent observer of plants from train windows, since I no longer drive a car. But there are limitations as to what can be identified from a moving train. In south Essex the frequent masses of *Fallopia baldschuanica* (Russian Vine), when in flower, are an easy species to identify, as of course are *Chamerion angustifolium* (Rosebay Willow-herb), *Cytisus scoparius* (Broom), *Hedera helix* (Ivy), *Pteridium aquilinum* (Bracken), *Betula pendula* (Silver Birch) and some other

species. But I cannot agree with her that either *Conyza canadensis* (Canadian Fleabane) or *Solidago canadensis* (Canadian Goldenrod) can be identified without close examination. In this part of England the usual *Conyza* is *sumatrensis* (Guernsey Fleabane), but I would not name any *Conyza* without examining its inflorescence; and *Solidago canadensis* can certainly not be distinguished from the equally common *S. gigantea* (Early Goldenrod) from a train window.

Roadside botany

SIMON J. LEACH, *Natural England, Riverside Chambers, Castle Street, Taunton, Somerset, TA1 4AP*; (simon.j.leach@naturalengland.org.uk)

Better for the environment, yes; but I have to take issue with Jean Combes, who thinks that rail travel is botanically superior to road, as “car drivers must obviously focus on the road ahead, so they miss most of the roadside plants” (*BSBI News* **112**: 9).

Don't you believe it, Jean! With a bit of practice, and a measure of good fortune, it is perfectly possible to do botany while at the wheel of a car. Being a passenger on such journeys requires nerves of steel, of course, but the rewards can be enormous. How many records of *Bassia scoparia* (Summer-cypress), *Echinochloa crus-galli* (Cockspur) and *Puccinellia distans* (Reflexed Saltmarsh-grass), to name but three, would have been missed had botanists been properly concentrating on the traffic ahead? Jean has a point

though, and it's true that some less conspicuous species do tend to get overlooked. *Plantago coronopus* (Buck's-horn Plantain) and *Catapodium marinum* (Sea Fern-grass), for example, can easily slip below the radar, even at speeds as slow as 30mph.

But roadside botany is, indeed, a hazardous business. On one occasion, having parked on the edge of the busy A38 near Exeter, I leapt out of the car to take a closer look at the grassy verge and promptly walked (head first) into a large metal signpost. And as the world began to spin, passing motorists, who were clearly amused at my misfortune – but probably unaware of the *Spergularia marina* (Lesser Sea-spurrey) at my feet – hooted their horns in delight.

***Glaux maritima* (Sea-milkwort) as a roadside halophyte**

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On 23rd August 2009 Leslie Tucker and I were walking back down the A93 towards our vehicles, about 1.5 miles north of Spittal of Glenshee, having spent the day with an Action for Mountain Woodlands group. We were pointing out the (by now) normal roadside halophytes *Puccinellia distans* and *Spergularia marina* when suddenly something quite different and unexpected appeared: a patch of *Glaux maritima* (Sea-milkwort). It occupied a space of about 6 ft × 6.5 ft on the moist grassy verge, separated from the hard road edge by a narrow band of loose, gravelly tarmac. None of it was in flower. Its companions were *Carex nigra* (Common Sedge), *Agrostis capillaris* (Common Bent), *Poa pratensis* agg. (Smooth

Meadow-grass), *Juncus articulatus* (Jointed Rush), *J. bufonius* (Toad Rush), *Plantago major* (Greater Plantain), *Deschampsia cespitosa* (Tufted Hair-grass), *Lolium perenne* (Perennial Rye-grass) and, on its roadside edge, *Spergularia marina* (Lesser Sea-spurrey).

The BSBI's website distribution map shows about a dozen inland records, but it is not recorded whether any of these are roadside plants. The *New atlas* states that there has been no change in distribution since the first atlas. This may now change, although it is perhaps significant that the Glenshee patch was vegetative only.

***Gonocarpus* – a native of Ireland with a bipolar distribution**

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A good start – I now have your attention!

When Paul Green *et al.* discovered *Haloragis micrantha* (Thunb.) R. Br. ex Siebold & Zucc. (Creeping Raspwort) north of Carna (Co. W. Galway), in a “remote area of Ireland... trailing through very wet, peaty heath” in a bog, it was deemed to be “well naturalised”, even though “the only association with man...appeared to be the peat-cuttings”, which it seemingly preferred. “There was certainly no evidence of any recent habitation nearby”, and it was growing alongside *Juncus planifolius* R. Br. (Broad-leaved Rush) “also well-naturalised in the area”. I quote from *BSBI News* 51: 48 (April, 1989).

No one seems to have challenged the claim of ‘alien status’ of these two plants, both of Australasian imagery, even though there is no firm evidence at all to support an introduction by Man. Much more likely, in my view, is that they are both examples of bipolar distribution, almost never mentioned in BSBI literature.

Dr Andrew Powling drew my attention to the fascinating account of (vastly) disjunct plant distributions described in D.M. Moore (ed.)

Green planet: the story of plant life on earth (1982) (pp. 223-225). British and Irish plants ‘pop up’ as natives in places like southern Chile and New Zealand, as well as on high mountain tops anywhere in between. Examples mentioned include *Carex lachenalii* (Hare’s-foot Sedge) and *Juncus trifidus* (Three-leaved Rush). Often the populations appear to be morphologically identical. Occasionally there are minute differences: *Carex magellanica* ssp. *irrigua* (Tall Bog-sedge) is probably the best known example, with ssp. *magellanica* being restricted to southern South America and the Falkland Islands. Our *Koenigia islandica* (Iceland Purslane) occurs across northern Eurasia and North America, and then reappears in Tierra del Fuego. A world map of *Phleum alpinum* (Alpine Cat’s-tail) shows a vast fragmentation over the colder parts of the northern hemisphere, picking out the mountain tops even as far south as Central America, but it does not reappear in the southern hemisphere, except in Chile.

The bipolar, disjunct species of *Carex* are discussed at length (with 6 world maps) by D.M. Moore and A.O. Chater, in *Bot. Notiser*, **124**: 317-334 (1971). Included are *Carex curta*, *C. magellanica*, *C. maritima* and *C. microglochin*, all well-known British natives.

Carex diandra (Lesser Tussock-sedge) is most remarkable. It occurs all across Ireland, as well as in most boreal lands, but British floras fail to record that it is also a native in the southern hemisphere solely in New Zealand, where it occurs “between latitudes 38° and 40°...in very wet bog or peat”, according to L.B. Moore and E. Edgar’s *Flora*. This is clearly the antithesis of *Haloragis*, and I have no doubt that similar patterns occur in other (micro-)organisms, including bryophytes. They are all native in both hemispheres.

Haloragis micrantha enjoys bare, peaty ground. Only Man currently provides it, now that the Woolly Mammoth, Great Elk and co. no longer roam Ireland. This species is difficult to maintain in cultivation (pers. comm.: Brian Laney, a professional gardener). It is certainly not a weedy species in Europe, and is not grown in any (botanical) garden that I am aware of.

As a recognised native, *Haloragis* has an enormous range (amend your Stace!). It occurs from north Japan, China, Himalaya, Malesia and south-east Australia to the southern tip of New Zealand (see the world map (p.57) in C.G.G.J. van Steenis *The mountain flora of Java* (1972). In Java, it escapes the tropical heat by growing only at 2050-2500m.

Some bad news: the vexed question of nomenclature, which despoils so much of the joys of botany, emerges here. *Mabberley’s Plant Book* (2008) is a “wondrous plant-book” and “no one working seriously with living [or pressed] vascular plants should be without a copy” – quoting from two recent reviews, but not the latest one in *Watsonia* **27(4)**: 390-391 (2009). It has an entry (of course) for *Haloragis* (p.387), but (space-limited) it fails to state that only 28 species (currently) remain herein. The other 41 species are now hived back (the familiar botanical see-sawing) to *Gonocarpus*, including our *G. micranthus* Thunb. Sell & Murrell’s *Flora* **3**: 97 (2009) failed to spot this subtlety, and also mis-spelt the new/old genus in the synonymy. Simply put, any “*Haloragis* sp.” with fruits 1-locular (and not 2- or 4-locular) should be changed back to a *Gonocarpus* sp., as was the case in 1783 (do you remember?).

I cannot find any illustrations of *Haloragis* (*sensu lato*) in British or Irish floras, apart from the one in *The Vegetative Key* (2009). Take your copy out into the bogs of Ireland (and Siberia too!), and seek further localities that probably remain undiscovered. Remember that it is a very tiny plant. Six further illustrations, showing flowers and fruits, can be located via the references given in the BSBI’s *Alien plants of the British Isles* (1994), p.187, but the whole entry should now be deleted.

Need I stress it? I regard *Juncus planifolius* as an equally blatant native of Ireland, to be treasured, and not blighted as an unloved, alien species. Who will write to support me, or to scientifically contradict me?

Hands-free magnifier

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When I am dissecting something in the fingers of both hands, like a grass flower, in the home or in the field, I sometimes try to hold a jeweller’s (watchmaker’s) eyeglass in my eye. However, try as I will, it is not long before it drops out! I was therefore very glad to come across one which has a stiff sprung loop which fastens very easily around my head. It also has the advantage that the eyeglass can be used

with glasses, fitting over the front of spectacles. It can be obtained from Jack’s Toolshed in the USA quite cheaply - \$2.39 plus carriage. Go to www.jackstoolshed.com, and in the Product Search box (“Let Jack the wonder dog find what you need”!) type in ‘Jeweler’s Hands-free Eye Loupe Magnifier’. Note there is only one letter ‘l’ in American ‘Jeweler’s’!

Inland *Epipactis dunensis* (Dune Helleborine)

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Two recent articles (Harrap 2009; Richards & Squirrell 2009) have sought to clarify the distribution of the species within the *Epipactis leptochila* (Narrow-lipped Helleborine) complex in Great Britain. I would take issue, however, with the impression left by the latter that all inland populations of *E. dunensis* (Dune Helleborine) are of the same appearance, and further that they are all indistinguishable from coastal populations. This is not the case. Indeed I would argue that it has not yet been proven that all the inland populations are referable to *dunensis*.

Harrap quite rightly alludes to the fact that *E. leptochila* and *E. dunensis* until quite recently have been confused, resulting in concomitant errors in our understanding of their relative distributions. Indeed, as recently as 2005, Foley and Clarke show the distribution of the latter species extending into Scotland. Much of this confusion has been driven by the often *leptochila*-like appearance of the epichiles of some plants within certain well-visited Tyne river-gravel populations, notably that at Williamston Northumberland Wildlife Trust reserve. Here and elsewhere in Northumberland, plants with long pointed epichiles have been dubbed “aff. *leptochila*” (Ettlinger 1998).

Were all the inland populations of *E. dunensis* morphologically identical to those at coastal sites, as claimed by Richards & Squirrell, then arguably the true status of *E. leptochila* as a plant restricted in the UK to beechwoods in southern England would not have been masked for so long. The simple fact is that we do not know if the inland and coastal populations are morphologically identical, as no one has done the necessary work. The data produced by Richards & Squirrell in support of their claim is entirely genetics based.

An additional difficulty is that not all inland populations of plants referable to *E. dunensis* have been genetically sampled. The list in Squirrell *et al.* (2002) excludes all the three

known inland Cumbrian populations, as well as those in North Lincolnshire and Lancashire. Most, if not all, of these were unknown at the time. The third population referred to by Richards & Squirrell was in fact also in North Lincolnshire, and not South-east Yorkshire as stated. This population, on Crowle Moors, was extirpated in the mid 1990s, when the site flooded. It was also not sampled genetically.

So, what do we really know of the inland populations and how do they differ from plants at coastal sites, if at all? That the populations found on the Tyne river gravels in Northumberland, with plants of similar appearance extending into Cumbria, look different is undeniable. They have a different ‘jizz’. Overall, the epichiles appear cleaner and whiter, largely lacking the often strong pink flush found in typical coastal plants. Additionally, the base of the pedicel is – without exception in my experience – green in colour. In contrast, most, but by no means all, coastal flowers show a pink/red tinge to the base of the pedicel. Other so-called differences, such as the implication that the Tyne plants invariably show a pointed epichile, which is recurved, and have an overall cleaner appearance (Harrap 2005) are not borne out by field experience (Lynes in prep.).

Away from the Tyne river system and Cumbrian railway infrastructure, two further extant inland populations are known. Both differ in appearance from those in Northumberland and Cumbria. The population in North Lincolnshire is small, with from 4 to 23 spikes and grows under *Betula* (birch) in a rather damp hollow. It is confined to an area of no more than 20 square metres, and is vulnerable to trampling, with many of the plants very small and often hidden in vegetation. I would therefore not encourage further site identification. Plants at this site show a red tinge to the base of the pedicel and invariably a particularly strong pink wash to the epichile. This can be especially pronounced on some plants and

has led to suggestions (A.J.Richards pers. comm.) that there may be some introgression from *E. helleborine*, although this species is not present on site. An unusual plant seen in 2007, but not subsequently, possessed the broad, rounded and ribbed leaves so typical of *E. helleborine*, spiralling up a stem which was topped with a dense *helleborine*-like flower spike. The flowers, however, appeared identical to those of the other plants on site, and were autogamous.

The Lancashire population is much larger, with up to 165 spikes counted in recent years (J.Miller pers. comm., personal experience), and is spread over a large area. It grows on land which is undoubtedly contaminated. Slightly atypically for *dunensis* – traditionally associated with *Betula* – plants at this site grow under a variety of tree species including *Populus* (poplar) sp. and *Crataegus monogyna* (Hawthorn). The Helleborines here also show both a red base to the pedicel and usually a pinkish wash to the epichile, although the latter appears less pronounced than found on the Lincolnshire plants. Interestingly *E. helleborine* does grow at this site, and the appearance of a few plants, nominally *dunensis*, showing atypically broad, more rounded leaves, may again suggest introgression from *E. helleborine*. As no genetic work has been carried out on either the Lincolnshire or Cheshire sites, then a situation similar to that found on the Scottish bings, where similar plants occur and the populations are known to lack the classic genetic signature of English *E. dunensis*, cannot be ruled out.

Conscious of the lack of published data, I have been collecting morphological data from *E. dunensis* populations since 2007. Following the contentious splitting of the Tyne plants as ssp. *tynensis* by Kreutz (2008), this work has been intensified and broadened to include the plants on Lindisfarne. *E. sancta* (Lindisfarne Helleborine) is a taxon which has been woefully neglected since its effective split in 2002. A lack of meaningful data means we still do not know whether this taxon is morphologically distinct from *E. dunensis*.

To date I have datasets from most of the coastal populations, two of the three known Cumbrian sites, a number of ‘Tyne’ sites, both of the ‘non-Tyne’ populations and, of course, *E. sancta*. An additional east coast population of *dunensis*-type plants could not be found in 2009, and may have gone. It is hoped to collect genetic datasets in 2010.

It is only by collecting sufficient morphological data and allying it to any genetic data available, that it may be possible to say with any degree of certainty whether all the inland populations of presumed *dunensis* are indeed that species. Whether some of the English populations are also contaminated with genetic material from *E. helleborine* and whether, as I suspect many of us hope, the plants on Lindisfarne are as holy as suspected also remains to be discovered. From the data currently available it is not possible to substantiate the claim by Richards and Squirrel that all the inland populations are referable to *E. dunensis*, nor that such plants are morphologically identical to those in coastal localities. Thus the splitting by Kreutz of the Tyne populations as ssp. *tynensis*, far from being the “noble option” suggested by Cole (2008), also looks premature at best. There must surely be other undiscovered or undisclosed inland populations of *dunensis* type plants. Rumours persist of a site in Worcestershire for example. I would welcome any information.

Acknowledgements:

Jeremy Roberts provided invaluable constructive criticism of an earlier draft of this article.

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Onobrychis viciifolia (Sainfoin)

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Eric Clements's note (*BSBI News* **112**: 19-20) is interesting, and I agree with his suggestion that cytological work could only assist in determining whether there is a native subspecies. But he omits points that I think are significant and makes conclusions that seem to me to be somewhat tenuous.

The first record in Britain is not that of Gerard. Michael Foley wrote in 2005 (*BSBI News* **99**: 71-72) of annotations by the botanist Thomas Penny (c.1530-1588) to Conrad Gesner's collection in Switzerland. Michael has supplied me with further details, including Penny's annotation for this species as "*provenit in agro Cantabrigensi in Anglia circa agrorum margines*" (this in turn derives from the work by Zoller *et al.* (1979) on this important herbarium). Thus this record could be either of a weed in arable fields, or in the balks around them (see below). Incidentally, Penny left for Switzerland in 1565, so I am dating the revised first record in Britain as made by that date, in my forthcoming revision of Clarke's *First Dates*.

Later in the note, Clement, in citing Gerard's record from Barton Hill in Bedfordshire, opines that 'to quote such an obscure locality, it was clearly an unusual find, and not part of a farmer's crop'. I fail to follow this, and the very fact that Abbott, in his *Flora* 200 years later, still found it rare, is a statement of fact with no significance that I can see. It might well have been a rare establishment, or a rare native, until obscured by later plantings and escapes. Ray, in his *Catalogus plantarum*

circa Cantabrigiam nascentium, published in 1660, found it on the Gogmagog Hills and on the balks all thereabouts, and, again, it is difficult to draw any conclusions from this.

Clement cites with disapproval Stace's view as "possibly native" in his 1997 *Flora*, but omits the view in the *New atlas* (Preston *et al.*, 2002), where we categorised it as 'native or alien', echoing Stace's views, and stating that the chalk downland form might be native, though of course it may, like other plants such as *Gastridium ventricosum* (Nit-grass), or *Gaudinia fragilis* (French Oat-grass), have spread from the fields into the adjoining grassland. I note that most of my W. European Floras doubt its nativeness anywhere in that area, hazarding that it arrived from the east and Asia Minor.

I agree with Clement that if there really is a native subspecies, which I am quite happy to believe, it should be protected and encouraged, but it will be fun trying to establish which are which subspecies, and, frankly, there are plenty of better candidates!

I am grateful to Chris Preston for comments and sources.

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Ophrys sphegodes (Early Spider Orchid) count in Dorset

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Ophrys sphegodes (Early Spider Orchid) has declined in Britain over the last hundred years, both through ploughing and also through changes in grazing, but it still has strongholds in parts of Kent, Sussex and Dorset. In Purbeck, Dorset, its main national stronghold, it is found chiefly on south-facing slopes on the south coast; on grazed limestone grassland, especially on The Wares, most of which is owned by The National Trust (NT); and on Dorset County Council's Durlston Country Park.

This orchid is the logo of the Dorset Wildlife Trust. This has recently been re-designed, and now shows, appropriately, an Early Spider Orchid on a sloping field with the sea adjoining.

Good management involves grazing the land where possible with cattle in the spring once every few years, to the disadvantage of the flowering spikes in that year only, in order that young growth of *Brachypodium rupestre* (Tor-grass) is grazed well. Cattle avoid this grass when it is older, to the long-term detriment of the orchids and other flower species. There will always still be plenty of Tor-grass for the Lulworth Skipper butterfly *Thymelicus acteon*, whose food plant it is.

Counts

In 1986 a count of the flowering spikes was made by Dick Burt, a County Council Countryside Ranger, and others. A repeat count was made by him in 1996. The totals were 10,381 and 10,907 respectively. Last Spring (2009) the National Trust's Purbeck Estate Ecologist, Angela Peters, coordinated a third count, with Durlston Country Park Rangers and the writer organising the counting outside NT areas. At peak flowering time, which is now the second half of April, fifty to sixty volunteers counted, both in areas where orchids were known and

in areas to which they might have spread. This survey counted 49,256 flowering spikes. It is realised that numbers fluctuate year-on-year due to weather, but nevertheless this was a very positive result. This good news is an indication that those who look after the land are in general managing it well. 25,663 were found in just one large south-facing NT field (ware) immediately west of Dancing Ledge. 21,670 were in 19 other NT fields bordering or close to the sea. 310 were in cliff quarries. Exactly 1000 were counted in Durlston Country Park, including some in five fields where the species had not been seen before. 26 flowered late on the Dorset Wildlife Trust's Townsend Reserve in Swanage, which is not south-facing. Eleven other fields, mostly private, held small numbers of orchids. A total of sixteen were in four private gardens.

Most fields surveyed are too steep or rocky to plough. However, in two fields which had been ploughed until the late 1960s no Early Spiders were found in 1986, 28 and 248 respectively in 1996, and 1005 and 591 respectively in 2009. In two other fields which were last ploughed in the late 1970s none were found in 1986, one each in 1996, and 422 and 187 this year.

It is a puzzle that only eight spikes were on the Chalk ridge, all the rest being on Purbeck Limestone; whereas in Sussex and Kent they are plentiful on restricted areas of Chalk. The prevailing wind should carry seed from the Purbeck Limestone to the Purbeck Chalk.

Method

Fields where the orchids were at their most dense were counted by small teams of three to six people, walking in line five metres apart. Each carried two-metre bamboo canes, to help keep themselves a constant distance from the next person. Plastic bags on walls or hedges were used as markers for

the first person to walk towards. Where there was a rise in the middle of a field, preventing vision right across it, extra bags were used as markers on the rise.

Keeping in line abreast enabled neighbouring team members to agree which of them would count the orchids which were about halfway between them. The person counting furthest from the starting wall during the first walkover became the first person for the next walkover, so that he/she was walking adjacent to their previous strip and would remember, hopefully, which orchids on their boundary they had already counted.

Many thanks to all volunteers who helped with the count, and to the landowners, farmers, graziers, wardens and rangers involved.

Elsewhere

Correspondence with Vice-county Recorders elsewhere (thanks to all concerned) revealed the following information: the last record of a single plant in South Hampshire was in 1978; The Isle of Wight in 2003; Gloucestershire in 1989 and Suffolk in about 2000.

In East Sussex it occurs in two tetrads: the figures in 2008 were 2000+ in one and 68 in the other; there have been higher figures in the past (10,000 in the larger site). In Kent it has occurred in 21 tetrads since 1991; recent figures are not available for most of them, but several colonies in the Dover area had 200+ plants flowering this year; at least one of those had more in the past.

Waveney Forest saved from gravel extraction

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During the past eighteen months I have been involved in gathering records from local naturalists for the former Suffolk sandling heath at Waveney Forest, Fritton (TG4601) (v.c.25: East Suffolk and v.c.27: East Norfolk, due to the change in the political boundary in the 1960s). We botanists therefore consider it to be Suffolk for recording purposes, as the Watsonian boundary of Suffolk reaches the south side of Breydon Water.

In 2008, Norfolk County Council announced that the forest, mainly planted with *Pinus sylvestris* (Scot's Pine) in the mid 1950s, would be felled, and a series of gravel pits would be dug; but after the extraction the site would be turned into a nature reserve with flooded pits. During my work there I made enemies, mainly the locals, who were more worried about losing a dog walking site, which involved the police in an attempted blackmail "to stop me sending in my records", and one case of bribery, which I declined.

The site, particularly along the edge of the River Waveney, produced the scarce *Althaea officinalis* (Marsh-mallow), *Sonchus palustris* (Marsh Sow-thistle), *Erica cinerea* (Bell Heather) and *Calluna vulgaris* (Heather).

Several meetings and petitions were written, and many local naturalists, who are now firm friends, rallied round and supported the cause.

In June 2009, I was informed the site would not become a gravel pit, due to the rare flora and fauna found there by my team of naturalists. I have hundreds of records of not only my own but the Lowestoft Field Club, the late Harold Jenner, and Dr E.A Ellis. Sadly, the locals were not really interested in the wildlife in the forest but the most concern was as where they would walk their dogs!

The underlying message is that all natural history records from past to present were able to be collated and a report made, which helped the Norfolk County Council decide that the wildlife was just too important to destroy by gravel workings.

Snippets from v.c.24 (Bucks.)

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Since the publication of our vice-county Checklist in 2005, there have been some changes. We have very few active recorders in the county, but in September 2007 a Rare Plants Recording Group was set-up and some of its members have added to information coming in. Much of it has been to confirm what we already knew but new sites have been discovered that demoted some of our 'rare' plants to being 'scarce'! Other of our rare plants were looked for but not found. Are they extinct? Management work at the only known sites in the country/county for *Gentianella ciliata* (Fringed Gentian) and *Arabis glabra* (Tower Mustard) has ensured that these sites are preserved.

Some updates to species recorded in the Checklist include:

Amsinckia lycopsoides (Scarce Fiddleneck) – 2007, *Atriplex littoralis* (Grass-leaved Orache) – 2007, *Caucalis platycarpus* (Small Bur-parsley) – 1946, *Consolida regalis* (Forking Larkspur) – 2005, *Epipactis phyllanthes* (Green-flowered Helleborine) – 2009, *Euphorbia ×pseudovirgata* (Twiggy Spurge) – 2007, *Glyceria fluitans* × *G. declinata* – 2006, *Hedera colchica* (Persian Ivy) – 2006, *Helianthus ×laetiflorus* (Perennial Sunflower) – 2005, *Hieracium sabaudum* – 2005, *Hieracium scotostictum* – 2005, *Lonicera henryi* (Henry's Honeysuckle) – 2005, *Prunella laciniata* (Cut-leaved Selfheal) – 1987, *Pyrus pyraeaster* (Wild Pear) – 2009, *Rubus bloxamianus* – 1998, *Rubus cardiophyllus* – 1987, *Rubus echinatoides* – 1998, *Rubus echinatus* – 1995, *Rubus flexuosus* – 1998, *Rubus insectifolius* – 1986, *Rubus lindebergii* – 2006, *Rubus moylei* – 1984, *Rubus pedemontanus* – 1998, *Rubus platyacanthus* – 2006, *Rubus raduloides* – 1984, *Rubus rudis* – 1998, *Rubus rufescens* – 1998, *Rubus sciocharis* – 1987, *Rubus vestitus* – 2006, *Rubus watsonii* – 1998, *Salix*

pentandra (Bay Willow) – 2005, *Setaria verticillata* (Rough Bristle-grass) – 2005, *Spiraea douglasii* ssp. *douglasii* (Steeple-bush) – 2008, *Taraxacum glauciniforme* – 2006, *Taraxacum quadrans* – 2006, *Teesdalia nudicaulis* (Shepherd's-cress) – 2008, *Verbascum lychnitis* (White Mullein) – 2005.

A number of species have been recorded for the first time:

Cardamine corymbosa (New Zealand Bitter-cress). A small group of plants was found in a garden in Great Horwood, close to some recently planted heathers, so, presumably, they too, came from the garden centre. April 2009.

Corydalis cheilanthifolia (Fern-leaved Corydalis). A couple of plants were growing in the cracks between bricks which led to a garden - ? from where the plants had originated. March 2007.

Crassula tillaea (Mossy Stonecrop). Found in June 2002 in the bare soil at College Lake but it was not seen (nor looked for) on the BSBI meeting in June 2009!

Cyclamen coum (Eastern Cyclamen). Doubtless originally planted, but naturalised in Horn Hill churchyard. February 2006.

Dryopteris cycadina (Shaggy Wood-fern). A garden escape found at Holtspur in August 2006.

Hypericum hircinum (Stinking Tutsan). An old record in a hedgerow at Bourne End from 1956 was discovered.

Matteuccia struthiopteris (Ostrich Fern). This is well-established in a garden planting at Bledlow. September 2004.

Oxalis laxa (Dwarf Wood-sorrel). Probably the best find of 2009. It was identified for us by Mark Watson, who believes it to be the first sighting for the United Kingdom. Found not far away from the *Cardamine corymbosa* site, but between

pavement cracks and in wood chips in the grounds of the local pub. It is a native of Chile but weedy in California. How did it arrive here in May?

Plantago afra (Glandular Plantain). Another pavement crack weed – just a couple of plants. Again, its origin is unknown. June 2008.

Rorippa austriaca (Austrian Yellow-cress). A few plants in flower and fruit were found by a “mock canal” in Old Wolverton in July 2008. They soon died but, hopefully, some seeds germinated.

Rubus leptadenes - July 1998, from Lee Clump.

Rubus loganobaccus – August 1987, from Great or Little Brickhill.

Rubus rhombifolius – 1987, from Great or Little Brickhill.

Selaginella kraussiana (Krauss’s Clubmoss). 2 small patches were found in an old shrubbery near Fawley in August 2008.

Senecio inaequidens (Narrow-leaved Ragwort). This does not seem to have reached us in any quantity – yet? Its first record was at a farm in Hillesden in September 2008.

Solanum physalifolium (Green Nightshade). A single plant was flourishing in a pile of imported soil (?from Northamptonshire) in the Open University grounds. September 2006.

Spiraea ×rosalba (Intermediate Bride-wort). Doubtless of garden origin, from East Burnham Common in 1999.

Viburnum farreri (Culver’s Root). From a field and waste ground near Taplow in 2006.

×*Gymnoglossum jacksonii*. An old and undated record from the Chilterns.

Other sightings for 2009:

Amaranthus bouchonii (Indehiscent Amaranth). One plant was found in October along a fence line between a grassy area and a small garden managed by the pupils at a school in Great Missenden.

Bolboschoenus maritimus (Sea Club-rush). First recorded in the early 1970s from a disused and water-filled gravel pit, and probably brought there by visiting water fowl. This year it was recorded (by a visitor from Cornwall) in “a dampish area of a dreary-looking grassy field” not far from the Aylesbury arm of the Grand Union Canal and only just in Bucks! Quite a new area and habitat for us.

Bromus secalinus (Rye Brome). On our Rare Plant list, it was seen in vast quantity in field margins on the Hillesden farm. It may have to be relegated to Scarce!

Bunium bulbocastanum (Great Pignut). This had not been seen for several years at its, otherwise, well-known site near Ivinghoe Beacon. This year basal leaves were seen early and four plants in flower in June.

Drosera intermedia (Oblong-leaved Sundew). Although last seen in the county in 1993 (for just that year) it had not been seen in Burnham Beeches since the 1960s. Both times there were very few plants and in tracks left by vehicles.

Galium pumilum (Slender Bedstraw). Until 2007, the last record we had for this species was 1897! Amazingly, it seems to have reappeared in the same field where it was last seen. In 2009, about 30 parts of the field had between 1 and 18 plants, so it seems to be surviving well.

Hydrocharis morsus-ranae (Frogbit). Another ‘return from the dead’ – though it must have been present since its last record in 1982. A chance meeting with a mycologist who was looking for a fungus on its leaves told us of its presence in the Slough Arm of the Grand Union Canal. A search was made and the Frogbit was found along the whole length of the canal in v.c.24 (and into v.c.21, Middlesex). There were no signs of the smut fungus!

Pulsatilla vulgaris (Pasqueflower). Always rare in the county, but regularly seen at one site near Ivinghoe. This year one of its old sites was re-found, with just a few plants.

Hell Kettles – a forgotten corner

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The purpose of this research was to investigate whether the flora, that was recorded in this area over one hundred years ago, is still surviving. Hell Kettles consists of two ponds situated in a marshy field between Darlington and Croft-on-Tees (NZ281.109). Famous botanists of Darlington: Stephen Robson (1777), Dr R. Taylor Manson (1884), and J.B. Nicholson (1929) visited and recorded plants at Hell Kettles. Taylor Manson, past president of Darlington and Teesdale Naturalists' Field Club and author of the book *Zig-zag ramblings of a naturalist*, said, and I quote: "I very heartily wish that before long a Naturalists' Field Club may take up the work I have begun". This was the inspiration for my work. Taylor Manson explained the formation of these Kettles, stating: "Hell Kettles, [are] situated on...strata which [are], in a descending order.... 1. Alluvial clay, sand, gravel and clay; 2. Red sandstone; 3. Magnesian limestone. A series of cavities in the magnesian limestone filled with water, which was under pressure.... During wet weather hydraulic pressure caused the gravel and clay roof to force outward by water and by compressed gases.... resulting in the formation of these kettles.... water charged with salts of magnesia, lime and soda still flows from the Magnesian limestone." The maps presented were drawn in 1855 and 1896, showing four kettles. The 1967 map shows only two kettles.

My recordings were taken from the years 2006 to 2009. The Double Kettle, situated not far from Croft Kettle, has a pH of 7.0, and surface water reaches freezing point in the winter. Here, at the edge of this kettle *Schoenoplectus lacustris* (Common Club-rush) and *Schoenoplectus tabernaemontani* (Grey Club-rush) are growing in the thick mud. The area surrounding the Double Kettle also supports many plant communities, e.g. *Alisma plantago-aquatica* (Water-plantain),

Sparganium emersum (Unbranched Bur-reed), *Galium palustre* (Marsh Bedstraw), *Juncus subnodulosus* (Blunt-flowered Rush), *Eleocharis palustris* (Common Spike-rush) etc. Again, not far from these plants, I have recorded significant different plant communities, e.g.: *Stachys officinalis* (Betony), *Galium verum* (Lady's Bedstraw), *Campanula rotundifolium* (Harebell), *Blysmus compressus* (Flat-sedge) etc. There is a characteristic growth of plant communities surrounding each kettle, and between the two kettles. In the area between Croft Kettle and the Double Kettle grows *Scrophularia auriculata* (Water Figwort), *Lychnis flos-cuculi* (Ragged Robin), *Hypericum tetrapterum* (Square-stalked St John's-wort), *Carex otrubae* (False Fox-sedge), *Ranunculus flammula* (Lesser Spearwort), *Caltha palustris* (Marsh Marigold), *Juncus subnodulosus*, *Eleocharis palustris*, *Deschampsia cespitosa* (Tufted Hair-grass), and many *Dactylorhiza fuchsii* (Common Spotted-orchid).

There were some plants recorded by Taylor Manson and Nicholson that I could not find during my study period. They were: *Thalictrum flavum* (Meadow-rue), *Stellaria palustris* (Marsh Stitchwort), *Angelica sylvestris* (Wild Angelica), *Valeriana officinalis* (Common Valerian), *Eupatorium cannabinum* (Hemp Agrimony), *Achillea ptarmica* (Sneezewort), *Solanum dulcamara* (Bittersweet), *Veronica scutellata* (Marsh Speedwell), *Pedicularis palustris* (Marsh Lousewort), *Utricularia vulgaris* (Greater Bladderwort), *Scutellaria galericulata* (Greater Skullcap), *Persicaria amphibia* (Amphibious Bistort), *Iris pseudacorus* (Yellow Iris), *Juncus bufonius* (Toad-rush), *Carex acutiformis* (Lesser Pond-sedge), *Carex muricata* (Prickly Sedge), *Ophioglossum vulgatum* (Adder's-tongue Fern), *Epipactis palustris* (Marsh Helleborine), *Listera ovata* (Twayblade), *Hydro-*

cotyle vulgaris (Marsh Pennywort) and *Trollius europaeus* (Globe-flower).

Identity of the orchid species was not clear – ‘*Orchis maculata*’ could be *Dactylorhiza maculata* (Heath Spotted-orchid). Again, I could not find *Carex vulpina* (Fox-sedge), and instead found *Carex otrubae*. Due to the sensitive nature of the kettles, and with preservation in mind, *Potamogeton* and Charophyte species have not been studied for identification.

I found *Cladium mariscus* (Saw-sedge) was recorded by Stephen Robson in 1777, and then, in 1834, Gordon’s Guide to Croft mentions this plant. It was also recorded by Taylor Manson in 1884 and Nicholson in 1930. It is growing at the water’s edge in both kettles. Unfortunately I could not find Stephen Robson’s comprehensive list of plants. Another group of plant they all recorded, and still seen here, are the Charophytes. They can be seen submerged in Croft Kettle - a record surviving 232 years.

I found that Taylor Manson’s list did not describe any boundaries. In the year 1884, as he had been rambling through Hell Kettles, he described various plants meticulously. These descriptions were simple so that people could identify and enjoy botany. He described *Triglochin palustre* (Marsh Arrow-grass) flowers as being small and scattered over the upper part of the stalk, the petals green, tinged with brown. One plant that attracted his eyes and flourished among the mosses and grasses was *Scrophularia auriculata*. He said “figwort has a flower of a fine crimson colour, shaped like a small pea blossom turned upside down”. These plants are still blooming here.

Well – this was in 1884, then in 1929 another botanist from the same club, J.B. Nicholson, researched and recorded all the plants in Hell Kettles, and most of the plants present today superimpose on old records quite well. The following plants were recorded from 2006 to 2009, and also represent Taylor Manson’s records.

List of plants recorded in Hell Kettles in 1882,1884,1929, and 2006 - 2009

<i>Achillea millefolium</i>	<i>Epilobium parviflorum</i>	<i>Ranunculus acris</i>
<i>Alisma plantago-aquatica</i>	<i>Equisetum arvense</i>	<i>Ranunculus aquatilis</i>
<i>Alnus glutinosa</i>	<i>Equisetum palustre</i>	<i>Ranunculus bulbosus</i>
<i>Alopecurus geniculatus</i>	<i>Galium palustre</i>	<i>Ranunculus ficaria</i>
<i>Barbarea vulgaris</i>	<i>Galium uliginosum</i>	<i>Ranunculus flammula</i>
<i>Berula erecta</i>	<i>Galium verum</i>	<i>Ranunculus repens</i>
<i>Blysmus compressus</i>	<i>Geum rivale</i>	<i>Ranunculus sceleratus</i>
<i>Briza media</i>	<i>Glyceria fluitans</i>	<i>Rorippa nasturtium-aquaticum</i>
<i>Caltha palustris</i>	<i>Hippuris vulgaris</i>	<i>Schoenoplectus lacustris</i>
<i>Campanula rotundifolia</i>	<i>Hypericum tetrapterum</i>	<i>Schoenoplectus tabernaemontani</i>
<i>Cardamine pratensis</i>	<i>Juncus inflexus</i>	<i>Scrophularia auriculata</i>
<i>Carex hirta</i>	<i>Juncus effusus</i>	<i>Sparanium emersum</i>
<i>Carex otrubae</i>	<i>Juncus subnodulosus</i>	<i>Stellaria graminea</i>
<i>Carex panicea</i>	<i>Lemna minor</i>	<i>Stellaria uliginosa</i>
<i>Charophyte spp.</i>	<i>Lotus uliginosus</i>	<i>Succisa pratensis</i>
<i>Cirsium palustre</i>	<i>Lychnis flos-cuculi</i>	<i>Taraxacum officinale agg.</i>
<i>Cladium mariscus</i>	<i>Mentha ×verticillata</i>	<i>Triglochin palustre</i>
<i>Dactylorhiza fuchsii</i>	<i>Myosotis laxa</i>	<i>Veronica anagallis-aquatica</i>
<i>Deschampsia cespitosa</i>	<i>Myosotis scorpioides</i>	<i>Veronica beccabunga</i>
<i>Eleocharis palustris</i>	<i>Oenanthe fistulosa</i>	<i>Veronica officinalis</i>
<i>Epilobium hirsutum</i>	<i>Phragmites australis</i>	
<i>Epilobium palustre</i>	<i>Potentilla anserina</i>	

It can be appreciated from the above list how rich these kettles were, and still are, and in such a small area. It is the underlying geology that holds the key for richness in species. Here the pH of the soil and water varies from acid, neutral to alkaline. The ground around the kettles is ‘poached’ by cattle, creating small indentations that hold water and keep the soil structure moist. *Triglochin palustre* and *Glyceria fluitans* are found here. This area is rich in *Oenanthe fistulosa*, *Berula erecta* and *Cladium mariscus* that grow close to the water’s edge. The water in Croft Kettle does not freeze and is also quite alkaline, with a pH of 8.0. This kettle gets its supply from an underground spring in the Magnesian limestone. This is the only kettle that has an underwater garden of the Charophyte community. Factors that may have contributed to the disappearance of plants were land drainage, road building nearby, public access for fishing, global

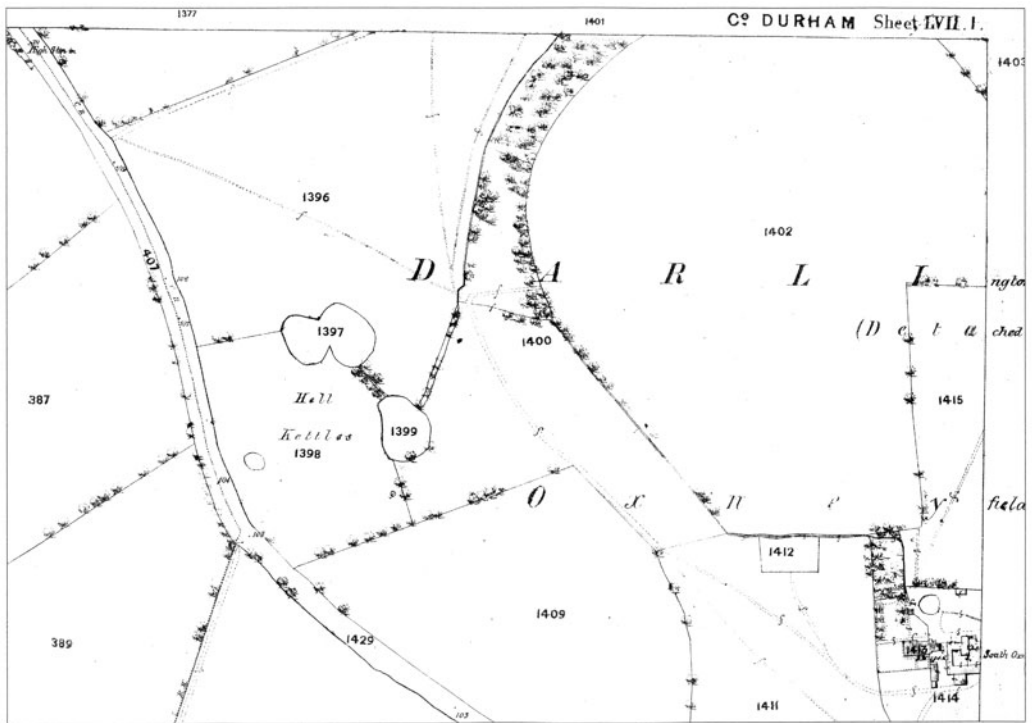
temperature changes and development of housing nearby.

I hope the plants retain their glory in Hell Kettles and conservation remains a top priority. It is not only the plant communities but also other species: insects, butterflies, birds and fish that thrive here.

I would like to thank Mr and Mrs Fell for kindly giving me permission to study Hell Kettles and also Gordon Simpson BSc, MBE, for verifying identifications *in situ*.

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MAP OF HELL KETTLES 1855

Map of Hell Kettles-1855 showing four kettles

Chemically-induced colour changes in three diverse angiosperm species

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Anthocyanins are water-soluble vacuolar pigments that, like litmus, may appear red, purple or blue, according to pH. *Hydrangea macrophyllus* (*Hydrangea*) flowers have sepals which can be pink in acid (low pH) soil, purple in neutral soil and blue in alkaline soil. The purple Sycamore (*Acer pseudoplatanus* ‘*Atropurpurea*’) has leaves with beautiful purple undersides. Household ammonia vapour on wet-rubbed undersurfaces of these leaves can change the pink-purple to steely Prussian blue; or, putting the leaf across the bottle neck opening and inverting the bottle gives a blue ring. Too little ammonia may not penetrate the waxy surface, but too much may damage the leaf chemistry. However, if careful, vinegar or other acids can reverse the colour to purple and then clear pink. I made aqueous solutions of this purple pigment, which behaved like litmus, with reversible colour changes: pink « purple « blue. If too much chlorophyll from the finely cut up and microwaved leaves contaminates the solution, the reaction tends to be pink « purple « black.

Spirodela polyrhiza (Greater Duckweed) had no less than 13 earlier scientific binomials (Sell & Murrell 1996). One of these was *S. atropurpurea* Montadon. The late August and September fronds usually develop the purple pigment on the undersurfaces, and it can spread to the edges of the uppersides too. Because of the colour similarity to the purple Sycamore leaf undersurfaces, I repeated the above procedures. It was possible to use the fronds as if they were bits of litmus paper, providing the surface waxiness was penetrated and the chemistry not too drastic. Again, a pink solution could be extracted, which could undergo the pink « purple « blue (black) reactions, depending on the pH. The purple pigment spreads down the *Spirodela* roots, and microscopic scrutiny appears to show that it inhibits internal invasion of the tissue of these roots by filamentous algae (*Entocladia*).

Cornus sanguinea (Dogwood) is characterised by red pigment on the sunny side of its twigs.

By July/August, the leaves can go red too. The red pigment, presumably a closely-related anthocyanin to the above purple pigments, failed, in the leaves of this species, to show the above, reversible indicator colour reactions. Ammonia to the outside of the red twigs was likewise ineffective, but caused rapid blackening when the solution was fed in via the woody cut end, i.e. from underneath any protective surface chemical layers.

“Anthocyanins are red to blue flavonoid pigments used throughout the plant kingdom...” (Hollinger 2009). In the angiosperms, they colour flowers, fruits, and autumn leaves, acting as attractants for insects in flowers, as ultraviolet screens and anti-feedants in leaves, and as powerful anti-oxidants in tissues (Hollinger 2009; Sullivan 2009; Wikipedia 2009). Cameron Crook told me (in. litt.) that the purple pigment on some leaf undersurfaces may reflect light back to the mid-leaf chloroplasts, thereby giving them a second go (from the opposite direction) at sugar manufacture. The local purple Sycamores (*Acer pseudoplatanus purpurea* and ‘*Atropurpurea*’) are quite as vigorous as their green counterparts, and more effective at blocking out light to competing brambles and other saplings beneath their shade (as with Copper Beeches – another anthocyanin function?).

I have several reasons for thinking that the reactive rich purple pigment on the undersurface of *Acer pseudoplatanus purpurea* and ‘*Atropurpurea*’ leaves and *Spirodela* fronds is a different anthocyanin from the Dogwood red pigment, or the red pigment seen on so many *Acer* fruits, or the autumnal reds (Moore 2009). I would be interested to hear if the same colour reactions occur in other purple plants (e.g. the house-plant *Setcreasea purpurea* (Purple Heart)), or purple variants of other plants, and have yet to see whether ammonia vapour can change some pink petals to blue.

Acknowledgements:

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Paniculate plantains

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One of the joys of being an adult education tutor is the interesting items that participants bring in to challenge your brain. One dull October 2008 morning, David Evans from Weston, Shropshire, strolled into the classroom carrying a large carrier bag containing a 50cm high specimen of *Plantago major* (Greater Plantain) with a large pyramidal branched inflorescence, found on a roadside verge near Marchamley in lowland north Shropshire (see Colour Section, Plate 2). Looking deceptively innocent, he asked me if I knew what it was.

Martin Cragg-Barber, author of *Botanical Monstrosities*, kindly provided the answer that it could be a form called ‘Tony Lewis’ (a “besom plantain” or a “plantain with spoky tufts”), arising from spontaneous mutation. This type of mutation has long been known, and John Gerard the herbalist from Nantwich (1545-1612) referred to them as besom plantains.

The Victorian botanists gave the name teratology to describe the study of plant monstrosities. Maxwell T. Masters produced a comprehensive treatment of the subject in a book called *Vegetable Teratology*, published by the Ray Society in 1869. There are many known causes of teratogenesis, including genetic mutation, insect action, viral or bacterial damage, and exposure to radiation or to chemicals such as insecticides.

Plantains are one of our richest native genera for supplying aberrations, both in the garden and in the wild. Masters noted that “each

Plantago species seems to have its own perverse mode of growth, for instance the bracteate and paniculate forms are almost exclusively confined to *Plantago major*, the roseate form to *P. media* (Hoary Plantain) and the proliferous form (containing a rosette arising from a normal flower) to *P. lanceolata* (Ribwort Plantain)”.

Gardeners still seek out these botanical oddities with enthusiasm, and the Plantain family has a number of forms, such as ‘*Rosularis*’, which arose from phyllody (a condition where parts of a flower are replaced by leaf-like structures, generally caused by a virus or bacteria carried by insects, but apparently happening spontaneously in *Plantago*); ‘*Atropurpurea*’, a dark-leaved plant; and ‘*Variiegata*’. Some come true from seed and can be purchased via the Internet from only £4.50!

Plantaginaceae has historically been known as a useful medicinal family. *Plantago psyllium* (*P. ovata*) is used in laxatives.

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Ciba-Geigy *Weed Tables*

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In the mid-1970s I worked as a barley-breeder at what was then the Welsh Plant Breeding Station, at Plas Gogerddan, Aberystwyth (now subsumed in I.B.E.R.S. – the Institute of Biological, Environmental and Rural Sciences of Aberystwyth University). In that environment, and in the agricultural mode of the day, which was all about production (Stapledon's famous "two blades of grass where one grew before") arable weeds were seen only as a nuisance to be obliterated. However, within the particular project I worked on, which involved some sophisticated genetic mechanisms, we were concerned that application of chemical weedkillers might interfere with our experiments, so we did not spray. As a result the gaps between the rows of barley in our experimental plots would burgeon with a variety of weeds. In those days I was not entirely enamoured by them since it fell to me and a colleague to hoe out the weeds by hand. Nonetheless, I could not help but notice the different species, some of them rather beautiful, and wanted to know what they were. I had little botanical training at that point, other than agricultural botany – which only covered the crop plants – so I went looking in the Plas Gogerddan library. There I found, to my delight, a copy of the Ciba-Geigy *Weed Tables*.

These consist of individual accounts and illustrations of around 100 herbaceous and gramineaceous arable plants which were considered to be weeds. The accounts and illustrations, each on a single loose sheet of A4 card, are grouped by family in an enclosing folder, which also serves to carry identification details, and black and white line-drawings of a wider range of species within the family. The whole is enclosed in a cardboard box – rather like the familiar 'box file'. The main habit illustrations of the individual species are beautifully and accurately painted water-col-

ours, usually approximately life-size. Both the line-drawings and the water-colours were done by graduates of the scientific drawing class of Karl Schmid at the Zurich School of Applied Arts and have a uniform style.

Accompanying the accounts and illustrations is a rather unique (at least I've never seen one before) circular key to "the plant families with weeds of world-wide importance".

It may seem odd that a chemical company, producing products designed to destroy these plants, should have produced such a beautiful guide to them. I quote from the Editor's foreword: "What can induce a chemical company to produce a scientific work of this sort and distribute it to schools, advisory bureaux and research institutes? We believe that it is no longer enough to develop high-quality products; rather the chemical industry must bear a share of the responsibility for the correct application of its products..... To use plant protection products correctly, it is necessary to recognise the pest or weed in question. This work, concerned solely with botanical interests, with no reference to control measures and hence with some claim to longevity, is intended to close the gap".

I wondered whether the original plates for the illustrations still exist somewhere, so wrote to Ciba (Ciba-Geigy no longer exist) last year, but had no reply. I've also wondered how many copies were produced and how many still exist. Copies can still be obtained from second-hand book dealers, but they seem to be quite uncommon. I bought my own copy in 2006 for about £90.

I am guessing the *Weed Tables* are unfamiliar to most botanists (other than agricultural botanists), but I would be interested to hear from anyone who knows any more about them.

Re-introduction of *Cypripedium calceolus*: update

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The Lady's Slipper re-introduction programme has been ongoing for some 20 years – a long learning curve. Two plants which have survived in cultivation, having been removed from their wild sites in the early twentieth century, are used to cross pollinate the one plant which remains in a wild situation. Seed is then sent to a scientist at the Royal Botanic Gardens, Kew, to be germinated. The resulting seedlings are then passed to volunteers, who are known to be competent, to be kept until they are ready to be planted out.

Initially they were planted in the re-introduction sites after two years and monitored regularly, but it was found that, gradually, they all disap-

peared. As far as possible the plants were protected from predators but they apparently lacked sufficient vigour to enable them to survive. Now they are being kept in cultivation for five years and pampered a little, and they seem to be faring much better after being planted out.

This year, 2009, has been splendid. Flowers have been produced in all the re-introduction sites, and fruits have developed in some. It will be interesting to see if they can do as well next year, or whether they will need a rest to regain their vigour – or will they gradually fade? Only time will tell but, currently, we are optimistic.

Dorset Flora Group and Dorset Wild Flower Week

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The Dorset Flora Group was formed three years ago, following the example of neighbouring counties, all of which have similar organisations. The Dorset Environmental Records Centre (DERC) provides the administrative back-up, including a web site. Other organisations represented on the Committee of ten are Dorset Wildlife Trust, Dorset Natural History and Archaeological Society (DNHAS), Natural England, National Trust, Plantlife, British Wildlife magazine. The Chairman, Robin Walls, is now the BSBI Vice-county Recorder. Another member, the writer of this note, is a Wild Flower Society Branch Leader.

The Group arranges field meetings, some of which have been to sites of known interest, some to record particular areas, and some to record particular species – *Gentianella anglica* (Early Gentian), *Ophrys sphegodes* (Early Spider Orchid), *Hammarbya paludosa* (Bog Orchid). It also holds occasional training days – on grasses, sedges etc, and an exhibition meeting in conjunction with its AGM. It assists the Vice-county recorder with Threatened Plant Surveys, and FWAG (Farming and Wildlife Advisory Group) with arable farm surveys.

Anyone wishing to join the Group should, preferably, email derc@dorsetcc.gov.uk or otherwise write to DERC, Library HQ, Colliton Park, Dorchester, DT1 1XJ. Membership is free.

Last year the Group borrowed an idea from county birdwatchers and organised the first Dorset Wild Flower Week. The idea was to encourage more people to enjoy botanical walks in areas with

interest; the week was targeted at beginners and improvers.

The spring bank holiday week (of nine days!) at the end of May was chosen. Fifteen walks were arranged, spread over the county, with a variety of habitats. Finance for a leaflet (A4 folded to DL) was most kindly provided by the County Council/AONB, who provide similar help to the county Bird Weeks. Wessex Water also gave a grant. Bundles of leaflets were circulated to County Council Visitor Centres, National Trust centres, Dorset Wildlife Trust centres, RSPB centres, Tourist Information Centres and County Libraries. The Week was also publicised in the County Council, Poole Borough Council and Purbeck District Council publicity for all walks in their areas.

Thirteen walks were well attended. One of the two exceptions was due to bad weather, the other was a town walk. Total attendees, some of whom were the same people more than once, were approaching 300.

Some of the walks formed part of another organisation's programme, for example Durlston Country Park, RSPB, Dorset Wildlife Trust. In 2010 it is planned that more will take that form, so as to gain extra publicity. Insurance cover was provided by the DNHAS.

The Group would like to commend the idea of the Week to other counties, as a way of encouraging beginners and improvers. If there is no county botanical organisation, perhaps this could be a spur to forming one?

Botany on the Internet

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Internet Floras are a little-known resource but a welcome addition to typical book texts. This article is by no means exhaustive but will give the user a flavour of those available. Some of the Floras were consulted during the preparation of the *Vegetative Key to the British Flora*, although I am sure there are many cyber-botanists who are far more qualified than me to write on this subject.

Often one requires more information that they may have in their library and the world-wide web provides one such means. Below I discuss a few of my more trusted sites. I still don't believe botanical web browsing will replace books in the foreseeable future, but it permits the botanist access to more information than most shelves or wallets will allow. For example, the majority of members will have internet access but may be unable to purchase all the weighty volumes of the *Flora of China*. It is surprising how similar the identification characters are across the globe so this should not deter the use of world-wide Floras in UK determinations.

My top five websites for Flora-style descriptions for identification are given below.

1. eFloras www.efloras.org
Perhaps the best available. I have found online access to the *Flora of North America* and the *Flora of China* particularly helpful. The *Flora of Pakistan* also gives some good descriptions of British native and alien plants.
2. Flora of New Zealand
<http://floraseries.landcareresearch.co.nz>
A good deal of their alien flora resembles that of the UK. It also covers lichens, which some members may find useful. Sadly, the website can be quite slow, with sessions often 'timing out'.
3. Hardy Fern Library
<http://hardyfernlibrary.com>
An excellent account of hardy ferns (i.e. those winter-tolerant and surviving a minimum temperature of -15°C) ferns.

Obviously the annual *Anogramma* is absent but otherwise comprehensive of British & Irish species.

4. Gymnosperm Database www.conifers.org
This site gives good descriptions of genera but only occasionally of species. Nonetheless, helpful for identification of some of our less widely planted species. Can anyone find a better conifer ID site?
5. GrassBase www.kew.org/data/grasses-db
This 'Online World Grass Flora' covers the vast majority of grasses worldwide. Descriptions are succinct but comprehensive.

In addition to the above, there are numerous other websites which assist with botanical identification. The BSBI website (www.bsbi.org.uk) is an amazing compendium of resources and recent news (including a blog), plus links to BotanicalKeys (interactive ID keys designed by Quentin Groom) and Herbaria@home (an astonishing attempt to photograph and categorise specimens from UK herbaria). Elsewhere, the Ecological Flora Database (www.ecoflora.co.uk) gives a wide range of ecological information.

Other sites worth visiting include: Bioimages – a Virtual Field-Guide to UK Biodiversity (www.bioimages.org.uk), Floral Images (www.floralimages.co.uk), Wild Flowers of the British Isles (www.ukwildflowers.com) and the Flora of Northern Ireland (<http://www.habitas.org.uk/flora/>).

Flora Cyberia (<http://floracyberia.net>) and Wild Plants of Malta (www.maltawildplants.com) both have some useful (European) photos of UK species. The Isle of Skye Flora (www.plant-identification.co.uk/skye) gives some good photos and descriptions.

WildGuides have also published *Arable Plants – a field guide* and *Britain's Orchids* as freely available interactive books (www.wildguides.co.uk).

Those wishing to investigate nomenclature should visit the International Plant Names Index (IPNI) (www.ipni.org) – a database of the names and associated basic bibliographical details. Every plant in the world is featured here.

Virtual botanists may also wish to join eGroups such as UKBotany (<http://tech.groups.yahoo.com/group/UKBotany>) and the wildflower, plant and tree forum on ‘Wild About Britain’ (www.wildaboutbritain.co.uk).

Although not web-based, two excellent CD ROMs are the *Interactive Flora of the British Isles* (Stace *et al*, 2004) and the *Interactive Flora of the Burren, Ireland* (Fitzgerald *et al*, 2008) which can be purchased for use on a home computer.

There are many more websites, and apologies if any members maintain their own. Please let me have any suggestions of useful sites for identification so I can write a future update to this article.

CONSERVATION

The vascular plant red data list for Great Britain: year 2 amendments

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Following publication of the year 1 amendments to the *Red data list* (Leach 2007), the JNCC-coordinated ‘Species Status Assessment Group’ produced an agreed list of Year 2 amendments, covering the period January to December 2007. These changes were incorporated into the JNCC ‘master’ list in August 2009, a copy of which can be found at <http://www.jncc.gov.uk/page-3408>.

As the JNCC spreadsheet is rather large and unwieldy (45.8 megabytes when ‘unzipped’), we give a summary of the ‘year 2’ changes below. It should be noted that all these changes were made by applying the same I.U.C.N. threat criteria (I.U.C.N. 2001, 2003) as those used when compiling the *Red data list* (Cheffings & Farrell 2005).

Eagle-eyed BSBI members will see that quite a few recently described taxa – the flurry of new whitebeams from the Avon Gorge and Cheddar Gorge, for example – are missing from the list. Don’t worry, we haven’t forgotten them! These are being considered as part of the Years 3 and 4 Amendments process, being coordinated this time by the BSBI and covering the period January 2008 to December 2009. We expect that these amendments will be finalised in early 2010 and published in *BSBI News* once they have been added to the

JNCC ‘master’ list – probably in September 2010 or January 2011.

Callitriche palustris is now assessed as ‘Vulnerable’, rather than ‘Endangered’, having been recorded from at least four localities in the Endrick Valley, S.W. Scotland (Mitchell 2006).

There seems to be good support, genetic and/or phenotypic, for recognition of *Dactylorhiza incarnata* ssp. *cruenta* and *D. incarnata* ssp. *ochroleuca* (Bateman pers. comm.). Both taxa were previously listed as ‘Data Deficient’, but have now been re-assessed as ‘Endangered’ and ‘Critically Endangered’ respectively.

Euphrasia cambrica was re-assessed during preparation of the Welsh red list (Dines 2008); previously listed as ‘Vulnerable’, but with populations restricted to just four sites and evidence of a ‘continuing decline’, this species has now been re-assessed as ‘Endangered’.

Fritillaria meleagris has been removed from the main list to the ‘waiting list’, as there are now serious doubts about its presumed native status in Britain (Pearman 2007). It was categorised as ‘Native or Alien’ in the *New atlas* and listed in Cheffings & Farrell (2005) as ‘Vulnerable’.

Hieracium portlandicum, restricted to the Isle of Portland, Dorset, was described as a

new species by Rich, Edwards & Pearman (2007) and, with just 103 plants in three locations and evidence of decline, has been assessed as ‘Endangered’.

Lycopodium lagopus was described by Rumsey (2007) as a hitherto overlooked native taxon. At present under-recorded, but quite possibly rare and threatened; as such, we have listed it for now as ‘Data Deficient’, pending further work to clarify its distribution in Britain.

The ‘carrot broomrape’ has changed taxonomic rank more than once in the last twenty years. At the time the *Red list* was compiled it had varietal status as ‘*Orobanche minor* var. *maritima*’, and was not assessed, but it has now been elevated to the rank of a subspecies as *O. minor* ssp. *maritima* (Rumsey 2007). ‘Nationally Scarce’, but not thought to be under any threat, it has been added to the list as ‘Least Concern’.

Symphytum tuberosum has been removed from the main list to the ‘waiting list’, as there are now serious doubts about its presumed native status in Britain (Braithwaite, Ellis & Preston 2006; Pearman 2007). It was categorised as ‘Native’ in the *New atlas* and listed in Cheffings & Farrell (2005) as ‘Least Concern’.

Taraxacum rona was described as a new species by Margetts (2007), and has been assessed as ‘Least Concern’.

Listed as ‘Near Threatened’ in Cheffings & Farrell (2005), recent detailed monitoring of *Woodsia alpina* has indicated that the British population is much lower than previously thought, with about 750 individuals (700 in Scotland, 50 in Wales); as such, it now has a revised threat status of ‘Vulnerable’.

Acknowledgements:

The present note is written on behalf of the vascular plant Species Status Assessment Group, including representatives from the Biological Records Centre (CEH), BSBI, Countryside Council for Wales, Natural England, Natural History Museum, JNCC, Plantlife, Royal Botanic Garden Edinburgh and Scottish Natural Heritage. I would like to thank Trevor Dines, David Pearman, Chris Preston, Anna Robinson and Ian Taylor for their comments on an early draft.

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SMALL PROJECT GRANT REPORTS

Morphological variation and spatial separation of two races of *Cerastium nigrescens* (Shetland Mouse-ear)

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Cerastium nigrescens ssp. *nigrescens* (Shetland Mouse-ear), is a Scottish endemic listed as vulnerable and nationally rare due to its very limited distribution on serpentine debris habitats on the Keen of Hamar National Nature Reserve and the adjacent hill of Nikkavord on the island of Unst, Shetland. The species is morphologically variable and has been named several times, including a period as a subspecies of *C. arcticum*. The identification of individuals at Nikkavord with acute (as opposed to obtuse) leaf tips and a straggling habit was first made by Edmonston in 1845, and have been named as the variety *acutifolium*. The variety has been associated with this site in particular, although recent surveys of the Keen of Hamar NNR have also found individuals with pointed leaves.

This project, undertaken in 2008, aimed to look at varieties *nigrescens* and *acutifolium* and identify whether the two races were restricted to the Keen and Nikkavord respectively. Our first job was to describe the variation of the *Cerastium* at both sites, then try and separate out any identifying features that might be definitive of each variety and each site. Unfortunately it was a very bad year for *Cerastium* on Nikkavord – only 20 plants were found despite seeking advice from local botanist David Leask. David had located these plants earlier in the year and thought that there may have been so few plants (and all of them having finished flowering already) due to the unseasonably warm and dry May.

We recorded a suite of 25 morphological traits in 193 plants across both sites and using multivariate analysis we were able to discern morphological differences between the plants at Nikkavord and the Keen. Due to the lack of flowers on the Nikkavord plants, the differences are in the vegetative characteristics and

include leaf length and width (smaller on Nikkavord), and stem length (longer on Nikkavord). Notably, the shape of the leaf tip was not a defining feature of Nikkavord versus Keen plants. Both leaf size and stem length tend to be plastic responses to habitat conditions – leaves are bigger in better conditions whilst etiolation (longer stems) is a response to light competition. However, in a MSc project by Keith Stuffs in 1983 these features were found to be retained in cultivation. Subsequently, we believe these traits to be conserved and particular to plants from each site.

The fact that we did not find any convincing specimens of var. *acutifolium*, but still identified site differences, indicates that the varieties may be difficult to separate by eye. For example, we saw individuals with a straggly habit but rounded leaves suggesting that even if plants with acutely pointed leaf tips emerge from the seed bank next year, they may be difficult to describe as *acutifolium* with any certainty. For this reason we propose that instead of two distinct varieties of *Cerastium* existing, there is instead continuous morphological variation between the two extreme forms.

Future studies should try to identify whether the pointed leaf tips, which define *acutifolium*, can be found in Nikkavord individuals. If not, this would signify a loss of morphological variation indicative of a loss of genetic diversity. This would mean that the already declining populations may have lost some natural resilience and adaptability to climatic changes which are already apparent on Britain's most northerly inhabited island.

This project was funded by a BSBI research grant and the University of Aberdeen. Corinne was awarded an MSc in Environmental Science with Distinction, of which this project formed part.

BOTANY IN LITERATURE – 52

On the purpose of books

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Andrew Young, Vicar of Stonegate in Sussex, poet and botanist (see R.G.C. Desmond (1994) *Dictionary of British and Irish botanists*) – “That I am not a botanist is so true that even to say so would have an air of untruth” (*A prospect of flowers: 72* (1946)) – born in Elgin and educated in Edinburgh, admitted playing truant when he was a schoolboy. During one such truancy he went to Cramond on the Firth of Forth, and “seeing a pretty blue flower ... stopped a countryman and asked its name; he told me it was Forget-me-not. ... Not believing him, I picked a flower and *pressed it in a lesson-book*.” With this, the youthful Young was able to ascertain that the plant was a speedwell, “name of happy omen.”

The admission that he had *pressed* the flower in a book chimed with something else I had read recently, and set me pondering. Young, by the way, was converted into a botanist (he confessed) by a Cornish leek: “ ‘By the dog’, I cried, the oath of Socrates leaping to my lips, ‘the Leek proclaims me a botanist’ ...” (*A prospect: 111*). This transformation occurred because, he recalled, he had found the leek on the banks of a Cornish river by its smell: “It was already dark. ... Suddenly I recalled Wordsworth’s definition of a botanist, ‘a fine-nosed hound’ ...” (*A prospect: 111*).

Young was a friend of a fellow cleric, Harry Joseph Riddelsdell, one of the several authorities on brambles in the first half of the last century: “the famous collector”, wrote Young (*A retrospect of flowers: 36* (1950)). Watching Riddelsdell deal with a morning’s haul of brambles, a “carload”, Young mused that “I thought of how he must have started, a school-boy pressing Buttercups and Milkmaids in an exercise-book; and now he had come to this, sending plants by goods-train” (*Retrospect: 37*). There is a difference between Young and Riddelsdell in these extracts: Young pressed his speedwell in a “lesson-book”, but Riddelsdell in an “exercise-book”.

The nature of the book is significant. In Neil M. Gunn’s fine novel, *The well at the world’s end* (1951), which is set in the western highlands of Scotland and is suffused with plants as well as the old Gaelic lore, the principal character, Professor Peter Munro, sets out in search of the titular well. On one leg of his journey he seeks a plant that can restore virtue, and is told that the minister, Mr Cameron, “has names of the weed itself. And he’ll give you the right name for the plant, the saving plant.” (p. 191).

From bees to flowers, from flowers to particular plants, from vegetable dyes to medicinal virtues, was a sequence in thought and in culture both natural and pleasant. Peter said he had a wife who was very interested in plants and who had heard that there was one wild flower in particular which, according to Gaelic lore, has the power of restoring virtue —

“Well, now, if that isn’t a remarkable coincidence,” said the guileless old man, “for in the course of our talk before you came we arrived at just that very flower. As I was saying, in the Gaelic it is called *mothan*. It is a flower which, if we may believe those who lived here before us, had the power of restoring virtue to that which had lost it whether in the case of man or of beast.” (p. 196).

A while afterwards, the professor, the minister and a Mrs Douglas are discussing *mothan*. “... “And has not this plant an English name?” Mrs. Douglas asked out of her courteous amusement.” Cameron responded: “Now we are in difficulties, for the matter is in dispute, but so far as this district is concerned, I am in no doubt. It is a pearlwort—and uncommon variety of the pearlwort peculiar to a few of our Scottish mountains, and with us is to be found, and found only, on the west slope above Loch a’ Cheo.” “How interesting!” declared Mrs. Douglas. “And at least, ma’am, botanically

verified. Indeed if you would care to walk up to my humble dwelling I should be able to show you a pressed specimen.” (p. 197).

Later, both the lady and Peter, separately, found the *mothan* – a “‘blessed plant’ because it was the first plant on which Christ’s foot fell” (p. 201) – at Loch a’ Cheo. And, they both gathered specimens of “this interesting flower”. Several days later at another place, and in different circumstances, Peter needed a charm. “He took out his pocket-book and from one of its compartments extracted no less than two specimens of the *mothan*, the pearlwort of the mountains. As he looked at them he saw that, alas! they were almost withered. Had the virtue been taken out of them, too?” (p. 232: I leave you to read the rest.)

Peter Munro’s “pocket-book” was a container for money, as we are told, so it probably wasn’t even a notebook, just a wallet. No botanist – or even someone professing he wasn’t a botanist – would try to preserve a specimen in such a contraption.

But *pressing flowers in a book* is my theme, and it is a practise deeply deplored by true bibliophiles. Holbrook Jackson, in his wonderful compilation *The anatomy of bibliomania* (p. 422 (1950)), points to this remarkable commentary:

“You may happen to see some headstrong youth lazily lounging over his studies, and when the winter’s frost is sharp, his nose running from the nipping cold drips down, nor does he think of wiping it with his pocket-handkerchief until he has bedewed the book before him with the ugly moisture. Would that he had before him no book, but a cobbler’s apron! His nails are stuffed with fetid filth as black as jet, with which he marks any passage that pleases him. He distributes a multitude of straws, which he inserts to stick out in different places, so that the halm may remind him of what his memory cannot retain. These straws, because the book has no stomach to digest them, and no one takes them out, first distend the book from its wonted closing, and at length, being carelessly abandoned to oblivion, go to decay. He does not fear to eat fruit or cheese over an open book, or carelessly to

carry a cup to and from his mouth; and because he has no wallet at hand he drops into books the fragments that are left. ... Now the rain is over and gone, and the flowers have appeared in our land. Then the scholar we are speaking of, a neglecter rather than an inspector of books, will stuff his volume with violets, and primroses, with roses and quatrefoil. ... (R. Bury (1909) *The love of books: the Philobiblon of Richard de Bury* ... (translator E.C.Thomas). London.)

What is so very remarkable about Richard Bury’s depiction of youths stuffing violets into their books is that it was written before 1340, that is a couple of centuries before the “invention” of the herbarium (*hortus siccus*, *hortus hiemalis*) by Luca Ghini (1490–1556). Richard Bury (Aungerville) (1281–1345), of Willoughby in Leicestershire, was a Benedictine monk, Bishop of Durham (1333–1345) and one of the first English collectors of books. Can there be any earlier account of pressing flowers *in books*?

Holbrook Jackson (1874–1959) certainly disapproved too, quoting and paraphrasing Bury under the subheading “Neglect and Misusage”. Earlier in his own tome (p. 136), under the subheading “Their use as tools etc.”, Jackson acknowledged that books “have been used as presses from early time; but most of all for pressing flowers either as souvenirs or for scientific purposes.”

I came across a much more recent comment about pressing flowers in books in “Grub Street”, a column by Andrew Taylor in *The author* 108 (no. 1): 26–27 (Spring, 2007) (the members’ magazine for the Society of Authors), where it was reprinted from *The Bookseller*:

“The ever-impartial Mr Bent [in *The Bookseller*] ... records that Boris Johnson MP ... struck an altogether more satisfactory note when addressing members of the Publishers Association on the subject of textbooks and the threat they face from Google and digitisation. In stirring terms, Mr Johnson urged his audience not to worry about the death of print, and in doing so provided a glimpse of what books are really for. ‘How can you press a

flower on a computer?’ he asked. ‘Or light a fire?’ There is a man who clearly understands the importance of literature.”

The inimitable Boris – “politician and polymath” (grumpyoldbookman.blogspot.com, accessed on 19th October 2007) – has recently added to his definition of the purpose of books, again according to *The Bookseller*, and again in the context of Google: “... “I don’t think [Google] will stop people reading books”, explaining that as long as there were delays on

public transport people would need books to read.” <http://www.thebookseller.com/news/83520-boris-google-no-threat-to-publishers.html>, accessed 17th October 2009).

Postscript: for an entirely different reference in literature to pressed flowers, I can draw attention to Stieg Larsson’s novel *The girl with the dragon tattoo*. It has been widely praised, justifiably in my opinion. Larsson lays a trail of clues, including some pressed plants.

BOTANY IN LITERATURE – 53

Marine Botany in literature: George Eliot’s *The Ilfracombe Journal* – Algae – is Phycology all at sea?

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The mention of angiosperms typically conjures up plants which live terrestrially, less so those that live partially or wholly in fresh (with the possible exception of the Water Lily (*Nymphaea* spp., Nymphaeaceae) or brackish water, and even less still those few that can tolerate life in the sea, such as the monocotyledons *Zostera marina* (Eel-grass (Sea-grass, Grass-wrack; Zosteraceae)) and *Posidonia oceanica* (Neptune Grass; Posidoniaceae).

Thus, in talking of botany, the term ‘Marine Botany’ needs to be recognised, even if, more commonly, this is enveloped somewhat by the more general and established one of marine biology.

But when it comes to the study of Algae (Phycology), the fact that as one of the four kingdoms of the Superkingdom (*Supra-regnum*) Vegetabilia they immediately come under the same large umbrella as the Plantae, which, in both Brummitt and Powell and the *International Code of Botanical Nomenclature* (e.g. Greuter *et al.*), is seen to be very much the case, one could be forgiven, as Algae are largely of marine habitat, for including them *sensu lato* in the former category, or even more broadly in the latter. Marine botany vs. marine biology: “Which way?”, cried Alice: is Phycology all at sea?*

George Eliot’s *The Ilfracombe Journal* is not, I confess, fiction, but it is such a case in point. Written between the 8th of May and 26th of June 1856, when she and partner George Lewes took a holiday at Ilfracombe on the coast of Devon where it faces the Bristol Channel, partly in an attempt to relieve Lewes’s tinnitus, and to disprove T.H. Huxley’s criticism that he was merely a ‘book-scientist’, it ventures Ruskin-like to ‘know the names of things’ and to express Eliot’s desire ‘to escape from all vagueness and inaccuracy into the daylight of distinct, vivid ideas’.

Hence is described the Wilder, a ‘clear little stream, fringed with Veronica and Stellaria’ [both *sic.*], and sea-anemones such as the red Mesembryanthemum [*sic.*] which was as ‘plenty as blackberries’, and which Eliot and Lewes later ‘disdained to gather as much as if it had been a nettle’. There is mention of a ‘Strawberry’, which arguably, as it is more precisely known as *Actinia fragacea* Tugwell† (Phylum Coelenterata, Class Anthozoa (Sea-anemones and their allies), Order Actinaria (Sea-anemones)) is rather more vivid than distinct. Also the ‘pale fawn-coloured tentacles of an [anemone] *Anthea cereus* viciously waving like little serpents’ and ‘three treasures - an *Eolis pellucida*, a

Doris billomellata [both *sic.*], and an *Aplysia* [Phylum Mollusca, Order Aplysiomorpha, e.g. *Aplysia punctata* (Sea Hare)], the first of each genus I had ever seen’.

But other than this foray into marine zoölogy, Eliot’s account deals equally specifically with marine botany, as the following extract about Algae shows:

When at last, by the seventeenth of June both my articles were dispatched, I felt delightfully at liberty and determined to pay some attention to sea-weeds¹ for which I had never seen in such beauty as at Ilfracombe. For hitherto I had been chiefly on chalky and sandy shores where there were no rock-pools to show off the lovely colours and forms of the Algæ.² There are tide-pools to be seen almost at every other step on the littoral zone at Ilfracombe, and I shall never forget their appearance when we first arrived there. The *Corallina officinalis*³ was then in its greatest perfection, and with its purple pink fronds threw into relief the dark olive fronds of the Laminariæ⁴ on one side and the vivid green of the *Ulva*⁵ and Enteromorpha⁶ on the other. After we had been there a few weeks the Corallina was faded and I noticed the *Mesogloia vermicularis*⁷ and the *M. virescens*, which look very lovely in the water from the white cilia which make the most delicate fringe to their yellow-brown whip-like fronds, and some of the commoner Polysiphoniæ.⁸ But I had not yet learned to look for the rarer Rhodospermiæ⁹ under the olive and green weeds at the surface. These tide pools made one quite in love with sea-weeds, in spite of the disagreeable importunity with which they are made to ask us from shop-windows – “Call us not weeds”. So I took up Landsborough’s book¹⁰ and tried to get a little more light on their structure and history.

Notes:

1. *sea-weeds*: a collective vernacular term for large marine algae growing in the sea or on rocks in the intertidal zone. Alternatively,

and less commonly, known in the singular as sea-ware, the coarser seaweeds being collectively called sea-wrack or grassrack. The sea-whistle (*Ascophyllum nodosum*) is a seaweed, the bladders of which can be made into whistles. A typical seaweed is usually composed of a holdfast (= attachment organ) and a frond, these termed together as the thallus. In Charles Dickens’s *A Christmas Carol*, Scrooge sees as part of his vision of Christmas Present, shown to him by the second spirit ‘a solitary lighthouse. Great heaps of seaweed clung to its base, and storm-birds – born of the wind, one might suppose, as seaweed of the water – rose and fell about it, like the waves they skimmed’.

2. *Algæ*: the plural of the Latin feminine nominative singular *alga*, meaning ‘seaweed’.

Formerly the Algae were placed with the Bacteria and the Fungi in the division Thallophyta (‘thallus plants’), but now these form three separate kingdoms: the Monera (Bacteria and Cyanobacteria (= Blue-green Algae)), Protista (Algae, including sometimes the Phylum Protozoa), and Fungi (Mushrooms, Toadstools, and Lichens).

An alga is a primitive non-flowering photosynthetic plant of a large assemblage that includes many aquatic forms such as seaweeds and many plankton, the latter providing the food which support nearly all marine life. As such many of these are single-celled and microscopic, but there are also multicellular forms with no vascular tissue or absorbent root-system. Thus there is no differentiation into root, stem, and leaf, although some, such as the kelps, possess, like many fungi, a stipe (= a ‘stem’). Being holophytic (= *ca.* phototropic), algae store chemical energy, which, according to a certain oil company’s advertisement, is ‘renewable while absorbing CO₂’ and suitable for biofuels for cars (see *Time* magazine, 9th November 2009).

Classification of the Algae is partly on the basis of pigmentation, e.g.: red (Division

- Rhodophyta), green (Chlorophyta), brown (Phaeophyta), yellow (Xanthophyta), and golden-yellow (Chrysophyta).
3. *Corallina officinalis*: an alga of the Division Rhodophyta, Class Rhodophyceae, Order Corallinales (heavily calcified algae), Family Corallinaceae, Subfamily Coralloideae, with fronds of 50 to 120 mm long, which branch paripinnately, as do the branchlets in their turn (*i.e.* exactly opposite each other). The whole alga is made up of a series of calcified segments which are longer than broad and linked by pliable joints to form the frond. Thus, in a sense, it resembles the legs of an arthropod ('jointed-limbed'). There are no 'horns' on the terminal reproductive bodies. In colour it ranges from the purple pink as observed by Eliot to red or even yellow-white and is found on rocks and in pools at all levels of the eulittoral zone (= middle shore) and down to shallow water, usually in the Mediterranean, Atlantic, English Channel (but in Eliot's case in the Bristol Channel), North Sea, and rarely in the Baltic.
 4. *Laminariae*: Eliot's or Lewes's plural term for the genus *Laminaria* (Division Phaeophyta, Class Phaeophyceae, Subclass Heterogeneritae, Order Laminariales, Family Laminariaceae (the Kelp Family)), members of which include *e.g.* *Laminaria digitata* (Oarweed or Tangle), and *L. saccharina* (Sea Belt (Sugar Kelp, Poor Man's Weather Glass)). The largest algae found in European waters, they show a characteristic alternation of heteromorphic generations, *i.e.* an asexual phase (sporophyte), which forms the typical kelp plant, followed by a sexual phase (gametophyte), which is microscopic and generally not visible to the non-professional. Habitat is on the extreme sublittoral zone (= lower shore) and in shallow, coastal water, and on many rocky shores, where they are usually only uncovered at Spring tides. Their zone, which includes other marine algae, is very characteristic, providing a rich hunting ground for marine botanist and zoölogist alike.
 5. *Ulva*: the genus to which the translucent green Sea Lettuce *Ulva lactuca* belongs (Division Chlorophyta, Class Chlorophyceae, Order Ulvales, Family Ulvaceae). There are three other species in the genus.
 6. *Enteromorpha*: a genus of 11 species, ranging from pale (*e.g.* *Enteromorpha intestinalis*) to dark (*e.g.* *E. compressa*) to bright green (*e.g.* *E. linza* (*Ulva linza*)) in colour and allied to the above Sea Lettuce genus (thus also a member of the Green Algae or Chlorophyceae).
 7. *Mesogloia vermicularis* [*vermiculata*]: a brown seaweed (*i.e.* green-yellow-brown), with a frond *ca.* 60 mm long, and a shiny rounded stipe which bears numerous branches of various thicknesses and lengths, giving them a tufted, fan-like, pyramidal appearance. It grows on rocks covered by sand on the middle and lower shores of the northern Atlantic and North Sea. There are several other species in the genus.
 8. *Polysiphoniae*: the plural form of the genus *Polysiphonia*, a large genus of the Rhodophyceae or Red Algae, containing many poorly defined species. There are about 30 European species: *e.g.* *Polysiphonia elongata*, *P. urceolata*, *P. lanosa*, *P. nigrescens*.
 9. *Rhodospermiae*: from the Greek prefix ῥόδον (*rhódon*, 'rose'), and Gk. σπέρμα (*spérma*, 'seed'); aff. Rhodosporous ('having pink spores').
 10. *Landsborough's book*: *A popular history of British seaweeds* (1849) by David Landsborough the Elder (b.1779-d.1854).
- *The more prosaic answer to this question is twofold:
- (1) No. Although the majority are marine (Divisions Haptophyta, Chlorophyta, Dinophyta, Phaeophyta, Rhodophyta, and Class Bacillariophyceae of the Bacillariophyta (or sometimes Chrysophyta)), some flourish in brackish water (Xanthophyta, Bacillariophyta, Chlorophyta), such as in lakes (Bacillariophyta), and ponds

(Charophyta), while a few divisions are also terrestrial (Xanthophyta, Chlorophyta (moist land)).

(2) Yes (metaphorically). (a) The *-phyta* of divisional names such as Rhodophyta, Chlorophyta, and so forth, means ‘plant’ and is derived from the Greek φῦτόν (*phùtón*), latinised as *phyton*, but commonly and erroneously it is interpreted in the English vernacular as ‘algae’. It is the Greek φῦκος (*phûkos*, latinised as *phykos*) which means ‘seaweed’, and which is therefore equivalent to the Latin *alga*, ‘seaweed’. Thus, divisional names, such as the above, should be, *sensu stricto*, rendered in the vernacular as ‘Red plants’, ‘Green Plants’, and so on, while it is the class name, such as Rhodophyceae, Chlorophyceae, which should bear the algae appellation. Hence, for examples, Charophyceae (Stone Algae; from Greek χάρος (*châros*, death)), Ulvophyceae (Sedge Algae; from Latin *ulva* (sedge)) (both in Chlorophyta), Chrysophyceae (Golden-yellow Algae; from Gk. χρυσός (*chrusós*), latinised as *chrysos*, gold)).

(b) Until authors of textbooks on Phycology stop believing that the student does not require classification to be made below the rank or Order, and as a result fails, not only to give families, but also a synopsis of the classification system used, and rank titles, then the decline in taxonomy as mentioned by Dr Richard Gornall in *BSBI News* 101: 3, will continue, and thus Phycology will, in this respect, be ever ‘all at sea’. (This comment can, however, apply equally to other biological kingdoms, both vegetable and animal).

†The name of the author of this polyp being none other than the Curate of Ilfracombe,

George Tugwell (b.1830-d.1910), who Lewes and Eliot met during their visit, and whose *Manual of the Sea Anemones of the English Coast* (1856) Lewes reviewed in the *Leader* of 25th October 1856.

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Spud, or spud?

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With reference to “Botany in Literature – 51” (*BSBI News* 112), I would like to suggest that the *spud* defined in note 3 is perhaps more likely to be the narrow digging tool or ‘spud’

which botanists may have used in the days when specimens were dug up, rather than a potato.

ALIENS

***Cotula alpina* (Hook. f.) Hook. f. (Alpine Cotula) in North-west Yorkshire (v.c.65), Mid-west Yorkshire (v.c.64) and North-east Yorkshire (v.c.62), new to Britain and Europe**

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Because I am relatively new to the job of joint BSBI Recorder for v.c.65: North-west Yorkshire, I organised a series of field meetings in 2009 throughout the vice county to help me get acquainted with the area. Because of the lack of botanists living in the vice county some of the field meetings were not well attended. The meeting on Sunday 28th June had one of the worst weather forecasts of the summer, but I duly turned up at the meeting place on Potts Moor, part of Kirby Malzeard Moor, an isolated grouse moor on the border of v.c.64 and v.c.65, between Nidderdale and Masham. I could hardly see my hand in front of my face the mist was so thick and there was a constant drizzle. As I expected, no one materialised, but rather than waste a day I put the brolly up and kept to roadside verges and tracks for fear of getting lost.

At an altitude of almost 430m O.D., on the border between the two vice counties, is a cattle grid. The vegetation on both sides of the road is a well grazed peaty, gritty turf and dotted around was a small inconspicuous prostrate plant I recognised as a *Cotula*. I was not surprised because before I set out I checked through the records for the hectad and had noted *Cotula squalida* (Button Weed) found in 2004. Naturally, I assumed that was the record.

That evening, going through the day's records, I realised that the 2004 record was about 5km away. *Cotula* not featuring prominently in any of my *Floras*, I quickly got on to Google and started going through the *Cotula* species found in Britain, but no match. Eventually I came across *Cotula alpina* (Alpine Cotula) from New South Wales, Australia, which looked identical. I hadn't collected a specimen, so went back to Potts

Moor and collected a plant to send off to Eric Clement. I also emailed the Australian National Herbarium to see if they could confirm the identification from my photographs (see Back Cover). I had a reply from Brendan Lepschi, the Curator, who said it was very likely *Cotula alpina* (Hook. f.) Hook. f., but he would like a specimen to be certain. I have since collected and pressed this and am in touch with the Herbarium in The Royal Botanic Garden, Edinburgh who will hopefully be able to do an exchange to get it through Customs into Australia. In the meantime Eric replied telling me my identification was correct. It matched *Cotula alpina* (Hook. f.) Hook. f., apparently new to Britain and Europe. It is however, likely that some records of the sparsely hairy *Cotula squalida* – see Stace's *New flora of the British Isles*, 2nd ed., p.737 – should be re-determined, as the totally glabrous, but otherwise very similar *Cotula alpina*. Both are typically less than 5cm tall.

In its native range *Cotula alpina* is confined to New South Wales, Victoria and Tasmania. In New South Wales it is found in the Snowy Mountains, alongside the road over Mount Kosciuszko, the highest point in Australia, where the terrain and climate is much like parts of Yorkshire's moorlands.

I then produced a paper on my find and submitted it to *BSBI News*. However, about twenty minutes later I received an email from a botanical friend of mine telling me that Anna White in Dumfries, whilst on holiday in Wester Ross, had found *Cotula alpina* along a roadside verge near Polbain (Anna White, 2009). I immediately got in touch with Anna, who informed me that Eric Clement had confirmed her record and was wondering

about other *Cotula squalida* records in the same area, and whether they might be *Cotula alpina* too.

With this in mind I thought I ought to check out the 2004 record for *Cotula squalida* on the same moor but about 5km away from my Potts Moor find. On 11th September I set off, approaching the moor from the eastern side via the hamlet of Ilton. About 30 metres through the gate onto open moorland, I came across *Cotula alpina*, lots of it, almost the dominant plant on both sides of the sandy moorland track. Any open areas of *Agrostus-Festucetum* grassland were now nearly pure *Cotula alpina*, and in places where the moorland had been burnt it was spreading on to the bare peat (see Back Cover). In places it was growing alongside the little New Zealand alien *Epilobium brunnescens*, the Kiwi and the Aussie obviously at home on an English moor. I followed the track until I reached the grid reference for the 2004 record. It was obvious that this was the *Cotula* that had been seen and mistaken for *Cotula squalida*. I then turned back and went down a side track towards Grewelthorpe and found that the *Cotula alpina* was still present well into v.c.64. I then decided to go back and approach the moor from the western side just below my original record and sure enough about 1km in from the road I came across more *Cotula alpina*. As darkness was falling, I headed home, but came back to this point on 28th September and walked all the way across the moor to the site of the 2004 *Cotula squalida* record. *Cotula alpina* was present in the same quantity all the way. I investigated another path going down to Bouthwaite and this too had *Cotula alpina* well into v.c.64.

I reported these finds to the v.c.64 recorder Phyl Abbott, who informed me that she had found a small *Cotula* in 1995 on a track just to the south near Dallow Moor. It had keyed out in Stace to *Cotula squalida*. I suggested we meet and check it out but due to getting held up in traffic we missed each other and decided that rather than waste the day my colleague and I would check out all the other tracks on the moor. Phyl's *Cotula* record turned out to

be *Cotula alpina*. It had covered about 5 metres of trackside in 1995 but now covered the roadsides to the northern and southern boundaries of the moorland, the longest distance being 2.5 km. This meant it was spreading at a rate of at least 0.18 km per year. We then went up the track from Grewelthorpe and recorded the extent of the *Cotula* there and on the track from the Dallowgill road. This had *Cotula alpina* from the cattle grid near Malaby House all the way to Stopes Bridge and beyond. We then drove round to Bouthwaite at the eastern end of the same track and found the *Cotula* went all the way over the moor.

Phyl Abbott emailed me again a few days later to say she had spotted a record of *Cotula squalida* on Rudland Rigg on the North York Moors on the Ryedale Naturalists website, with a photograph of *Cotula alpina*. On 23rd October I visited Rudland Rigg to see if this plant was *Cotula alpina* and how much ground it covered. I approached from the southern end and came across it almost at the top of the ridge, at first only intermittently in the short *Agrostus-Festucetum* turf on the tracksides but after 50 metres it became more frequent but not quite so dominant as on Kirkby Malzeard Moor, where it was also growing in the drainage channels alongside the track. The Australian literature mentions that it grows in boggy areas too. It was present along the track sides for 2km, then gradually disappeared. It will be interesting to see if it spreads further along the track in the future.

I sent Vince Jones a copy of this paper and the records I collected on my visit to Rudland Rigg. He replied telling me he had seen the same plant on Egton High Moor, south of Glaisdale, nearly 2km on the well defined footpath and 4×4 track across the moor. There were also a few patches where the above track merges into Smith's Lane near Wintergill Plantation.

In v.c.64 and v.c.65 *Cotula alpina* occurs in three hectads: SE16, SE17 and SE27; and within these was present in 19 tetrads. In v.c.62 (excluding the Egton Moor record) it occurs in hectads SE29 and NZ70, and is

present in two tetrads in each of these. In total it covers a distance of approximately 20.5 km, but there may be more around. There are other tracks on the moors that were not investigated.

Obviously this small plant has been around for some time and probably came in with wool shoddy (waste), which was used as a manure on lowland brassica and rhubarb crops (pers. comm.: D. Shimwell) and market gardens (Dony, 1952). How it found its way from there to the open moorland is likely to remain a mystery, but it obviously relishes the well grazed, sandy, peaty track/roadside habitat. It is possible that seed is being spread from moor to moor on the wheels of 4×4 vehicles used by the off-roading fraternity. All the moorland tracks are by-ways open to all traffic (BOATS) or bridleways. If anyone has spotted this small plant elsewhere I would appreciate it if they would let me know.

I would like to thank Eric Clement for all the research he did to identify this plant and help

with this paper; also Brendan Lepschi from the Australian National Herbarium, who sent botanical information regarding *Cotula alpina*; and Phyl Abbott, Rod Corner, Dr Margaret Bradshaw, David Shimwell, Rita Mark and Beryl Armstrong for their assistance.

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First known record of *Cotula alpina* in Scotland, Wester Ross: v.c.105

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Location: O.S. grid ref. NB99200.10709

Discovery

On the 8th August 2009, while on a summer holiday at Lochinver, my friend Gwen Richards, my son, Callum, and I set off south down the exceedingly twisty 'Wee Mad Road' that terminates at Achiltibuie, on a somewhat overcast, but warm day. We had two objectives in mind; the first being to go on a boat trip round the Summer Isles and see terns, and the second to search two sites where there had been earlier reports of Marsh Fritillary webs. We searched the meadows in Polbain, but found very little Devil's-bit Scabious, the food plant of this butterfly.

We reached the second site along a typical single track Highland road amid heather-clad moorland, where sheep wander at will in front of one's car. When I got out of the car, I found the verges on both sides covered in

what I thought was a *Cotula*, growing at approximately 219ft above sea level. Whilst Gwen drove the car, I walked for a mile down to Badentarbet pier, from where the boat for the Summer Isles leaves. This inch-high plant was widely distributed all the way along both verges. We ran out of time to search further, but presume this is a very large site.

Identification

When I returned home, I contacted the County recorder, Duncan Donald, sending him photographs (see Back Cover) and specimens of the plant. He, like myself, thought it was a *Cotula*, but was uncertain which particular one. Eric Clements was consulted and he identified the plant as *Cotula alpina*. He also confirmed this was a new record of this plant for Scotland.

I contacted Julie Clarke who informed me that Linda Robinson had recently discovered

this plant growing at high altitude on road verges by a Yorkshire grouse moor (v.c.65). Linda Robinson has been carrying out a lot of research into the plant, and is in contact with Eric Clements, and with Brendan Lepchi from the Australian National Herbarium [see article above. *Ed.*].

In Eric Clement's *Alien plants of the British Isles* there is mention of *Cotula squalida* being found under bracken above Gairloch beach, 50 miles to the south 'as the crow

flies', but across a sea loch. I wonder if this record is a mis-identification. It is possible that *Cotula alpina* is more widely distributed than has been previously supposed. *Cotula alpina* is only known to New South Wales, Victoria and Tasmania, and it is a mystery as to how it reached two very remote and apparently unconnected areas in Wester Ross and in Yorkshire, both new records being made within the last five months.

***Landoltia punctata* (Lemnaceae) takes another step**

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Based on its occurrence in garden centres, in 2001 it was predicted that *Spirodela punctata* would soon be found in a natural setting in Britain, if it was not already there and being overlooked (Rumsey, 2003). I can report that it has taken a step towards fulfilling that prediction. On 19th September 2009 I collected some duckweed from a small garden pond in Treborth Botanic Garden, SH5503.7110, v.c.49 (see Colour Section, Plate 1). From above it looked vaguely odd for *Lemna minor* (Common Duckweed), and in ventral view it was clearly not this, as it had multiple roots to each frond. A search on the web found *The Charms of Duckweed* (www.mobot.org), showing images of *Landoltia* (formerly *Spirodela*) *punctata* (G. Mey.) Les & D.J. Crawford, which matched the Treborth plants, and I am grateful to Richard Lansdown for confirming that this tentative determination is correct.

To detect *L. punctata* from above, look for duckweed fronds of similar oval shape to *Lemna minor* but with the edge of each frond picked out in maroon. On the underside, the maroon colour and multiple roots distinguish it from all British Lemnaceae except *Spirodela polyrhiza* (Greater Duckweed). *Landoltia punctata* supposedly has 2-5 roots per frond, whereas *S. polyrhiza* typically has 7-16 (Stace, 1997). However, *Landoltia* fronds with more than seven roots were frequent among the Treborth population. In America it has the

common name Dotted Duckweed, in reference to a "barely visible ridge of dots on the leaf surface" (University of Florida Center for Aquatic and Invasive Plants website – <http://plants.ifas.ufl.edu/node/222>). These are visible at ×20 as a row of 5-10 pimples along the mid-line of the upper surface of the frond.

The source of the Treborth *Landoltia* is not known (Nigel Brown, Treborth curator, pers. comm.). As would be expected in a botanic garden, the pond contains a range of native and non-native species, and *Landoltia* could have been inadvertently introduced at any time over a number of years. Rumsey (2003) mentioned its occurrence in garden centres in Britain. I have visited two garden centres within 2 miles of Treborth and didn't find it in either of them, although one had an excellent range of alien invasive aquatics. The website of the U.S. Geological Survey (yes, they have a section on alien aquatic species: www.usgs.gov) gives its native range as Australia and SE Asia. It is now widespread in the USA.

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***Solanum triflorum* (Small Nightshade) new to South Lancashire and the Sefton Coast**

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On 29th July 2009 I was contacted by Peter Brash, a member of the National Trust's biological survey team, with the news that, on 13th July 2009, he and colleagues had found what appeared to be *Solanum triflorum* (Small Nightshade) on the National Trust estate at Formby Point. The following day, I visited the site and located the target species on a rabbit warren in an old asparagus field near the N.T. office building (SD27743.07694). I counted a total of about 15 straggling plants colonising bare sand in an area of about 8.5m×2.5m around the rabbit holes. The distinctive, deeply divided, rather succulent leaves made the plant easy to find and identify. Several specimens had small white flowers in twos or threes, while a few were developing fruits rather like miniature green tomatoes. I took photographs (see Colour Section, Plate 3) and the South Lancashire Flora web-site <http://www.johnsomerville.co.uk/>

SLF/Flowers/S/Solanum%20triflorum%20pic s.htm), collected a few stems for the vice-county recorder and listed the associated vascular plants (Table 1). All these are typical of disturbed ground on the Sefton Coast sand-dunes.

Small Nightshade is an introduced casual from Western North America, found in cultivated and rough ground and very scattered in England and Wales (Stace, 1997). The BSBI Atlas Update Project (online) shows only 30 hectad (10km²) records for this species in Britain, four of these being after 2000. This plant is not known to have been seen before in South Lancashire (v.c.59) (D.P. Earl, *in litt.*, 2009) and is therefore also new to the Sefton Coast. How it got to Formby Point is a mystery.

Reference:

STACE, C.A. (1997). *New flora of the British Isles*. 2nd edition. Cambridge University Press, Cambridge.

Table 1. Vascular plants associated with Small Nightshade at Formby Point
o = occasional; f = frequent; a = abundant.

Taxon	English name	Frequency
<i>Agrostis capillaris</i>	Common Bent	o
<i>Anchusa arvensis</i>	Bugloss	f
<i>Crepis capillaris</i>	Smooth Hawk's-beard	o
<i>Cynoglossum officinale</i>	Hound's-tongue	o
<i>Erodium lebelii</i>	Sticky Stork's-bill	o
<i>Fallopia convolvulus</i>	Black Bindweed	o
<i>Oenothera ×fallax</i>	Intermediate Evening-primrose	o
<i>Rubus caesius</i>	Dewberry	a
<i>Senecio jacobaea</i>	Common Ragwort	f
<i>Solanum nigrum</i>	Black Nightshade	o
<i>Sonchus asper</i>	Prickly Sow-thistle	f
<i>Urtica urens</i>	Small Nettle	f

***Orobanche lucorum* (Barberry Broomrape) in Fife (v.c.85)**

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In their account of *Orobanche* in Britain and Ireland, Rumsey & Jury (1991) mentioned that *O. lucorum* was known then only from Oxford and St Andrews Botanic Gardens (p. 294), and this was repeated in Clement & Foster (1994: 284). A follow-up paper by Rumsey (2008) made no allusion to the St Andrews record, despite the fact that the species had become well established both in the Garden itself and also 'in the wild' in the town. The introduction of the broomrape is described by Bob Mitchell as follows (pers. comm, 9/10/09):

"My predecessor at St Andrews Botanic Garden tried unsuccessfully with *Orobanche lucorum* on *Berberis*. I arrived in 1962 and took up the challenge, initially with little success. We removed soil around the perimeter of the *Berberis* plants and sowed the seeds close to the developing young roots, covering them lightly. It was when we started to replant the *Berberis* collection to their permanent positions about 1967 that we started to notice the pale creamy-yellow flowering shoots. Now, wherever there are *Berberis* plants, the broomrape has successfully self sown, and it is quite a sight [see inside Back Cover] As far as I know this broomrape is confined to *Berberis*, but certainly not to *B. vulgaris* alone, for it is hosted by at least 20 species throughout the shrub borders in St Andrews Botanic Garden."

"The occurrence of *O. lucorum* [elsewhere in St Andrews] was at Andrew Melville Hall [near the Sports Centre], almost certainly the result of surplus affected plants being transferred from the Botanic garden nursery, about 1970".

Plants were spotted at the latter site about 1985 by Prof. Richard and Dr Edith Cormack [see inside Back Cover] and were seen at regular intervals thereafter both there and in the Garden. Indeed, they made it their

business to observe that some plants were present in most years right down to 2009, when there was disturbance at the second site due to the construction of an electricity substation, although this revealed more plants than had been previously suspected (pers. comm, 03/08/09). Some days later, another interested resident "went to look at the *Orobanche*. It is in the most uninspiring place, by the side of a path on a steep slope below various shrubs. Building work is going on. I counted 38 spikes - they have gone over a bit now, of course, but I don't think they have been damaged" (pers. comm., Dr Jean Stewart, 27/08/09). Owing to illness, the author did not get the opportunity of visiting either site until late summer 2009. He is therefore very grateful to all four individuals named for supplying details and for allowing him to quote from their (informal) notes, without which it would not have been possible to compile this account. Acknowledgement is also made to Bill Hay, whose initial sighting of the broomrape in April 2009 prompted the interest, and, as ever when aliens are concerned, to Eric Clement, who encouraged the writing-up and who drew attention to the note by Rumsey (2008).

As a footnote, perhaps it should be added that also in St Andrews Botanic Garden, a relative of the *Orobanche* has long been established, and it too is a colourful spectacle in spring, i.e. *Lathraea clandestina* (Purple Toothwort) – "on willow species. It has 'jumped' borders, but I do not know how!!" (per R. Mitchell, Oct.2009).

References:

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Alien plants near Thruxton, North Hampshire (v.c.12)

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In *BSBI News* there is a long history of reports of remarkable numbers of different alien plants cropping up on areas of disturbed soil or rubbish tips. A recent example is given by Shaw (2008), and this report is in the same vein. In 2009, photos of numerous alien plants were sent to me by Miles Hodgkiss. He had taken them in a very large area of disturbed soil west of Thruxton, just south of a motor-racing track and airfield. In fact John Moon had recorded *Nicandra physalodes* (Apple-of-Peru) and *Nicotiana ×sanderæ* (Garden Tobacco) in this area in 2005 and he thinks that the massive earth-moving now underway in the area had started nearly ten years ago. One intention, as well as providing a hard-core recycling facility, was to fill up the gap between the A303 and the Thruxton race-track with a mound so as to cut off views of the racing cars, as these were a distraction to drivers. That original mound is now well-vegetated, mainly with grasses, but still has a few surviving alien species such as *Alchemilla mollis* (Garden Lady's-mantle), *Sisyrinchium striatum* (Pale Yellow-eyed-grass), *Persicaria amplexicaulis* (Red Bistort) and *Phuopsis stylosa* (Caucasian Crosswort). However, recycling of huge quantities of builders' hard-core and soil from many sources still continues nearby, so there are large areas of transient habitat bursting with alien plants.

I decided to take Eric Clement along to see what we could find, together with Miles Hodgkiss. Our first visit was on 3rd October 2009, and I noted a list of over 150 taxa, 17 of them new to v.c.12 (though mainly escaped garden plants). Amongst a sea of *Chenopodium album* (Fat-hen) and *Mercurialis annua* (Annual Mercury) there were scattered splashes of colour from various 'out-and-out' garden plants, including *Tropaeolum majus* (Nasturtium), *Calendula officinalis* (Pot Marigold), *Petunia ×hybrida* (Petunia), *Verbena bonariensis* (Argentinian Vervain), *Eschscholzia californica* (Californian Poppy), *Lavatera trimestris* (Royal Mallow), *Nemesia*

strumosa (Cape-jewels), *Linaria maroccana* (Annual Toadflax), *Cosmos bipinnatus* (Mexican Aster) and *Ageratum houstonianum* (Flossflower).

Characteristic 'rubbish-dump' species like *Datura stramonium* (Thorn-apple), *Nicandra physalodes*, and *Lycopersicon esculentum* (Tomato) were plentiful, but I was surprised to see numerous flowering plants of *Cerinthe major* (Greater Honeywort) and several *Mirabilis jalapa* (Marvel-of-Peru). Other interesting plants were *Chenopodium hybridum* (Maple-leaved Goosefoot), *Erucastrum gallicum* (Hairy Rocket), *Physalis peruviana* (Cape-gooseberry), *Eruca vesicaria* (Garden Rocket), *Echium plantagineum* (Purple Viper's-bugloss), *Guizotia abyssinica* (Niger), *Amsinckia micrantha* (Common Fiddleneck), *Silene armeria* (Sweet-William Catchfly), and *Rumex scutatus* (French Sorrel).

Eric homed in on a plant of *Portulaca oleracea* ssp. *sativa* (Garden Purslane) (see Colour Section, Plate 3). Stace (1997) notes that this subspecies has apparently not yet been recorded in Britain. It was much more robust in habit than *P. oleracea* ssp. *oleracea* (Purslane) and had larger seeds. The seeds were covered in tubercles and measured 1.3mm across with some reaching 1.4mm (see Colour Section, Plate 3) – the smallest scale divisions are 0.1mm). *Flora Europaea* Vol. 1, Tutin & Heywood *et al.* (1964) gives the seeds of *P. oleracea* as c.0.5mm, whilst the illustration of ssp. *oleracea* in Clement, Smith & Thirwell (2005) shows a seed just under 1mm across.

It was surprising to see several plants usually found in aquatic or at least damp, habitats. *Scrophularia auriculata* (Water Figwort), *Veronica anagallis-aquatica* (Blue Water-speedwell) and *Myosoton aquaticum* (Water Chickweed), were all flowering well on the dry bare soil – no doubt due to the source of some of the imported soil. Other plants were from arable habitats. Examples were *Misopates orontium* (Weasel's-snout), *Chrysanthemum*

segetum (Corn Marigold), *Nepeta cataria* (Cat-mint), *Fumaria officinalis* (Common Fumitory) and *Fumaria densiflora* (Dense-flowered Fumitory).

All three of us returned a fortnight later, and we continued to find additional locations for the species we had seen earlier as well as extra species. *Verbascum virgatum* (Twiggy Mullein) was added to the *V. blattaria* (Moth Mullein) and *V. phoeniceum* (Purple Mullein) found earlier. Incidentally *V. blattaria* always has single flowers at each node, but even low down on its stems *V. virgatum* can also have single flowers at each node. So, as Eric pointed out, the best distinguishing character between them is pedicel length.

Miles showed us a spot with at least 40 more plants of *Amsinckia micrantha* and we also stumbled on at least another 20 plants of *Solanum villosum* ssp. *miniaturum* (Red Nightshade). This is almost glabrous, but with a few eglandular adpressed hairs on the stems. On the lower stems it has small ‘wing-like’ angular ridges with tiny distant prickles. The fruits were all yellow when fully ripe (see Colour Section, Plate 3), so the vernacular name is confusing. The related ssp. *villosum* differs in having its stems densely covered in spreading hairs, some of them glandular, and the stems lack angular ridges with prickles. It appears that the ripe fruit colour of ssp.

villosum can be yellow as illustrated by Shaw (2001), or red, as shown in the *Interactive flora* by Stace *et al.* (2005). Possibly the fruit of ssp. *miniaturum* could also be red.

The most surprising addition on our second visit was *Agastache rugosa* (Korean Mint) (see Colour Section, Plate 3). A key to three *Agastache* species was given by Clement (2005), and *A. rugosa* was illustrated on the cover. It can also be keyed out in that splendid new book *The vegetative key to the British flora* (Poland & Clement 2009).

References:

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***Fraxinus ornus* (Manna Ash) in Cambridgeshire (v.c.29)**

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Having found it self-sown in Berwick-upon-Tweed, D.W. Shimwell asks in *BSBI News* **112**, if *Fraxinus ornus* is self-sowing in other counties in the British Isles. The response from Cambridgeshire is an emphatic yes. This species is quite widely planted here as a street/amenity tree and has started to sow itself around with some abandon. I now have it in about 14 locations around the city of Cambridge (10km squares TL45 & 46), and with other localities in Wilbraham (TL55), March (TL58) and Ely (TL49). This spread was first noticed in Cambridge in 2002, when hundreds of young plants were found at the

base of fences and walls along Histon Road, near a number of planted trees. They had clearly been there for some time and further searches in the vicinity showed that it was also self-sown in neighbouring gardens and around the base of buildings across the road. Some saplings were over 10ft tall and plants of this size have been recorded elsewhere in the city, where in total there must now be many hundreds of young plants. They occur in a variety of places, from wall and fence bases, as well as in shrubberies and as weeds in garden hedges, on common land, around graves in a cemetery, in car parks and as a pavement

weed, even under a doorstep in one case. Their almost blue grey buds and rather glossy leaflets are readily picked out once known. The plant which has ventured furthest from any parent persists on the old sidings at Cambridge station, where, as a result of past unsuccessful efforts to clear the area, it is now a vigorous multi-stemmed stool, with new growth a good 6ft tall and readily visible from

platform 3: not for much longer though, I fear, as new works for a neighbouring guided bus system are about to engulf it. This plant flowered and fruited in previous years. Unfortunately I have not recorded the sex of the potential parent planted trees in each case. It seems likely that this species is here to stay and is rapidly making itself at home. Indeed it may have the potential to be a troublesome weed.

Untangling the climbers – *Parthenocissus quinquefolia* & *P. inserta*

JOHN C. DAVID, *RHS Garden, Wisley, Woking, Surrey, GU23 6QB*

In a recent consultation on proposed amendments to the Wildlife & Countryside Act (1981), where further species of plants deemed invasive have been added to the list given in Schedule 9, two species of *Parthenocissus* (Virginia-creepers) have been suggested for inclusion. Both species are of ornamental value as climbers, especially for the autumn colouring of their leaves, but are known to be closely related and hard to separate. The confusion is increased by the fact that there has been some disagreement over the application of the names in the past (Webb 1967), so that accounts of these species in the literature need to be viewed with some caution.

The two species in question are from North America, and have slightly different but overlapping distributions. One, *P. quinquefolia* (Virginia-creeper), comes from the eastern United States and extends into Mexico, as well as north into southern Canada. The other, *P. inserta* (False Virginia-creeper), occurs in southern Canada and northern and

western parts of the United States (Webb 1967). Traditionally (e.g. Stace 1991) the two species have been separated on the basis of the branching of their tendrils and the formation of adhesive pads where the tendrils make contact with a solid surface. However, there has been some suggestion that this is not a reliable characteristic and that both species will form adhesive pads, just to varying degrees.

Since both species are considered to be invasive, it was important to check that the inclusion of both species was not the result of confusion over identification. The possibility also exists that identification of the two species may be made more uncertain by the existence of hybrids, which are said to occur spontaneously in cultivation (Schneider 1912; Clarke 1976). In looking for other characteristics by which the two species might be separated, two North American regional floras were consulted (Cooperrider 1995; Voss 1985) and the range other characters are given in the following Table.

Character	<i>P. quinquefolia</i>	<i>P. inserta</i>
Leaf surface	dull	more or less shiny
Leaf-undersides	distinctly pale green or slightly glaucous	not or only slightly paler
Leaflet base	moderately to long-tapering	short-tapering
Petiollules	1-10mm	5-10(-30)mm
Inflorescence	Cymes in terminal panicles, with elongate central axis and smaller side branches	Cymes solitary, usually forked near the base with two main branches of more or less equal size
Fruits	6mm, not or slightly pruinose, with 2-3 seeds	8mm, usually pruinose, with 3-4 seeds

Of these characteristics, it can be seen that the nature of the inflorescence branching and the underside of the leaves gives good support for distinguishing these species. These back up the distinction made on the formation of adhesive pads, where *P. quinquefolia* consistently forms cup-like pads at the end of the tendrils, and *P. inserta* at most produces swollen ends to the tendrils, usually where the tendril has worked its way into a crevice. On examination of living material, it is clear that in the latter species the tendrils almost always attach themselves by means of twisting round other objects. While hybrids between the two species may well exist, no material came to light in this study.

Those consulting the recent volume of the *Flora of Great Britain & Ireland* (Sell & Murrell 2009), which includes the Vitaceae, should be aware that *Parthenocissus inserta* is treated as a synonym of *Cissus verticillata*. This seems to follow the account of Vitaceae in the *European garden flora* (Brown 1997), although no other published treatment could be traced to support this synonymy. *Cissus* is distinguished from *Parthenocissus* on the presence or absence of a nectariferous disc in the flowers. In the latter genus there is no nectariferous disc and examination of material of *P. inserta* showed that there was no nectariferous disc, supporting the placement of this species in *Parthenocissus*. *Cissus verticillata* is a species from tropical to subtropical central and North America and a recent treatment of Vitaceae from this region (Lombardi 2000), shows that, while this is a variable species,

it clearly has a nectariferous disc, and the leaves, although they can be deeply lobate, are never divided into separate leaflets. This account does not include *P. inserta* as a synonym and it is therefore recommended that the use of the name *Cissus verticillata* for the False Virginia-creeper should be rejected.

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***Lagurus ovatus* (Hare's-tail) with secondary intravaginal inflorescences**

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I have been recording the flora of Shellness in the Isle of Sheppey, a very under recorded grid square, which is in fact mainly sea - grid reference TR0568. It consists of a spit of very shelly sand at the eastern end of the Swale in the Thames estuary, and an area of salt marsh. Off the salt marsh and immediate sea shore the dominant vegetation is couch grassland consisting of three species: *Elytrigia atherica* (Sea Couch), *Elytrigia juncea* (Sand Couch), and their hybrid *Elytrigia atherica* × *Elytrigia juncea*. I collected specimens of all three to familiarise my self with them. I also collected a specimen of *Lagurus ovatus* (Hare's-tail), which I understand was introduced there quite a long while ago.

From the specimens lying on my desk I collected seed of the Hare's-tail and Sand Couch and planted them in a pot on the windowsill. Both germinated and grew together. The Hare's-tail flowered, admittedly two months later than the wild population at Shellness, ripened and died back.

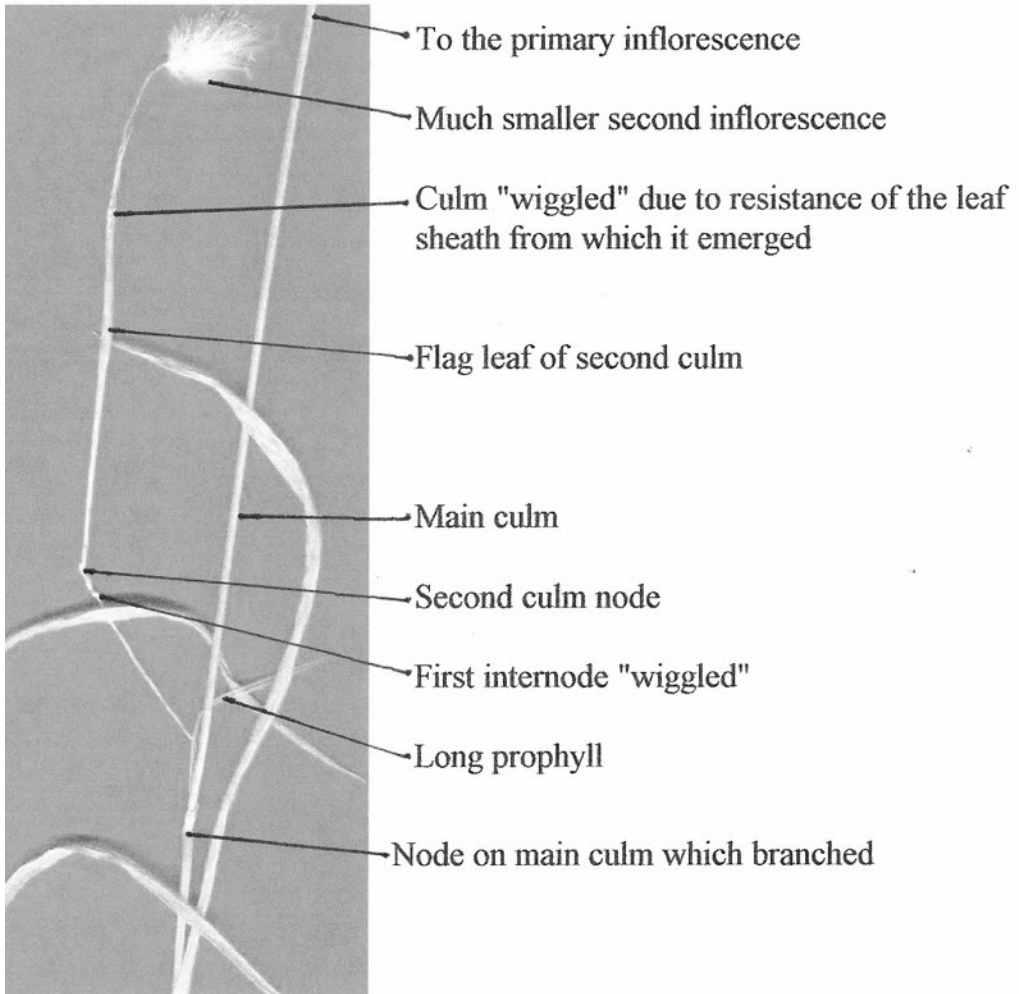
This July I cut down the *Lagurus* to soil level, and much to my surprise noticed something on the cut material that I had never seen before. There were second inflorescences on some of the culms, emerging intravaginally from leaves further down the culm than the flag leaf. I dissected off the leaf and found that the second inflorescence came from a branch at that node and, as expected, there was a long prophyll adaxial to the primary culm. The intercalary meristem had elongated and pushed the second inflorescences up the inside of the leaf sheath, against some resistance, causing the internodes to wiggle. The second inflorescence was smaller than the primary one but the spikelets achieved anthesis, so I assume the flowers were fertile (see drawing p. 63). I will check to see if they germinate.

Nowhere in the literature could I find this feature actually described. I reported this to Dr Tom Cope at Kew, who warned that growing plants out of stress indoors can make odd things happen. So I checked the wild population at Shellness and found the second inflorescences were common. I have checked with Rachel Rabey in Guernsey, where I know *Lagurus* is native, and she has confirmed that second inflorescences are common there. I have visited Dr Cope at Kew, and the herbarium specimens frequently exhibit second inflorescences. He mentioned that *Calamagrostis canescens* (Purple Small-reed) exhibits culm branching like this. Interestingly, Bentham and Hooker's *British Flora* describes *Lagurus* as "having characters nearly of *Calamagrostis*, except of the inflorescence".

The other species in the pot, the Sand Couch, also exhibits an unusual feature. The long leafy sprawling stems have distantly spaced leaves, and the sheaths rotate through 180° so that the leaf blades are all on one side of the stem, pointing downwards. Being an annual, almost all the tillers culminate in an inflorescence. But frequently, even commonly, at least one node on the culm produces a branch which emerges from its parent nodal leaf sheath intravaginally, with a smaller, but normal, inflorescence. There is a groove in the main internode to accommodate the bud. Slightly distant from the parent node there is a long (2cm or more) lanceolate, membranous prophyll, followed by a node with a flag leaf, with a somewhat inflated sheath because of the second inflorescence. The lateral inflorescence is smaller than the primary one, but appears normal, achieving anthesis and ripe seeds. I am checking viability of these.

The Sand Couch grew long sprawling leafy stems, but has not yet flowered, presumably because it is just not under stress.

Secondary intravaginal inflorescence on Hare's-tail grass *Lagurus ovatus*



The colour of the petals of *Malva (Lavatera) cretica* (Smaller Tree-mallow)

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Three identification books in my possession give this as lilac, one gives it as pinkish-lilac, and one as rose-purple with darker veins. I realise that people see colours differently, but some years ago I saw it in the Isles of Scilly

and last year I saw it on Guernsey. In each case it was **pink**, with darker veins. When dried, the petals turn blue-purple – the deeper colour of lilac.

REQUESTS & OFFERS

A new fully interactive key to the British flora – photos wanted

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Together with Alan Hale, I am working on producing a fully interactive multi-access key to the entire British and Irish flora, for use with a hand-held computer (PDA), home computer and potentially with an iPhone. The key is primarily based upon the simple divisions of the *Vegetative Key* (2009) but flower and fruit characters will be added. The combination of characters will enable rapid and reliable identification of a plant found in any stage of growth at any time of year.

Unlike books, space is much less of an issue and the interactive key will contain numerous digital images and some line illustrations.

Consequently, I am keen to receive plant photos from the many enthusiastic photographers within the BSBI for inclusion in the interactive key (contributors will be fully acknowledged). Ambitiously, the first beta version is anticipated within just two years.

Despite the wealth of Floras on the internet, few are fully interactive. Details of the ones I am aware of can be found on p. 42.

Reference:

POLAND, J. & CLEMENT, E.J. (2009). *The Vegetative Key to the British Flora*. John Poland, in association with the BSBI, Southampton.

Suffolk survey – help needed for a book

COLIN JACOBS, *12 Grove Road, Beccles, Suffolk, NR34 9RB*

In June 2009 I was requested to survey over 400 acres of farmland and village surrounding Barsham Hall (TM3989), near Beccles in East Suffolk, by the Hall's owners. The survey will start officially in 2010, and will last ten years. I have been visiting the area on a frequent basis, but I would like to give other botanists and naturalists the chance to hone their field skills. I would then, of course, like to invite any botanists who may either specialise in certain species such as *Rubus*, or beginners and

experts who could help record the area. The survey will be made into a report in 2020.

Neither I or the owners of the Barsham Hall estate and surrounding farms can offer payment, but I can offer free digs at my home for as long as is needed, including access to my study and library.

Anyone interested in recording for us, please email: benacre2001@yahoo.co.uk, or tel: 01502 719752. All recorders will be mentioned in the book.

B & B in Central France

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We wonder whether perhaps some members might like a holiday break with us to explore this tranquil part of France (60km south east of Poitiers). We can offer B&B (other meals available in village 2km) in simple accommo-

dation in a fairly large and characterful house, with a wonderful meadow full of orchids and many other species of both plants and animals. Please write, phone or email to the addresses above for further details.

Gofynne seed list 2010

ANDREW SHAW, *Gofynne, Llanynis, Builth Wells, Powys, LD2 3HN;*
(andrewgshaw@hotmail.com)

A small quantity of seed from any of the following species is sent free upon receipt of a SAE.

Alisma gramineum

Bromus interruptus

Campanula patula

Clinopodium menthifolium

Cyperus fuscus

Damasonium alisma

Dianthus armeria

Epilobium lanceolatum

Fumaria purpurea

Juncus pygmaeus

Limosella aquatica

Limosella australis

Oenothera stricta

Pilosella peleteriana ssp. *subpeleteriana*

Poa infirma

Rumex maritimus

Rumex rupestris

Silene noctiflora

Sonchus palustris

Viola kitaibelianna

BSBI News copies on offer

COLIN A JACOBS, *12 Grove Road, Beccles, Suffolk, NR34 9RB*

I have the following *BSBI News* free to a good home. The recipient may collect or pay postage. I will split.

Vol. 3, no.2 (May 1974), no.3 (Nov. 1974), no.9 (March 1975), no.10 (Sep. 1975), no.11 (Sep. 1975), no.12 (Feb. 1976), no.13 (Sep. 1976), no.13 (Dec. 1976), no.15 (April 1977), no.16 (Sep. 1977), no.17 (Dec. 1977), no.18 (April 1968), no.19 (Sep. 1978), no.20 (Dec. 1978), no.21 (April 1977), no.22 (Oct. 1979), no.23 (Dec. 1979), no. 24 (April 1980), no.26 (Dec. 1980), no.27 (April 1981), no.28 (Sep.

1981), no.29 (Dec. 1981), no.32 (Dec. 1982)(x2), no.73 (Sep. 1996), no.77 (Dec. 1997), no.82 (Sep. 1999), no.84 (April 2000).

I would like to thank Martin Sanford for filling the gaps in my collection of *BSBI News* and some gaps in *Watsonia*. In return I am looking for any pre-1990 *Watsonia*'s to complete my *BSBI* collection. I also have in my collection the leaflets, indexes and other ephemera. Am I one of the biggest *BSBI* publication collectors?

NOTICES

Ashmolean Natural History Society of Oxfordshire: Education Group Identification Courses, 2010

The Ashmolean Natural History Society of Oxfordshire has been providing plant identification courses through its Education Group for eight years now, and has acquired a national reputation for the rigour and accessibility of its teaching. In 2010, in addition to the basic course, which aims to teach the use of a dichotomous key, the continuation courses (for those who have attended the basic course or have a similar level of experience) include 'Grasses

and Vegetative Identification'. There will also be a day studying 'Grassland Flora and Quadrat Recording' and a course on the 'Use of Microscopes'.

Tutors for all courses are active botanists or experts in the particular botanical group that the course is covering.

For further information on all courses phone Frances Watkins on 01865 863660 or email: frances@oxfordrareplants.org.uk

The Wild *Gladiolus* (*Gladiolus illyricus*) in Britain: past, present and future

A one-day conference on its biology and status: Brockenhurst Village Hall, New Forest, Hampshire

Saturday 13th March 2010

Gladiolus illyricus Koch (The Wild *Gladiolus*) is one of the most prized and emblematic wild plants of the New Forest. Yet knowledge of its existence in Britain goes back little more than 150 years. Its taxonomy and status have often been called into question; and now its fortunes seem to be in decline.

This one-day conference will bring together many of the people who have studied the plant in recent decades, with the hope of consolidating knowledge, encouraging further study and supporting conservation efforts. The day will be organised as a series of formal presentations, each followed by an opportunity for questions and discussion.

The conference will be chaired by Clive Chatters, Chairman of the New Forest National Park Authority. Clive is well-known for his botanical writing and his work over many years to conserve Hampshire wildlife and safeguard traditional land management.

Formal speakers include:

Anthony Hamilton (British *Gladiolus* Society, author of *Gladiolus* in *Flora Europaea*): Taxonomy and genetics.

Jonathan Stokes (Tree Council, former researcher on New Forest *Gladiolus*): Biology and ecology.

Geoff Toone (Botanical Society of the British Isles): The early recording history.

Martin Rand (South Hampshire Recorder, Botanical Society of the British Isles): Recording and populations in the last 60 years.

Adrian Newton and Sarah North (University of Bournemouth): Mapping the habitat of *Gladiolus*.

Richard Reeves (Christopher Tower Library, New Forest Museum): *Gladiolus* and historic land management.

Simon Weymouth (Chief Ecologist, Forestry Commission, New Forest): Current initiatives to conserve *Gladiolus*.

The day will end with a discussion session chaired by Clive Chatters, bringing together the strands of the day and eliciting suggestions for future work. Many other individuals and members of institutions with a keen interest in Forest ecology have already shown their interest in attending, so a lively discussion is guaranteed!

The conference fee will be £5 per head, to include refreshments during the day. An optional buffet lunch can also be booked at a modest extra cost.

A full brochure and booking form can be downloaded from the following website:

<http://hantsplants.org.uk/gladconf.php> or obtained from: Natalie Rogers, Hampshire and Isle of Wight Wildlife Trust, Beechcroft House, Vicarage Lane, Curdridge, Hampshire, SO32 2DP. (email: NatalieR@hwt.org.uk)

For further information about the day's content, contact: Martin Rand, BSBI Recorder (v.c.11), 21 Pine Road, Chandlers Ford, Eastleigh, Hampshire, SO53 1LH. (email: vc11recorder@hantsplants.org.uk)

Excursion to Almería (South-east Spain) - April 2010

There are still a few places available for the spring field meeting in sun-drenched Almería, where we can expect to encounter a wealth of colourful plants, birds and butterflies, many of them not found elsewhere in Europe. Dates

are from Thursday 15th April to Thursday 22nd April 2010. For further details, please contact:

Teresa Farino, Apartado de Correos 59, 39570 Potes, Cantabria, Spain; tel.: 00 34 942 735154; e-mail: teresa@iberianwildlife.com

FIELD MEETING REPORTS: 2009

Reports of field meetings are collated by Dr Alan Showler, and copy for these should be sent to him direct, not to the editors of *BSBI News*. His address is: 12 Wedgwood Drive, Hughenden

Valley, High Wycombe, Bucks., HP14 4PA (tel.: 01494 562082). Copy for day meetings should generally be up to 500 words, and for weekend meetings, up to 1000 words.

Cors Erddreiniog NNR, Anglesey(v.c.52), 6th June

WENDY MCCARTHY & JOHN BRATTON

The unseasonal weather (north wind, rain) failed to deter 17 BSBI members and friends from enjoying a tour of Cors Erddreiniog led by Countryside Council for Wales warden, Les Colley and their peatland ecologist, Peter Jones. The National Nature Reserve is centred on a cut-over raised bog, with 4000 years' worth of peat having been removed in recent centuries to leave a mosaic of wetland habitats famous for their rare plants and invertebrates.

We set off along the foot of the slope on the east side where calcareous groundwater feeds the fen. Ditches here were infilled to prevent loss of the groundwater and this has produced a series of ponds, where we saw *Baldellia ranunculoides* (Lesser Waterplantain), *Potamogeton coloratus* (Fen Pondweed), *Eleogiton fluitans* (Floating Club-rush) and *Potentilla palustris* (Marsh Cinquefoil).

The calcareous ground further north held colourful patches of *Aquilegia vulgaris* (Columbine), with *Pinguicula vulgaris* (Butterwort) and the emerging leaves of *Parnassia palustris* (Grass of Parnassus). Several orchids grew here, including *Ophrys insectifera* (Fly Orchid), *Platanthera bifolia* (Lesser Butterfly-orchid) and *Gymnadenia conopsea* ssp. *densiflora* (Fragrant Orchid). Nearby, a stand of *Calamagrostis epigejos* (Wood Small-reed) was investigated, but was not yet in flower.

A brief search of the hazel wood failed to produce *Carex pallescens* (Pale Sedge), found here on a previous BSBI meeting in the early 1990s. The cool weather meant

that invertebrates were not much in evidence, but a cold, wet dragonfly was carefully examined and found to be *Libellula quadrimaculata* (Four-spotted chaser).

Lunch was taken mostly standing up, and then the party crossed the fen to the more acidic western side, overlying old red sandstone. A pond here was fringed with large tussocks of *Carex elata* (Tufted Sedge), alongside *Hippuris vulgaris* (Mare's-tail), *Sparganium emersum* (Unbranched Bur-reed) and *Hottonia palustris* (Water Violet). The fenny fields were dominated by *Equisetum fluviatile* (Water Horsetail) and *Menyanthes trifoliata* (Bog-bean), but careful searching produced *Stellaria palustris* (Marsh Stitchwort), *Carex diandra* (Lesser Tussock-sedge), *Potamogeton berchtoldii* (Small Pondweed) and leaves of *Sparganium natans* (Least Bur-reed). By now we had reached the final, most acidic area of the fen, with abundant *Cladium mariscus* (Great Fen-sedge), and also *Narthecium ossifragum* (Bog Asphodel), *Drosera rotundifolia* (Sundew), *Viola palustris* (Marsh Violet), and, in the wetter centre, a fine stand of *Carex limosa* (Bog-sedge), a very recent discovery in this well botanised site. The route back took us over a dry grassland mound, which supported *Viola riviniana* × *lactea* (a hybrid violet) and *Botrychium lunaria* (Moonwort), despite having being ploughed and reseeded in 1980, prior to becoming part of the NNR.

Thanks to Les Colley and Peter Jones for their expert guidance and enthusiasm despite the weather.

Cavehill and Collinward, Co. Antrim (v.c.H39), 20th June

DAVID MCNEILL

A group of nine botanists, including three students from the University of Ulster, met at Belfast Zoo with plants rather than animals being the order of the day. The woods immediately above the zoo have yielded both *Pyrola minor* (Common Wintergreen) and *Pyrola media* (Intermediate Wintergreen) in the past, and we aimed to see if either species was still present. Roger Field was able to pinpoint a streamside bank where he had seen *Pyrola minor* many years earlier, but none could be found on this occasion. Amongst the more local woodland species observed were *Galium odoratum* (Woodruff) and *Melica uniflora* (Wood Melick).

Climbing through the open woodland, we paused frequently to enjoy the views back over Belfast Lough and down into the narrow gorge cut by the stream we had followed earlier. Shortly after emerging from the woodland, a stile took us out onto the grazed slopes of Collinward Mountain. Almost immediately we found a butterfly orchid, the first of several, all unopened. John Faulkner demonstrated that the divergent pollinia of *Platanthera chlorantha* (Greater Butterfly-orchid) could still be observed, even in bud. In the same field we saw the first *Helictotrichon pubescens* (Downy Oat-grass) of the day and also *Ranunculus bulbosus* (Bulbous Buttercup).

Nearby, we came to an attractive area of broken rocky pasture and wet flush. Swarms of brightly-coloured *Dactylorhiza maculata* (Heath Spotted-orchid), *D. purpurella* (Northern Marsh-orchid) and their hybrid kept everyone happy. *Pedicularis palustris* (Marsh Lousewort) and *Crepis paludosa* (Marsh Hawksbeard) were also prominent, whilst a little more patience was required to spot *Carex dioica* (Dioecious Sedge) and *Eleocharis quinqueflora* (Few-flowered Spike-rush). Another target species eluded us. *Pseudorchis albida* (Small-white Orchid) was recorded on the slopes of Collinward above Belfast Zoo in 1987 and 1988. Unfortunately, without an

accurate grid reference, we searched suitable habitat in vain.

The colourful flora ensured an idyllic lunch spot, and the damp conditions did not deter the students from lounging in the long grass. After lunch, we contoured round the mountain to other flushed ground. Just as we were about to turn back, Paul Hackney spotted a *Dactylorhiza incarnata* (Early Marsh-orchid) spike. The flesh-coloured flowers indicated ssp. *incarnata*. There were about half a dozen flowering spikes in the immediate vicinity.

The party then set off on a long trek between Cavehill and Collinward, in the direction of an ugly landfill site. During a short drink stop, we discussed the discovery of *Pyrola media* in a nearby moorland site in 1991. It had been re-discovered in 2008 in a basalt quarry adjoining the landfill site, and the group now proceeded into this quarry. The *Pyrola media* was seen almost immediately, in much greater quantity and in a wider area than seen in 2008. Approximately 20 flowering spikes and 60 other plants were counted. The quarry provided an interesting contrast to the earlier habitat. The plants seen included *Filago minima* (Small Cudweed), *Arenaria serpyllifolia* (Thyme-leaved Sandwort), *Catapodium rigidum* (Fern-grass), *Erophila verna* (Common Whitlowgrass), *Listera ovata* (Common Twayblade), *Dactylorhiza purpurella* and tasty *Fragaria vesca* (Wild Strawberry). *Mycelis muralis* (Wall Lettuce) even made an appearance, venturing far from its urban home.

Another long climb brought us to the top of Cavehill. We paused at McArt's Fort, known to locals as Napoleon's Nose, and were appalled to see a lady dangling her legs over the edge of the cliff. The scramble down the steep slopes was not fun for most of the group, but we came safely to the cave, which gives the mountain its name. Here *Helictotrichon pubescens* turned up again and the very local *Pimpinella saxifraga* (Burnet-saxifrage) was seen. Two members of the group, one of

whom was the leader, inadvicely decided to climb up a steep grassy slope to the base of the cliff. When everyone was eventually reunited, we chose a route back to the car park

through a different part of the woods. *Pyrola minor* would have been a nice end to a long day, but it wasn't to be.

Fearn Peninsular (v.c.106: Easter Ross), 20th -21st June

BARBARA & BRIAN BALLINGER

The aim of this meeting was atlas updating and a review of the Easter Ross Rare Plants Register.

On the first day, nine of us met at Fearn Station, which was covered in flowers in spite of Network Rail's weedkillers. Here we spotted *Vulpia myuros* (Rat's-tail Fescue) growing up against the station buildings.

The RAF had kindly given us permission to visit the Morrigh More bombing range near Tain and we were greeted by a bomb disposal officer who gave us a safety briefing. This site is a splendid area of dunes and saltmarsh, and it has remarkable quantities of *Juniperus communis* (Common Juniper). There has, however, been some concern about how well it is growing here at present. In the Red Stripe Loch area the tussocky ground was covered with *Dactylorhiza incarnata* (Early Marsh-orchid), although ssp. *coccinea* was not refound. The first of the *Juncus balticus* (Baltic Rush), which is widespread on the range, was also seen here. The base-rich loch grew a dense mat of *Chara* species.

At the road end we refound *Botrychium lunaria* (Moonwort) and *Astragalus danicus* (Purple Milk-Vetch) was scattered along a considerable length of track. In an area of regenerating *Salix*, more than 30 spikes of *Corallorhiza triflida* (Coralroot Orchid) grew, and this is one of several known locations on the site.

At Loch na Muic we had a long debate about the identity of a Brassicaceae species, which we finally decided must be *Rorippa microphylla* (Narrow-fruited Water-cress). *Baldellia ranunculoides* (Lesser Water-plantain) had just come into flower. Near the targets we re-found *Equisetum variegatum* (Variegated Horsetail), only discovered in this part of Morrigh More recently, and also

Geranium pusillum (Small-flowered Crane's-bill), not common in Easter Ross, and new for this location. *Carduus tenuiflorus* (Slender Thistle) is also frequent here.

Time did not allow us to venture further onto the dunes, but we were able to view a ditch on the way out that was filled with *Catabrosa aquatica* (Whorl-grass) and *Veronica anagallis-aquatica* (Blue Water-speedwell).

On the second day we were joined by five more members and guests, and drove the short distance to the shore at Shandwick. Near the village, a large and persistent patch of *Lepidium draba* (Hoary Cress) grows in its only v.c.106 location, and nearby was *Saponaria officinalis* (Soapwort), unusual in this area.

Thalictrum minus (Lesser Meadow-rue) is common along the coastal path and we saw *Astragalus danicus* and *Catabrosa aquatica* again. The base-rich turf was very colourful, although the *Orchis mascula* (Early-Purple Orchid) had just finished flowering.

The sandstone cliffs support *Helianthemum nummularium* (Common Rock-rose) and *Carlina vulgaris* (Carline Thistle). We then examined the area where *Oxytropis halleri* (Purple Oxytropis) is seen, and we counted around 40 plants, a few still flowering. The number of plants has fallen considerably here and the causes of this were discussed. The other two Easter Ross sites for *Oxytropis* are in more difficulty, with one reduced to five plants and the other to only one (these represent three of the ten known British 10km locations for this species.) It may be that withdrawal of grazing from the steep cliffs, overgrowth by *Ulex europaeus* (Gorse) and climate change are factors.

Town Yetholm, Roxburghshire (v.c.80), 4th - 5th July

ROD CORNER

Twelve members assembled on the village green on a bright morning with sunny and dry conditions holding up over the whole weekend. We split into two groups, with Michael Braithwaite leading the first group, which recorded around the village, on Yetholm Haughs beside the Bowmont Water and up the Halterburn valley. In the village a good selection of species was seen including the local *Euphorbia lathyris* (Caper Spurge), *Geranium pyrenaicum* (Hedgerow Crane's-bill) and the first localised vice-county record for *Parietaria judaica* (Pellitory-of-the-wall). Among species recorded from the open conditions of the haugh were *Dipsacus fullonum* (Teasel), *Echium vulgare* (Viper's Bugloss), *Malva sylvestris* (Common Mallow), *Vicia lathyroides* (Spring Vetch), and *Viola tricolor* (Wild Pansy), with *Ranunculus hederaceus* (Ivy-leaved Crowfoot) in wetter conditions. There was an old record for *Dianthus deltoides* (Maiden Pink) from the Witchcleuch Burn at Halterburn, made by Professor George Swan in 1959 but not seen since. It was deemed worthy of a search more in hope than expectation, especially as it was a targeted species on the Threatened Plant Project list. Indeed much to the delight of the party, a large healthy population was found to be extant and given intensive monitoring treatment. Closely associated species of note were *Helianthemum nummularium* (Common Rock-rose), *Helictotrichon pratense* (Meadow Oat-grass) and *Koeleria macrantha* (Crested Hair-grass) with *Carex muricata* ssp. *lamprocarpa* (Prickly Sedge) nearby.

The second group travelled up the Bowmont Water to the farm of Cocklawfoot, from where the ascent of the Cheviot Burn began. They had montane species in their sights, as this part of v.c.80 has the highest ground in the vice-county, reaching 743m at the edge of The Cheviot plateau, and which

provides a last refugium in the vice-county for some species. The recorder was last here almost 30 years ago, so it was of interest to note changes in the flora. On a steep flushed slope above the burn, *Carex laevigata* (Smooth-stalked Sedge) was abundant, and first recorded here by George Swan in 1959, with *Carex muricata* ssp. *lamprocarpa* (Prickly Sedge) in the dry andesite grassland. At the foot of the slope, a bryophyte flush had produced the rare moss *Tomentypnum nitens* (Woolly Feather-moss) during a reconnoitre the previous day. *Sedum villosum* (Hairy Stonecrop) was only seen in two sites, the lower one being limited to a few plants, with only a high level flush at 670m having a good population. This contrasts with observations in 1975, when it was recorded as being "locally common from 300-610m". This species has lost ground throughout the Borders, mainly from forestry and over-grazing. *Saxifraga stellaris* (Starry Saxifrage) has its only vice-county population here, and seemed rarer than before, with only a few plants seen on the upper part of the burn. *Epilobium alsinifolium* (Chickweed Willowherb), last seen in 1997, appeared to be extinct. The steep irrigated bank where it occurred had been undermined by the drastic floods of Autumn 2008 and swept away, and it was not found in the high-level flush where it was last seen in 1981. Heavy grazing over the last few decades has badly degraded these flushes. *Saxifraga hypnoides* (Mossy Saxifrage) was present in small quantity on a ledge and in addition, Luke Gaskell spotted two flowering plants of *S. granulata* (Meadow Saxifrage). This would have been the site where it was previously recorded by Clive Dixon as "610m", but a GPS check on the map contour level reduced the altitude to 550m. Among the species on blanket peat below Auchope Cairn were *Rubus*

chamaemorus (Cloudberry), *Vaccinium vitis-idaea* (Cowberry) and *Carex bigelowii* (Stiff Sedge), and it was good to see a population of the hybrid (*C. ×decolorans*), with *C. nigra* (Common Sedge). As a bonus, the conspicuous pink montane moss *Bryum weigelii* (Duval's Thread-moss) was seen in two flushes and was new to the vice-county. The two groups met up later and enjoyed an excellent meal and chat over their finds at the Plough Hotel.

On the following day the Scottish Wildlife Trust reserves of Hoselaw Loch with Din Moss and Yetholm Loch were visited. Hoselaw Loch had fine stands of *Cicuta virosa* (Cowbane), especially on the north side, but attempts with the grapnel to obtain aquatics were singularly disappointing, with no sign of living plant material. This must be due to the run-off from the intensively managed land partly surrounding the loch and, as Martyn Stead pointed out, the lack of any waterfowl on the loch indicated this. At the western end, only a brief foray was made on to the raised bog of Din Moss, where the surface was very tussocky and much pockmarked with holes, so that any progress was painfully slow. *Calluna vulgaris* (Heather), *Empetrum nigrum* (Crowberry), *Erica tetralix* (Cross-leaved Heath) and *Vaccinium oxycoccos* (Cranberry), with the two common *Eriophorum* (Cotton-grass) species were noted, but *Trichophorum* (Deergrass) was absent. The hybrid fern *Dryopteris ×deweveri* (*D. dilatata* × *D. carthusiana*) (Broad Buckler × Narrow Buckler-fern) was seen in the birch woodland. This is the only v.c. site, but it must be over-looked elsewhere. At the western margin of the loch, fen conditions, with willow carr and *Phragmites* (Common Reed) graded into birch woodland fringing the raised bog. None of the less common willows to the area was observed. *Carex curta* (White Sedge), *Lycopus europaeus* (Gypsywort), *Potentilla palustris* (Marsh Cinquefoil) and *Ranunculus lingua* (Greater

Spearwort) were seen, and a conspicuous and unexpected stand of *Scrophularia umbrosa* (Green Figwort), presumably as a relative newcomer, was admired. The quantity of fruiting *Sphagnum fimbriatum* was conspicuous and remarked upon. The traverse through the wet jungle-like conditions of the carr was not to every one's liking, but lunch was partaken in a dry sunny glade and the object of the traverse, *Carex riparia* (Great Pond Sedge), in one of its only two vice-county sites, was finally attained and found to be dominant over 20×10m. The utricles were still infected by the smut *Farysia thuemenii*, noted in 1981. The hybrid *Rumex ×pratensis* (*R. crispus* × *R. obtusifolius*) (Curled × Broad-leaved Dock) was seen at the field edge before reaching the cars.

Yetholm Loch was a haunt of the Berwickshire Naturalists' Club, and many of the aquatics recorded, especially by Andrew Brotherston 130 years ago, are still extant. The sight of 80 mute swans on the surface boded well for aquatics. Indeed, the grapnel was draped with masses of *Potamogeton pectinatus* (Fennel Pondweed) and *P. pusillus* (Lesser Pondweed), with small amounts of *Callitriche hermaphroditica* (Autumnal Water-starwort) and *Zannichellia palustris* (Horned Pondweed). Along the western shore grew *Butomus umbellatus* (Flowering-rush), *Carex acutiformis* (Lesser Pond-sedge), *Cicuta virosa* (Cowbane), *Ranunculus sceleratus* (Celery-leaved Buttercup) and *Veronica anagallis-aquatica* (Blue Water-speedwell), with *Geranium pusillum* (Small-flowered Crane's-bill) in the farm-yard. There was no opportunity to explore the extensive area of fen to the south of the loch. It had been a very worth-while weekend, with a good set of updated records, and I would like to thank those who attended for contributing their expertise and good humour, the land owners for access and to Julian Warman of the Scottish Wildlife Trust for help in preparing the visit to the reserves.

Carmarthenshire Recording Week, Glynhir, 11th – 18th July

KATH PRYCE

Saturday 11th July

Nine BSBI members assembled for lunch at Glynhir (SN6315). Mary Smith and Fay Newbery, who had not visited Glynhir before were welcomed by the 'regulars'. The planned gentle introduction to the week was an excursion to a nearby hay meadow at Bryntirion, Llanedi (SN5808), with hosts Pat and Barney Gill, many interesting plants (including *Gymnadenia conopsea* ssp. *borealis* (Fragrant Orchid)), Marbled White butterflies, and continuous heavy rain – a demonstration of why Wales appears so green! Margot Godfrey (perhaps wisely and certainly of great value) chose to forego the field meeting and instead made a species list from around Glynhir Mansion. Andrew Stevens attended the field meeting and brought along a living grass specimen grown from English seed, as a puzzle for the evening session. Martyn Stead collected specimens of two varieties of *Rumex sanguineus* (Wood Dock) from the roadside near Bryntirion which were demonstrated that evening as varieties *viridis* and *sanguinalis*. Arthur Chater reported a plant of *Cannabis sativa* (Hemp) growing beneath the bird-feeders at Glynhir. Andrew's grass was quickly determined by Arthur and Graeme Kay as *Bromus interruptus* (Interrupted Brome), a species now extinct in the wild. John Poland arrived in time for the evening meal.

Sunday 12th July

The party travelled to Salthouse Farm near Pendine (SN2909) for the morning and were joined by Nigel Stringer, Stephen and Anne Coker (the County Dragonfly Recorders) and Simeon Jones. *Trifolium glomeratum* (Clustered Clover) had been reported from here recently by Ian Morgan and the plants were re-found on a rocky bluff at the foot of the densely vegetated Old Red Sandstone cliffs. Very few flowers remained but its seed heads are very distinctive. *Carex punctata* (Dotted Sedge) was found by the track nearby,

a new (the sixth) site in the county. After crossing the Salthouse Pill, the general consensus was to break for lunch, after which the party returned along the former tramway on the south side of the pill, although some members wisely (as it turned out) re-crossed the bridge and retraced their steps. The main party followed Richard to another bridge, which was found to have been demolished! This resulted in most people choosing to walk the length of the tramway to the road, but the drivers had little alternative than to cross the pill on a precarious log in order to fetch the cars to pick-up the others! This wasted at least an hour, so the visit to Ginst Point (SN3208) was shorter than planned. However, the effort was worth it, as plants seen at Ginst included the first Vice-county record of *Parapholis incurva* (Curved Hardgrass), which has subsequently been confirmed by Arthur Copping, Mick Crawley and David Pearman. As the day's finale, the sight of acres of *Limonium vulgare* (Common Sea-lavender) in full flower was well appreciated.

Monday 13th July

The party split into three groups. Richard distributed new versions of the Carmarthenshire field-record card amended to highlight species for which more detailed notes and/or a specimen are desirable. Arthur, Graeme, Richard and I visited the River Tywi at Llwyn Jack, Llandovery (SN7533), where we were joined by the Cokers. The river here includes extensive shingle shoals, and gravel workings have created several ponds. Species on the gravels included 16 plants of *Bromus secalinus* (Rye Brome), frequent *Rorippa islandica* (Northern Yellow-cress), *Senecio viscosus* (Sticky Groundsel), *Spergularia rubra* (Sand Spurrey) and *Silene uniflora* (Sea Campion). *S. uniflora* occurs sparingly at the coast in Carm., as well as inland on some mountain cliffs and old lead-mine tips. It is presumably from these tips that it has washed down the Tywi to become occasionally established on

the shoals. Arthur identified several trees of *Betula celtiberica* and demonstrated its distinguishing characters. It is believed to be a native species in Wales and he exhibited details at the BSBI Welsh AGM in Builth in June 2009 (Chater, in press). Another group (Margot, Mary and Martyn) visited several sites in the Llanddeusant area (SN72) with the express purpose of monitoring past records of *Vicia orobus* (Wood Bitter-vetch) for the Threatened Plants Project. Richard and I had been to two of the sites earlier in the year and had failed to find it, but had noted *Lathyrus linifolius* (Bitter-vetch). Today's excursion was just as unsuccessful. Both past records had been made by non-botanists, which invites the question as to whether *L. linifolius* had been misidentified as *V. orobus*. However, the group did not have a wasted day and recorded *Sedum telephium* (Orpine), *Equisetum sylvaticum* (Wood Horsetail), *Jasione montana* (Sheep's-bit) and *Melampyrum pratense* (Cow-wheat) on roadside banks in the vicinity of the search-sites. Fay, Priscilla Tolfree and Heather Colls visited tetrads SN52Q and SN52V in the central Tywi valley. One of their tasks was to re-find *Carex strigosa* (Thin-spiked Wood-sedge) at Allt-y-Wern SSSI, where it was last seen in 1999. They duly found about 20 tufts by a streamside in the woodland, at one of its two sites in the county. They also recorded *Bromopsis ramosa* (Hairy Brome), *Rorippa islandica* and *Carex otrubae* (False Fox-sedge), which is scarce inland in the county.

Following the evening meal, a small group visited Glynhir Waterfall to pay homage to the *Dryopteris aemula* (Hay-scented Buckler-fern).

Tuesday 14th July

Today Margot and Martyn went to Carmarthen (SN4119) to do some urban botanising, while the rest of the party visited Abergorlech to be shown the "Brechfa Forest Garden" (SN5635) by Forestry Commission staff. We were met by Andy Jones, who was joining the Glynhir party for the remainder of the week. The Forest Garden is an area of Brechfa Forest experimentally planted in the late 1950s and

1960s with 89 single-species blocks of up to about 0.15ha each of both coniferous and broad-leaved species to test their potential commercial value under forest conditions in the mild, wet, west Wales climate. Forty-two species have survived although not all are growing vigorously, whilst twenty-two have failed. The spruces and firs have grown well, whilst many pines have done less well. After lunch the party opted to walk along the forest track to the River Gorlech. The track verges yielded some interesting species, such as *Wahlenbergia hederacea* (Ivy-leaved Bellflower), whilst *Phegopteris connectilis* (Beech Fern) and *Equisetum sylvaticum* (Wood Horsetail) grew by the river. On the return to the main road through the forest the party made a brief stop to be shown one of the few *Formica rufa* (Red Wood-ant) nests in the county. Back at Glynhir, Mary and James Iliff joined us for the evening meal, Julie Clarke and Marion Chappell joined us in the evening to stay a few days, and Barry and Sandra Stewart arrived to set up three overnight moth traps in the grounds. After dinner Martyn and Margot reported their Carmarthen discoveries, which included *Potentilla intermedia* (Russian Cinquefoil) on waste ground near the station, the first county record. Among many other species in the vicinity, they had also found *Catapodium rigidum* (Fern-grass), *Vulpia myuros* (Rat's-tail Fescue), *Rorippa islandica*, *Sagina nodosa* (Knotted Pearlwort) and *Euphrasia confusa* × *E. nemorosa* (an eyebright), whilst a single plant of *Veronica agrestis* (Grey Field-speedwell) was found growing as a pavement weed.

Wednesday 15th July

Small groups visited several places today. Julie, Marion and Fay went to Llyn-y-Fan Fach and its vicinity (SN8022 & SN8023), as they were keen to see *Euphrasia rivularis* (Snowdon Eyebright), where it had been discovered in 2003. They also recorded or monitored numerous other species on nearby rock outcrops and in flushes and bogs, including *Cystopteris fragilis* (Brittle Bladder-fern), *Ranunculus peltatus* (Pond Water-crow-foot), *Drosera rotundifolia* (Common

Sundew), *Linum catharticum* (Fairy Flax), *Anagallis tenella* (Bog Pimpernel), *Wahlenbergia hederacea*, *Equisetum variegatum* (Variegated Horsetail) and *Pedicularis palustris* (Marsh Lousewort). Mary, Andy and Martyn went to monitor the oxbows in the Tywi valley below Dynefor Castle, Llandeilo, in order to re-find and make a population estimate of *Persicaria minor* (Small Water-pepper) at one of its two Carmarthenshire sites. This was prompted by the proposal to release a psyllid bug to control *Fallopia japonica* (Japanese Knotweed), which may affect the *P. minor*. Plants were found still to be abundant around the edges of Gwaith Gro-bach Pond (SN619.219), together with *Apium inundatum* (Lesser Marshwort), which seems to have declined considerably in recent years, maybe because of more intensive agricultural practices in the vicinity of its characteristic ox-bow habitat. Other finds included *Rumex ×duffii* (a hybrid dock – *R. sanguineus* × *R. obtusifolius*) and *Mentha ×smithiana* (Tall Mint), both new hectad records, *Rorippa islandica* (seemingly becoming ubiquitous in the county) and, in the far western pond at SN610.216, *Nuphar lutea* (Yellow Water-lily). Arthur, Graeme, Priscilla, Heather, Richard and I travelled to Pendine (SN2307) with the aim of walking over the limestone-cliff path past Dolwen Point and Gilman Point to Morfa Bychan (SN2207), the next bay to the west. In Pendine village, pavement weeds(!) included *Sagina maritima* (Sea Pearlwort), *Erodium maritimum* (Sea Stork's-bill), *Crithmum maritimum* (Rock Samphire), *Spergularia rupicola* (Rock Sea-spurrey) and *Parapholis strigosa* (Hard Grass). It was too late in the season to hope to see any sign of *Scilla verna* (Spring Squill) at its only Carmarthenshire site in thin turf on the summit of Dolwen Point, but not far away was a single prominent plant of *Allium ampeloprasum* ssp. *babingtonii* (Babington's Leek), which was the first record for the county. The weather was pleasantly sunny and during the lunch-stop mention was made of Barker's 1905 record from these cliffs of *Koeleria macrantha* (Crested Hair-grass), which had never been re-found. Within

minutes, Graeme had re-discovered several plants, growing within yards of where we sat! I had never seen it before but it is quite distinctive and, once seen, we found several more small populations. Other noteworthy plants along the cliff path were *Inula conyzae* (Ploughman's Spikenard), *Rubia peregrina* (Wild Madder) and the native, dwarf, glaucous, maritime variety *collina* of *Dactylis glomerata* (Cock's-foot). Morfa Bychan, although impressive scenically with its storm beach, was rather disappointing botanically, but *Coronopus squamatus* (Swine-cress) and more *Erodium maritimum* were of interest.

Thursday 16th July

Most of the group spent the day at Allt Rhyd-y-Groes National Nature Reserve (SN7647 - SN7548), in soft Welsh rain. We were met by the Cokers, Andrew Stevens and our guide for the day, Mary Iliff, who knows this area very well. One aim of the visit was to monitor *Vicia orobus* in the hay-meadow for the Threatened Plants Project and Richard announced that the party would 'route march' to the spot in order to complete this task first so that the remainder of the day could be more leisurely. This was definitely a mistake: the majority did 'route march' but were then understandably frustrated as the back markers were increasingly delayed by every plant of interest! *Circaea ×intermedia* (Intermediate Enchanter's-nightshade), *Wahlenbergia hederacea* and *Phegopteris connectilis* were recorded! By the time the whole group had assembled, the field had been scoured by the front-runners and the location of every *V. orobus* plant noted, as well as several *Genista tinctoria* (Dyer's-greenweed), *Lathyrus linifolius*, *Sanguisorba officinalis* (Greater Burnet) and *Carex pallescens* (Pale Sedge). The party had lunch in the rain sitting in a line at the top of the field overlooking the special plants and discussions took place about the wisdom (or not) of introducing locally-collected seed to restore species-diversity to degraded hay-meadows. "It's like *GARDENING*" was one eminent comment with a very derogatory tone to the word "gardening". After lunch, the party attempted to systematically count the *V. orobus* and *G. tinctoria*

plants. Under the direction of Richard, all present lined up and proceeded slowly across the hayfield in the manner of a forensic police search! The first pass resulted in 38 *Vicia* and 3 *Genista*. The count was repeated in the opposite direction with observers changing positions in the line with the aim of obtaining an 'average' count. This resulted in 26 *Vicia* and 3 *Genista* and was such a disappointing discrepancy, bearing in mind the small number of plants, that a third tally was attempted which revealed 30 *Vicia* and 3 *Genista*. These latter figures were those taken for the record.

The walk continued westwards up the Pysgotwr valley with Mary Iliff leading. The path steadily deteriorated and eventually became a scramble on the steep, north-facing, shaley side-slope but the difficulties were forgotten when tens of plants of *Lycopodium clavatum* (Stag's-horn Clubmoss) and a single *Huperzia selago* (Fir Clubmoss) were found scattered over the slope. *Vaccinium myrtillus* (Bilberry) dominated the vegetation.

Friday 17th July

The party spent the morning at Ffrwd Fen, Pembrey (SN4102), where the high water levels meant getting wet both underfoot as well as from above! (see Colour Section, Plate 4). Sam Bosanquet, Lizzie Wilberforce, the Cokers and Andrew Stevens joined the group, which had three main tasks, the first of which was to monitor *Oenanthe fistulosa* (Tubular Water-dropwort) for the Threatened Plants Project, and about 130 plants were counted within the small section of fen examined. *Lathyrus palustris* (Marsh Pea) was abundant, but few flowers remained, although several seedpods were seen, and *Menyanthes trifoliata* (Bog-bean) was also in seed, with just one very late flower spike remaining. Mary, being used to the drier climes of Essex, throughout the week had been enthusiastic about the lush greenness of the Carmarthenshire countryside and was anxious to compare and contrast the western and the eastern floras. For instance, on the drier land here at Ffrwd, a glaucous-looking form of *Vicia cracca* (Tufted Vetch) was reminiscent of *V. villosa* (Fodder Vetch), which is common in Essex, and prompted long

discussion, but after examination later was confirmed as *V. cracca*. The second task was to get expert opinion on the extensive stand of possible *Carex acuta* (Slender Tufted-sedge) or an *acuta* hybrid, discovered by Sam a week previously. He led the party to the spot where, after a good deal of discussion, it was generally agreed as likely to be *Carex ×elytroides* (*C. acuta* × *C. nigra*), and this was confirmed later after material had been examined by Mike Porter and Mike Foley; about the fifteenth UK record. Then a small party was led by Sam through waterlogged reeds to accomplish the third task. *Oenanthe aquatica* (Fine-leaved Water-dropwort) had been reported by David Stevens when carrying out an early survey of the fen in 1988. The record had never been confirmed but Sam had come across three plants the previous week, one in flower, not knowing (at the time) that the previous unconfirmed record of the plant existed. He wished to get confirmation from the experts present, and those that ventured through the flood were able to do just that: six plants in a location hidden by tall reeds not 50m from one of the usual 'circuits' taken by visitors to the fen but about 400m from David Stevens' original record.

The rain continued as the group travelled to Moat Farm (SN4305). Richard discovered some large populations of *Oenanthe fistulosa* here in 1987, but the site had not been visited since. Despite twenty pairs of eyes searching, no plants were found, presumably because the area had been fenced to prevent farm stock from grazing the fen (and getting stuck) and was now occupied by a dense monoculture of *Phragmites*. In the adjacent field a tiny plant of *Isolepis setacea* was enthused about. In a nearby hedgerow, the identity of a thorn bush was discussed before all agreed with Arthur that it was *Prunus ×fruticans*, the hybrid between Blackthorn and Bullace (*P. spinosa* × *P. domestica*). When leaving the field, the group was halted by the dense growth of ephemeral and tall-herb species growing in the poached field gateway, which included several plants of *Chenopodium ficifolium* (Fig-leaved Goosefoot) and a few plants each of *Agrostis*

gigantea (Black Bent) and, most notably, the third county record of *Polygonum rurivagum* (Cornfield Knotgrass). Returning past the pond, *Bidens tripartita* (Trifid Bur-marigold), *Mimulus guttatus* (Monkeyflower) and *Lycopus europaeus* (Gipsywort) were growing on the banks, and *Prunus domestica* ssp. *insititia* var *damascina* (Damson) was in the farmyard.

Saturday 18th July

After breakfast everyone departed for home.

We would welcome any constructive suggestions on how the week is run for next year. Is the addition of bat detection, moth trapping,

etc. desirable or not? Also when the whole group visits the same place, would smaller sub-groups be better – targeting smaller areas – even if this meant that not everyone saw all the species?

Reference:

CHATER, A.O. (in press). *Betula* in Wales, in: Abstracts of Exhibits shown at the 27th BSBI Welsh Exhibition Meeting, Builth, Radnorshire, June 2009. *BSBI Welsh Bull.*, 85, Jan. 2010.

Isle of Tiree, Mid Ebudes (v.c. 103), 14th – 20th July

LYNNE FARRELL (v.c. recorder: Mid Ebudes) & JOHN BOWLER (RSPB)

Seventeen members arrived safely on the afternoon ferry from Oban, having observed basking sharks and common dolphins on the way across. We were a little late docking at Tiree, owing to the lifeboat having to be deployed to a yacht which had ‘run out of fuel’ on a totally calm afternoon. In other words, they were ideal conditions in which to have a lifeboat practice session. John Bowler, resident RSPB officer, joined us at our base at the Alan Stevenson house for the evening meal and then gave us an excellent scene-setting talk about the island.

The morning of Wednesday 15th was slightly overcast and drizzly, but it soon brightened up and the next three days were bright and sunny, with showers returning on the final afternoon, Sunday 19th. The first site visited was Traigh Bhi on the southwest coast. Here there was a typical, wide, sandy bay, backed by an extensive dune system and machair grassland. We fanned out to count *Eryngium maritimum* (Sea Holly), at one of its five sites on the island. Some superb flowering plants were found, including one broken off. An attempt was made to press this in the evening! 181 flowering plants plus 6 vegetative ones were counted. It took some time to walk across the rich machair, as it was in full flower, with pink, yellow and white predominating. But we finally made it to the western end of the beach

and lunched, whilst sitting at the only extant site for *Astragalus danicus* (Purple Milk Vetch) growing on the low, rocky knolls. Scanning around, many tiny flowering plants of *Gentianella campestris* (Field Gentian) became noticeable, and *Scilla verna* (Spring Squill), still with a few pale blue flowers.

We divided into two groups, one heading across the dunes back towards Loch a ‘Phuill in search of aquatics, and the other ascending to the trig. point on Beinn Ceann a’Mhara at 103m, one of the high spots of the island. Walking south along the cliff tops here we found *Sedum roseum* (Roseroot) at its only Tiree location, and *Ligusticum scoticum* (Lovage), *Athyrium filix-femina* (Lady Fern) and *Dryopteris filix-mas* (Male Fern). Ferns are relatively uncommon on Tiree. Almost at the tetrad boundary and at the end of the day, we spotted three flowering plants of *Spiranthes romanzoffiana* (Irish Lady’s-tresses) growing in a wet patch, with just one plant of *Dactylorhiza incarnata* ssp. *incarnata* (Early Marsh-orchid), and *Hypericum tetrapterum* (Square-stemmed St. John’s-wort).

The machair yielded small plants of *Draba incana* (Hoary Whitlowgrass), and many *Coeloglossum viride* (Frog Orchid), both green and red-flowered. A new island record, *Matricaria recutita* (Scented Mayweed) was growing on the waste ground near the sewage

works! The ditch near the bird hide produced *Senecio* × *ostenfeldii* (*S. jacobaea* × *S. aquatica*), and the beach itself had scattered plants of *Polygonum oxyspermum* ssp. *raii* (Ray's Knotgrass), *Polygonum boreale* (Northern Knotgrass) and *Salsola kali* (Prickly Saltwort).

On the second day, 16th July, we divided into small groups straight away and set off to explore the north-western coast. Most people visited the only locality for *Mertensia maritima* (Oysterplant) near Ard Mor, where some damage from quad bike tyres was noticeable. 106 flowering plants and 51 vegetative were counted. The coastal grassland and flushes around Cornaigbeg and Ainshval proved good hunting ground, with *Coeloglossum viride* widely scattered and *Oenanthe lachenalii* (Parsley Water-dropwort) in flower. This was a very good time of year to observe the latter species, which is easily overlooked otherwise, as it has very fine leaves. In the wetter ground also grew *Pinguicula lusitanica* (Pale Butterwort), *Ranunculus sceleratus* (Celery-leaved Buttercup) and *R. baudotii* (Brackish Water-crow-foot).

Loch Riaghan area was a mixture of damp heath, sandy grassland, loch edges, burns and ditches, so species of both wet and dry habitats occurred, including *Drosera intermedia* (Intermediate Sundew), *Hypericum elodes* (Marsh St. John's-wort), *Listera ovata* (Twayblade), *Carex caryophylla* (Spring Sedge) and the rather uncommon *Medicago lupulina* (Black Medick).

The coastal walk to the Ringing Stone is not only scenic but botanically varied. Some of the best finds were not the showy plants but those often overlooked – *Radiola linoides* (Allseed), *Anagallis minima* (Chaffweed) and *Deschampsia setacea* (Bog Hair-grass). The inland lochs yielded *Baldellia ranunculoides* (Lesser Water-plantain), *Lobelia dortmanna* (Water Lobelia), *Isolepis setacea* (Bristle Club-rush) and *Isoetes lacustris* (Quillwort).

On Friday 17th, John Bowler led us onto The Reef, RSPB's main reserve here. This extensive area in the centre of the island was once much wetter, but was partially drained.

However, RSPB, working with local farmers, are now re-establishing the water levels and traditional grazing regimes. A few plants of *Platanthera bifolia* (Lesser Butterfly Orchid) were found, and a single plant of *Anacamptis pyramidalis* (Pyramidal Orchid). Surprisingly, the most significant find was *Stellaria graminea* (Lesser Stitchwort), which was a new record for Coll and Tiree. *Potamogeton coloratus* (Fen Pondweed), *P. pusillus* (Lesser Pondweed) and *Utricularia intermedia* (Intermediate Bladderwort) were some of the aquatics 'fished out', but returned, of course.

Some folk then continued north across The Reef itself, and others investigated the western corner around the airport and Crossapol. Several locations for *Juncus balticus* (Baltic Rush), a small, delicate often overlooked rush, were recorded, and *Leontodon saxatilis* (Lesser Hawkbit) was frequent in the grassland patches. We had spent about 10 minutes discussing the differences between *L. saxatilis*, *L. autumnalis* (Autumn Hawkbit), *Hypochaeris radicata* (Cat's-ear) and *Crepis capillaris* (Smooth Hawk's-beard) on The Reef, so we now had our 'eyes in'. An area between the airport and McLeod's shop was surveyed, as there was a possibility of development here. *Parnassia palustris* (Grass of Parnassus), not a common species on Tiree, was scattered over the eastern end, *Juncus balticus* throughout, and also *Ophioglossum vulgatum* (Adder's-tongue). Hundreds of *Listera ovata* grew nearer the airport, and one corncrake was heard, but not seen, in the field.

The northern Reef group dipped into the wetter patches, finding *Myosotis scorpioides* (Water Forget-me-not), *Utricularia vulgaris* (Common Bladderwort), more *Senecio* × *ostenfeldii*, *Dactylorhiza incarnata* ssp. *coccinea*, and a hybrid *Epilobium* × *waterfallii* (*E. hirsutum* × *E. palustre*), although there are definitely no waterfalls on Tiree! A specimen was collected for final confirmation.

Because it was light until at least 10pm, people often investigated the area around the Alan Stevenson house at Hynish, where we were staying, after dinner. *Veronica persica* (Common Field-speedwell) was growing near

Hynish house, and a bush of *Hebe × franciscana* (Hedge Veronica) was flowering happily in a rock crevice on the headland.

Saturday 18th arrived, and the time to visit the east end of the island. The south-east tip was new territory for me, and it had several different aspects and a range of habitats. Most people clambered up to the old broch, Dun Mor, near Milton, which afforded panoramic views. In the Ruaig area *Stachys palustris* (Marsh Woundwort), an uncommon species on Tiree, was in full flower, and it was also found in several other places on this day. A few plants of *Inula helenium* (Elecampane) grew in a ditch, and more Field Gentians and Tway-blades were found in small quantity, whilst 16 flowering plants of Lesser Butterfly Orchid were counted in a new area amongst *Schoenus nigricans* (Black Bog-rush). *Pilularia globulifera* (Pillwort), found on Tiree, but not Coll – surprisingly, was relocated in many of its previously known sites, and also in a few new spots. It had been very dry before our visit, so pills were in evidence, as water levels were low. Water had been brought over in tankers on the ferries in recent weeks.

The intimate mosaic of wet, dry, brackish and freshwater conditions over rocky ground, ensured that botanising in this part of the island was never dull, and you always expected to find something to be added to the list, as indeed it was – a new site for *Spiranthes romazoffiana*, with three flowering spikes. Members of the group remarked that it was often the tiny plants that were of particular interest, such as *Elatine hexandra* (Six-stamened Waterwort), which Ro Scott insisted we all looked at down the microscope to see its minute flowers.

The grazed saltmarsh and stony shore near Milton yielded dwarf *Aster tripolium* (Sea Aster), *Salicornia europaea* (Glasswort), *Suaeda maritima* (Annual Sea-blite), and *Oenanthe lachenalii*. Away from the shore, in the wet margins of the lochs and in ditches, *Veronica scutellata* (Marsh Speedwell), *Sparganium erectum* ssp. *neglectum* (Branched Bur-reed), and a white flowered form of *Scutellaria minor* (Lesser Skullcap)

were noted. A clump of a lemon-flowered Water Lily (*Nymphaea* sp.), was photographed, presumably introduced, as it was very near the house at the end of the road.

Around Salum, along both sides of the ‘main road’, several ferns proved to be the highlight – *Oreopteris limbosperma* (Lemon-scented Fern), *Dryopteris affinis* (Scaly Male Fern), and further patches of *Pilularia globulifera*. *Chara virgata* (Delicate Stonewort) was abundant in Lochan Feneed, whilst hundreds of individuals of *Gnaphalium uliginosum* (Marsh Cudweed) – not common here, crowded into a field corner.

For our final complete day, Sunday 19th, three groups returned to the west end, some finally gaining the highest point on Beinn Hough at 119m, and others went down to the sea, dunes and beaches again at Hough Bay and near Kilkenneth. Inverness Botany Group, who had preceded us, had mentioned that they had found *Anacamptis pyramidalis* on the dunes, and two of our groups located over 100 flowering plants near the old World War II concrete constructions. *Ophioglossum vulgatum* was also frequent in the dune slacks. The ‘wet’ group (but we all got wet this afternoon, as heavy rain came in), led by James Cadbury, tried to circumnavigate Loch Bhasapoll in the hopes of re-finding some significant sedges, but were unable to reach some parts owing to the deep water and muddy margins. However, *Myriophyllum alterniflorum* (Alternate Water-milfoil) and *Chara virgata* were collected and specimens pressed.

Pressing specimens was an after-dinner activity, mainly undertaken by Lynnette Borradaile and Mary Pugh, after specimens had been confirmed. These specimens will be lodged in the herbarium at the Royal Botanic Gardens for future reference.

We recorded in 20 of the possible 42 tetrads. Recording at this level certainly makes botanists look more closely, and as a result, many more interesting records have been added to the existing *Flora of Tiree, Gunna and Coll* (Pearman & Preston, 2000). The aims of the field trip were to experience and enjoy the habitats and scenery of the island, to

record species included in the Threatened Plants Project, and to consider whether recording at a tetrad level was worthwhile (in view of the fact that there was a good, recent Flora). From the responses received from the

participants, who are keen to complete the remaining tetrads, and to hold a similar field meeting on Coll, I can report that all the aims were fulfilled.

Wetland sites in Co. Monaghan (v.c.H32), 18th - 19th July

IAN MCNEILL

The original plan was to visit the lakes and wetlands of the Dromore River system between Ballybay and Rockcorry on Saturday 18th July, and to move on to Killoosky Lough and Summerhill Lough, marl lakes north-west of Clones (on the Monaghan/Fermanagh border) on the Sunday. However, in the event, this plan had to be materially altered.

Six of us assembled at the Ballybay Wetlands Centre on Saturday morning at 10.30am, and immediately we recognised that our Saturday plan had to be abandoned. The very wet weather of the preceding fortnight had led to a 40cm rise in the water-level of the nearby lake, and we realised there would be no chance of botanising the lakes along the valley. However, the Wetlands Centre has a floating walk-way on to their own lake, and this allowed us to observe such plants as *Potamogeton crispus* (Curled Pondweed), *P. obtusifolius* (Blunt-leaved Pondweed), *Bidens cernua* (Nodding Bur-marigold), *Lemna trisulca* (Ivy-leaved Duckweed) and *Elodea nuttallii* (Nuttall's Waterweed). Clumps of sedge in the flooded marshland turned out to be *Carex vesicaria* (Bladder Sedge). Up at the Centre building we found *Geranium pusillum* (Small-flowered Crane's-bill), presumably a casual arrival.

We discussed the situation. I suggested that the Clones lakes (our Sunday venue) should not flood to the same extent, and that we should transfer there. Apart from myself, no-one else in the party was committed to coming on the second day, so it was agreed. We thanked the Wetlands Centre for opening up especially for us, and for providing us with coffee and an interesting (if somewhat unstable!) time on the floating walk-way, and drove the 25km or so to Clones.

Both Killoosky Lough and Summerhill Lough have superb fenland flora on their margins. Their botany is superior to that of the Ballybay lakes, so our Saturday party saw the change of venue as a blessing in disguise.

At Killoosky Lough the outstanding plant is *Pyrola rotundifolia* (Round-leaved Wintergreen), occurring as a very strong colony on the south-west shore and in the adjacent fenny wood. This plant is known from similar ground much further south in Ireland, e.g. in Co. Westmeath, and the Killoosky Lough site appears to be a distant outlier. In the lake we found *Potamogeton coloratus* (Fen Pondweed), a very clear indicator of limestone. Along the wooded shoreline was much *Cladium mariscus* (Great Fen-sedge), with its fierce saw-edge. At the south-east corner of the lake, lying back from the shore a little, in an area free of trees, there is a marvellous colony of *Epipactis palustris* (Marsh Helleborine), with over 200 flowering spikes. Near to here are *Gymnadenia conopsea* (Fragrant Orchid), *Dactylorhiza incarnata* ssp. *pulchella* (Early Marsh-orchid), *Eleocharis quinqueflora* (Few-flowered Spike-rush) and *Parnassia palustris* (Grass-of-Parnassus). Further east we found *Sagina nodosa* (Knotted Pearlwort) and the beautiful flower of *Utricularia australis* (Bladderwort). Bladderwort is not often seen in flower in northern parts of Ireland. Other plants of note were *Catabrosa aquatica* (Whorl-grass), *Carex diandra* (Lesser Tussock-sedge), *C. pulicaris* (Flea Sedge) and *Cicuta virosa* (Cowbane). Flea Sedge was unexpected in this habitat. Cowbane is uncommon by British Isles standards, but is, in fact, a frequent lake plant in Co. Monaghan and adjacent counties.

Having drunk from such a wealth of botanical interest, we moved on to Summerhill

Lough, thinking perhaps it might prove to be an anti-climax. But we soon found we were once again on excellent ground. We immediately came across *Carex pseudocyperus* (Cyperus Sedge), *Epipactis helleborine* (Broad-leaved Helleborine) (or so we thought) and *Potamogeton lucens* (Shining Pondweed). *Cicuta virosa* and *Cladium mariscus* were again present. Fenland on the east shore provided *Lysimachia nummularia* (Creeping-Jenny) and *Listera ovata* (Common Twayblade). In adjacent woodland we got *Euonymus europaeus* (Spindle-tree), *Prunus padus* (Bird Cherry) and *Rhamnus cathartica* (Buckthorn).

So would Sunday work out more straightforwardly? As Saturday went on, I began to have worries, for I knew that the Ulster Gaelic Football final between Tyrone and Antrim was to take place on the Sunday in, you've guessed it, Clones! Our 10.30am meeting-place was to be Killoosky Lough, less than a mile from the ground. The match was due to start at 2pm. When I arrived in Clones on the Sunday morning in good time for our 10.30am rendezvous, the town centre was already thronged. It was clear that car-parking was going to be chaotic, and Killoosky Lough would come under car-parking pressure. Anyhow, seven of us met up at 10.30am, and we proceeded to view the delights of our venue. I started with the *Pyrola rotundifolia* area, and then moved on to the *Epipactis palustris*. By now I could hear shouts of anticipation from football fans as they hooted their horns, banged their car-

doors, and were generally whooping it up. So I returned to our parked cars, and immediately realised that we had to "get out of this place", or we would find our cars hemmed in for the afternoon. So we did a very quick further sortie, never reaching the *Utricularia australis*, and just escaped by the skin of our teeth before fans started to abandon cars in the middle of the road!

Thankfully, Summerhill Lough was a mile further out of town, and proved a haven of peace and quiet. We managed to explore it better on the Sunday than we had on the Saturday and added *Utricularia* sp. (probably *U. australis* again, but we had no flowers to aid a decision) and *Parnassia palustris*. On the Sunday, much discussion arose as to whether the Helleborine was, in fact, *Epipactis phyllanthos* (Green-flowered Helleborine) and not *E. helleborine* (Common Helleborine). The florets were mostly unopened, creamy-green in colour, and hung down somewhat inwards towards the stem. Moreover, the leaves on most spikes were in two ranks on opposite sides of the stem, rather than spiralled around the stem. Many photos were taken, but I have not yet heard an expert verdict.

We decided to break up for the day before the big match would finish, which was disappointingly early, but probably wise. Seven botanists all went home happy (I hope!). 16000 Tyrone Gaelic fans went home happy; 16000 Antrim fans went home miserable. Happiness ratio: Botany 100%, Football 50%.

Sutton and Lound Gravel Pits, Notts. (v.c. 56), 25th July

DAVID WOOD

Ten participants (including the leader) turned up at the appointed place on a bright sunny morning. This included the reserve manager for this Nottinghamshire Wildlife Trust site, who stayed until midday. The Trust kindly gave permission for the meeting. The site is owned by Tarmac Ltd. Geologically, 1st terrace deposits are underlain by Triassic sandstone. As it turned out, only Bell Moor Quarry was covered in the time available, with the larger Lound Quarry not visited. Luckily, the weather stayed fine and dry throughout.

The party proceeded southwards along the public footpath alongside Bell Moor Farm lagoon, used for fly-fishing, and an introduced plant of *Origanum vulgare* (Marjoram) was noticed in the first few metres. The speciality *Linum bienne* (Pale Flax) was soon encountered, just a few flowers still out, at its only site in the county. The thin sandy grassland also produced *Filago vulgaris* (Common Cudweed), *Erigeron acer* (Blue Fleabane), both species of *Aira* (Hair-grass), *Vulpia bromoides* (Squirrel-tail Fescue) and

V. myuros (Rat's-tail Fescue). The lagoon had *Juncus acutiflorus* (Sharp-flowered Rush), *Myosotis laxa* (Tufted Forget-me-not), *Pulicaria dysenterica* (Common Fleabane) and *Veronica anagallis-aquatica* (Blue Water-speedwell).

An extensive area of mature lagoons, with rough grassland and scrub was entered, bordering the R. Idle on its west side, with some mature scrub, dominated by *Salix alba* (White Willow) and *S. fragilis* (Crack Willow), unfortunately with rampant *Impatiens glandulifera* (Indian Balsam) in places. Reed-swamp and open water species of note included *Nuphar lutea* (Yellow Water-lily), *Hippuris vulgaris* (Mare's-tail), *Lemna trisulca* (Ivy-leaved Duckweed), with marginal vegetation including *Carex pseudocyperus* (Cyperus Sedge), *Lythrum salicaria* (Purple Loosestrife), *Stachys palustris* (Marsh Woundwort) and *Juncus subnodulosus* (Blunt-flowered Rush). The river itself had *Ranun-*

culus fluitans (River Water-crowfoot) in abundance, while the gravelly track alongside had good populations of *Lepidium heterophyllum* (Smith's Pepperwort), *Spergularia rubra* (Sand Spurrey) and a large patch of *Lysimachia vulgaris* (Yellow Loosestrife), much admired by the party. Other species in the grassy scrub included *Rosa tomentosa* (Harsh Downy-rose) (where lunch was taken), *Malva moschata* (Musk Mallow), *Carex ovalis* (Oval Sedge), *Ophrys apifera* (Bee Orchid), plus aliens such as *Oenothera glazioviana* (Large-flowered Evening-primrose), and *Lychnis coronaria* (Rose Champion).

A more disturbed area of barish gravel close to the works produced *Echium vulgare* (Viper's-bugloss), *Verbascum thapsus* (Great Mullein), *Teucrium scorodonia* (Wood Sage) and *Buddleja davidii* (Butterfly-bush). The walk was much enjoyed by the participants, who were impressed by the botanical richness of this part of an under-rated county.

Wareham (v.c.9), 25th July

EDWARD PRATT

It was a sunny day with a gentle wind, as sixteen of us set off down the short track to East Holme Meadows, together with their owner, William Bond. Beside the track we saw *Parentucellia viscosa* (Yellow Bartsia), *Kickxia elatine* (Sharp-leaved Fluellen) and *Filago vulgaris* (Common Cudweed).

Very soon after entering the first meadow, cameras were out to snap some of the few flowers of *Lysimachia terrestris* (Lake Loosestrife). It produces thousands of stems but few of them flower. It is propagated by red bulbils, which form later in some of the leaf-axils. This is one of its few sites away from Windermere, where it was introduced in the late 19th century. How it got to Dorset is a mystery. William Bond suggested that it might have been introduced by machinery involved in the burying of a pipeline twenty-five years ago.

Further up one of the ditches, *Sanguisorba officinalis* (Great Burnet) showed well in its only current site in Purbeck, together with a

range of other colourful commoner species. On the north side of the next meadow a small drainage channel called Cobbs Lake provided a contrasting flora. Three species of *Callitriche* (Water-starworts) were present. Some expanded and notched leaf-ends of one proved it to be *Callitriche brutia* (Pedunculate Water-starwort). The considerable variation in the shape of the leaves of *Sagittaria sagittifolia* (Arrowhead) was noted. The *Sparganium erectum* (Branched Bur-reed) was found to be ssp. *neglectum*. There was speculation as to whether a *Veronica* was *anagallis-aquatica* (Blue Water-speedwell) or a hybrid. The leader returned to the site a few weeks later and found it setting good seed, so it was the species.

William Bond enlightened us with explanations about the management of these private meadows, which were in excellent shape. We were grateful to him and to his farming tenant, Ron Barnes. Retracing our steps we came upon *Carex viridula*, and after some debate

agreed it was ssp. *brachyrrhyncha* (Long-stalked Yellow-sedge), before stopping for lunch.

After lunch we crossed the railway into a third meadow, where a small *Persicaria* was seen. The leader named it *P. mitis* (Tasteless Water-pepper), but Geoff Field thought it was *P. minor* (Small Water-pepper). After debate and consultation with various books the leader agreed that he had got it wrong. (He had indeed found *P. mitis* in the two previous years on the other side of the same ditch, but not this year). *Berula erecta* (Lesser Water-parsnip), *Oenanthe fistulosa* (Tubular Water-dropwort) and *Rorippa palustris* (Marsh Yellow-cress) were seen in or by the same ditch, and Phil Budd pointed out *Veronica scutellata* (Marsh Speedwell) too. *Butomus umbellatus* (Flowering Rush) was seen nearby.

The party then crossed into a final meadow which was bordered by the River Frome. The

river contained *Potamogeton pectinatus* (Fennel Pondweed), *P. perfoliatus* (Perfoliate Pondweed) and a piece of *P. ×salicifolius* (*P. perfoliatus* × *P. lucens*), which had floated downstream. There was also a clump of *Schoenoplectus lacustris* (Bulrush). On the way back across the meadow more *Persicaria minor* was found, growing with one plant of *Veronica catenata* (Pink Water-speedwell) and, surprisingly, four plants of *Chenopodium glaucum* (Oak-leaved Goosefoot).

After returning to the road, and passing both *Agrimonia* species (Agrimonies), a short walk to a piece of restored heathland led to gasps of surprise and delight from those who had only seen *Mentha pulegium* (Pennyroyal) grazed prostrate in the New Forest. A host of splendid upright plants greeted us. Finally, before leaving, we moved our cars a quarter of a mile to a lay-by to see *Pyrus pyraeaster* (Wild Pear), complete with thorns and a few fruit.

Alyn Waters Country Park, near Wrexham (v.c.50), 25th July

SARAH STILLE

The enforced absence of Delyth Williams and Jean Green meant a substitute leader, but with many experts in the party, and much local knowledge from North Wales Wildlife Trust members, there was little leading to do! A good crowd of 15 people turned up on a fine day and it was especially good to welcome some newer members of the BSBI.

We walked down through the planted woodland to the west side of the river Alyn with willows and hybrids: *Salix* × *smithiana*, *S. alba* (White Willow) and *S. viminalis* (Osier). Along the river we enjoyed a rich, but unexceptional flora. Concern was felt about the abundant *Impatiens glandulifera* (Indian Balsam) invading the woods. We found *Scrophularia auriculata* (Water Figwort) and *Carex acutiformis* (Lesser Pond-sedge) in the wetter parts, with a lot of *Luzula sylvatica* (Great Wood-rush) and *Carex pendula* (Pendulous Sedge) along the bank.

We then crossed the river, picking up ruderal species records alongside an old mill, and some good hedgerow plants. One highlight

was *Carex divulsa* ssp. *divulsa* (Grey Sedge), looking very typical in a bareish patch in the hedgebank, and, as we reached the eastern side of the park, a single patch of *Geranium columbinum* (Long-stalked Crane's-bill). In the birch and willow woods here there was a fine drift of *Monotropa hypopitys* (Yellow Bird's-nest). Lunch was declared as we gained the calcareous grassland but botanising continued as we sat in the sunshine – seeing *Blackstonia perfoliata* (Yellow-wort), *Carlina vulgaris* (Carline Thistle) and *Centaureum erythraea* (Common Centaury) in the short turf around us.

In the longer grass we found the remains of a rich orchid flora, sadly well past its best: *Ophrys apifera* (Bee Orchid), *Dactylorhiza fuchsii* (Common Spotted-orchid) and a single plant of *Gymnadenia conopsea* (Fragrant Orchid). This meadow area was rich with *Lotus corniculatus* (Bird's-foot Trefoil), *Anthyllis vulneraria* (Kidney Vetch), *Odontites vernus* (Red Bartsia), *Rhinanthus minor* agg. (Yellow-rattle), and mallows, *Malva*

moschata (Musk Mallow) and *M. sylvestris* (Common Mallow), making a wonderful tapestry of colour.

The way home took us back into the woods, where we saw extensive drifts of *Listera ovata* (Twayblade) and some good patches of *Epipactis helleborine* (Broad-leaved Helleborine), among which, although still unconfirmed at the time of writing, *E. phyllanthes* (Green-flowered Helleborine) was tentatively identified by its less hairy stems above, and

fewer, narrower leaves. As we finally left the woods, we diverted to look at some arable weeds alongside a paved part of the visitors' trail, including *Cichorium intybus* (Chicory), *Conium maculatum* (Hemlock) and *Picris echioides* (Bristly Oxtongue).

Thanks to Jonathan Shanklin who kept the card all day, recording over 250 species, and who by the end was still keen for more, adding a further 120 records in the next tetrad after we had all gone home!

Dysynni Broadwater, Merioneth (v.c.48), 15th August

PETER BENOIT

On a day that seemed unpromising for weather but proved to be a classic example of "rain before seven, fine before eleven", 17 members and friends met in Tywyn for a visit to the estuary of the river Dysynni (the 'Broadwater', entirely in hectad SH50).

The first stop was at an area of shingle and sand near the river mouth, which had a quantity of *Anthyllis vulneraria* (Kidney Vetch), *Rhinanthus minor* (Yellow-rattle), *Silene uniflora* (Sea Campion), *Leontodon saxatilis* (Lesser Hawkbit) and an eyebright, intermediate between *Euphrasia nemorosa* and *E. tetraquetra*. A few early spikes of *Spiranthes spiralis* (Autumn Lady's-tresses) were admired. Exposed, grazed, stony ground yielded such small species as *Trifolium scabrum* (Rough Clover), *Arenaria serpyllifolia* (Thyme-leaved Sandwort), and the pearlworts *Sagina procumbens*, *S. apetala* and *S. maritima*, with very dwarfed *Plantago coronopus* (Buck's-horn Plantain). On the shingle there were a few plants of *Polygonum oxyspermum* ssp. *raii* (Ray's Knotgrass), *Beta vulgaris* ssp. *maritima* (Sea Beet) and *Glaucium flavum* (Yellow Horned-poppy). A saline pool, a redundant part of the river channel, had *Juncus gerardii* (Saltmarsh Rush), some clumps of *Carex extensa* (Long-bracted Sedge), and the only plant of *Spartina anglica* (Common Cordgrass) seen during the day.

After lunch, eaten in the shelter of hollows in the shingle bank from a fresh sea breeze (see Colour Section, Plate 3), we moved to stable,

sandy pasture, to see fine plants of *Juncus acutus* (Sharp Rush) and fruiting *Marrubium vulgare* (White Horehound), in one of its two sites in v.c.48 – possibly the only surviving one (see Colour Section, Plate 3). With the Horehound were other typical inhabitants of rabbit-disturbed ground: *Urtica urens* (Small Nettle), *Solanum nigrum* (Black Nightshade) and *Erodium cicutarium* (Common Stork's-bill), including a pale-flowered variant that failed to qualify as *E. lebelii*.

Eastward along the shore of the Dysynni was a firm saltmarsh, with *Glaux maritima* (Sea-milkwort), *Juncus gerardii* (Saltmarsh Rush), *Puccinellia maritima* (Common Saltmarsh-grass), and occasional plants of a more-or-less prostrate glasswort with red, 'beaded' spikes, belonging to the *Salicornia europaea* agg. It has been known here since 1953. There were also *Spergularia media* and *S. marina* (Greater and Lesser Sea-spurreys), both conveniently with open flowers, for comparison. *Rumex crispus* ssp. *littoreus* (the strandline representative of Curled Dock) was also common along the shore.

Further on, there was much *Juncus maritimus* (Sea Rush), with its characteristic associates *Oenanthe lachenalii* (Parsley Water-dropwort), and the saltmarsh variant of *Leontodon autumnalis* (Autumn Hawkbit), with rather succulent, only shallowly-pinnatifid leaves, and glabrous phyllaries. Next, there was taller, more lush, more species-rich vegetation, showing the transition from salt- to

fresh-water marsh, with *Schoenoplectus tabernaemontani* (Grey Club-rush), *Bolboschoenus maritimus* (Sea Club-rush), *Samolus valerandi* (Brookweed), and *Carex otrubae* (False Fox-sedge), intermixed with *Iris pseudacorus* (Yellow Iris), *Lycopus europaeus* (Gipsywort), *Angelica sylvestris* (Wild Angelica), *Lychnis flos-cuculi* (Ragged Robin) and *Sonchus arvensis* (Perennial Sowthistle). The special plant here was *Apium graveolens* (Wild Celery) – a native occurrence of a species rare in v.c.48, and for which this is the very restricted habitat. The unmistakable smell of

the crushed leaf was noted. With the common *Dryopteris dilatata* (Broad Buckler-fern), there were plants of *D. carthusiana* (Narrow Buckler-fern) and their hybrid *D. ×deweeveri*. The last two made new hectad records.

A patch of *Molinia caerulea* (Purple Moor-grass), *Nardus stricta* (Mat-grass) and *Potentilla erecta* (Tormentil) reminded us that the acid, peat habitats so widespread in Merioneth were not far away. Back to the starting point after a round walk, the map showed it to have been about 5km (3 miles), through a diversity of coastal habitats.

BOOK NOTES

Trees of inspiration: sacred trees and bushes of Ireland, by Christine Zucchelli. Published in October 2009. Price: €24.95/£22.99. ISBN: 9781-84889-013-8. Paperback with flaps. 220 pp. 245×175mm. 150 colour photos and line drawings.

On Monday 6th July 2009 a new sacred tree was discovered in the village of Rathkeale, County Limerick. Tree cutting was in progress in the grounds of St Mary's Church, when workers realised the newly-shorn stump of a pine tree bore an amazing resemblance to a cloaked woman. The outline of a female – understood to represent the Blessed Virgin – seemed to appear in the texture of the timber. News of an apparent apparition spread fast, and devotees flocked to Rathkeale, holding vigils and petitioning successfully to preserve the miraculous tree stump.

This willingness to believe in the magic of trees stems from ancient times. People appreciated the spiritual value of trees and often singled out individual trees for special veneration. In Ireland the roots of tree worship reach deep into pagan Celtic religion and spirituality. Based on extensive personal research and fieldwork, not just existing literature, this book explores the stories and legends of Ireland's sacred trees, of Fairy Thorns and Rag Trees, of Mass Bushes and

Monument Trees, and reveals their spiritual, social, and historical functions from pagan times to the present. Revered landmark trees were meeting places to install chieftains, hear lawsuits, celebrate seasonal festivals, or to hold military, political and secret religious conventions. Sacred trees were channels of communication with the divine, through which seers and saints, poets and scholars gained insight and sacred knowledge.

With their miraculous qualities and association with saints, trees became prominent features at pilgrimage sites. The ancient notion of trees providing a link with the otherworld realms of death and spirits survived in the tradition of graveyard trees and the reverence for fairy trees. In words and images, this is a rich compendium about our relationship with trees, collating so many tree-related remnants of our pagan spiritual past and tree-related oral history into one place.

Christine Zucchelli first visited Ireland in the 1980s. Captivated by its heritage, after graduating from Innsbruck University she studied Irish Folklore at University College Dublin and travelled the country in search of the legends and folklore of stones and trees. Her first book was *Stones of Adoration – Sacred Stones & Mystic Megaliths of Ireland* (2007). She continues her research into aspects of sacred landscapes, and lives in West Clare and Innsbruck.

OBITUARY NOTES

MARY BRIGGS, *9 Arun Prospect, Pulborough, West Sussex, RH20 1AL*

Sadly we report the death of **Peter Green** who was a good friend and supporter of the Society which he joined in 1945. Dr P.S. Green was former keeper of the Herbarium and Library and Deputy Director at Kew. For BSBI Peter was Hon. Secretary of Publications Committee from 1968-1973, and BSBI referee for garden plants in general from 1995–2000. Dr Mary Clare Sheahan writes: "He was a very valuable referee who received about 35 enquiries a year – and we haven't yet been able to replace him."

There will be an Obituary in *Watsonia*.

We also report with regret the deaths of the following members – their joining dates are given: **Mr J.L. Fielding**, Bishops Stortford (1954); **Mr D.W. Coles**, Telford (1972); **Mr D.A.W. Hill**, Reigate (1981); **Mrs M.E.P. Little**, Galashiels (1982); **Mr J. Wild**, Belfast (1988); **Mr M. Troy**, Monenotte, Cork (1992) and **Miss E.A. Piling**, Edinburgh (1997).

Although not herself a member, the Baroness David had many links with BSBI, mainly through her husband Dick David who was BSBI President in 1980-82 and a very competent recorder specialising in *Carex*. In

the House of Lords, Lady Nora David (briefed by Dick) was our spokesman through the Bills for the protection of wild plants, finally passed as the *Wildlife and Countryside Act 1981*. Dick and I attended Parliamentary Committee meetings, and we sat through many interesting long hours of debates in the House of Lords, often far into the night while Nora spoke for us on the need for legislation for wild plants.

Dick sadly died in 1993 but in 1994 Nora came as the guest of honour at the launch of the book *Scarce Plants in Britain* (Stewart, Pearman & Preston 1994) which was published by JNCC and dedicated to the memory of Dick David. With regret we now report the death of Nora David, at the age of 96.

Both Nora David and Michael Troy were good companions on botanical holidays. Both came with us to Slovenia and we remember them with pleasure.

Now with restricted sight the preparation of Christmas Cards is very slow and difficult, so may I take this opportunity to send good wishes for 2010 to all friends in BSBI – **Mary**

RECORDERS AND RECORDING

Panel of Referees and Specialists

MARY CLARE SHEAHAN, *61 Westmoreland Road, Barnes, London SW13 9RZ*;
(m.sheahan@kew.org)

We have new referees: Douglas McKean is taking on *Crataegus* and *Quercus*, and David Fenwick will identify southern African bulbous species (*Crocasmia*, *Amaryllis*, *Eucomis*, *Galtonia*, *Tulbaghia*, and *Freesia* - *Anomatheca* group).

Because of ill health, Clive Jermy has had to retire from refereeing *Diphasiastrum*,

Isoetes and the *Carex nigra* group of sedges, and we wish him a speedy recovery.

There are also some address changes in the Yearbook – please check before sending in specimens.

Cotoneasters for determination

JEANETTE FRYER, *Cornhill Cottage, Honeycritch Lane, Froxfield, Petersfield, Hampshire, GU32 1BE*

When sending specimens to me for determination, please send them between papers – not in polythene, as I am often away from home. Also, may I remind BSBI members that it saves a lot of time if you include with the specimen the vice county number, grid reference, location, situation (growing on top of a wall or in the shade, etc.), height and habit, and, if applicable, petal, filament and anther colour or fruit colour. Also, if possible, include a sterile shoot of the current year's growth (the leaves of this shoot are extremely important when identifying Cotoneasters). And please remember to give

me the date of collection of the specimen. Thank you.

[This note from one of our Referees highlights the problems that they often face of poorly-documented, inadequate material being sent to them for determination. We all need to remember that they are volunteers, and most often simply do not have the time to follow up such material when it is submitted to them. Please refer to the instructions for the supply of specimens in the *Year Book. Ed.*]

Panel of Vice-county Recorders

DAVID PEARMAN, *Algiers, Feock, Truro, Cornwall, TR3 6RA*; 01872 863388;
DPearman4@aol.com

New Recorders

V.cc.15&16 (E.&W. Kent). Mr G.D. Kitchener, Crown Villa, Otford Lane, Halstead, Sevenoaks, Kent, TN14 7EA. Mr E.G.Philp, recorder since 1970, retires.

V.c. 8 (W. Norfolk). Vacant. Mrs Gillian and Mr Ken Beckett, recorders since 1988, retire.

V.c.37 (Worcs). Mr A.W. Reid, 27 Allesborough Drive, Pershore, Worcs, WR10 1JH to be joint recorder with Mr J.J. Day (all correspondence to Mr Reid).

V.c.51 (Flints). Ms E. Meilleur, 1 Glan Aber, Hill Street, Llangollen, Denbighshire, LL20 8EU. Dr Goronwy Wynne, recorder since 1963, retires.

V.c.92 (S. Aberdeen) Dr I.S. Francis, East Cottage, Asloun, Alford, Aberdeenshire, AB33 8NR

V.c.H30 (Co. Cavan). Mr J. Shackleton, Lakeview house, Mullagh, Co Cavan, Ireland.

V.c.H32 (Co. Monaghan). Mr P. Lenihan, 21 Brooklawn, Mount Merrion Av, Blackrock, Co Dublin, Ireland.

As ever, I would like to thank those retiring for their sterling efforts over so many years – this seems so inadequate after often 30 or more years of help, but thank you all the same.

Change of Address

V.c.31 (Hunts). Mr D. Broughton, 10 Moorlands Avenue, Yeadon, Leeds, LS19 6AD.
His email remains
d_broughton@tiscali.co.uk

Vacancy

V.c.38. (Warks.) – Since the death of Dr James Partridge there is a vacancy here. Warwickshire has the benefit of a very recent Checklist, contained in the excellent new book on Warwickshire's Wildflowers, by Stephen Falk, the Senior Keeper at Warwickshire Museum.

Would any member who thinks that they might be able to help please contact me?

Scottish Vice-County Recorder Vacancies

JIM MCINTOSH, *BSBI Scottish Officer; RBGE, 20A Inverleith Row, Edinburgh EH3 5LR*
(0131 2482894 or 07917 152580) (j.mcintosh@rbge.ac.uk)

We are looking for keen, fit and reasonably competent botanists to fill a number of existing and forthcoming Vice-county Recorder vacancies, which will arise when the present recorders retire. Two of the most immediate are advertised below.

Living in or near the vice-county is certainly an advantage, but is not essential – some VCRs live remotely and operate very successfully. But you would have to be able to spend significant time in the Vice-county each year. The principal VCR task is the collection, validation and maintenance of vascular plant records in the Vice-county on behalf of the BSBI. Being a reasonable competent botanist is important, but knowing one's limits is even more important. No one can be an expert in all aspects of a county's flora – especially when just starting out as a recorder and our referees are on hand to support and help on identifications and confirmations. BSBI staff and neighbouring and retiring VCRs will be happy to provide general advice and support. Competency with computers, particularly e-mail, the internet and MapMate, would be highly desirable, although some training can be provided.

Vice-County Recorder Vacancy in Midlothian, v.c.83

The present Vice-county Recorder for Midlothian, Douglas McKean, would like to retire and we would like to thank Douglas for his contribution to botanical recording in the Lothians over the past 30 years.

Although a relatively small vice-county it has a remarkably diverse flora mainly because of its location in the south-east of Scotland and its wide range of habitats from coastal, farmland, urban, woodland to moorland rising to over 600 metres above sea level. Perhaps the most important

botanical site is Holyrood Park, including Arthur's Seat and Salisbury Crags, and Duddingston Loch and marshes. Here a great number of notable species occur such as Forked Spleenwort (*Asplenium septentrionale*), Sticky Catchfly (*Lychnis viscaria*), Spring Sandwort (*Minuartia verna*) and Spring Cinquefoil (*Potentilla tabernaemontani*). Elsewhere in the county, one of the few remaining Marsh Saxifrage (*Saxifraga hirculus*) populations in Scotland survives in the Pentland Hills.

Vice-County Recorder Vacancy in Fife, v.c.85

The present Vice-county Recorder for Fife, George Ballantyne has given notice that he would like to retire in 2010, after some 40 years as BSBI recorder. However he is not retiring completely. He would like to devote time over the next year or two to completing his flora of Fife, and meanwhile he would like to help a new recorder become established. We are very grateful for George's contribution to the BSBI (and look forward to seeing the flora!).

This is another diverse vice-county which includes extensive coastal habitats and an expansive patchwork of lowland farmland, woodland and forestry. This low ground includes Loch Leven – the largest loch in the Scottish lowlands. The surrounding land culminates in the moorlands of the Lomond Hills and the Ochils. The vice-county includes a number of small islands in the Firths of Forth and Tay, including most notably, the Isle of May.

For further details of what a Vice-county Recorder's job entails, or if you are interested in these or similar vacancies, please send me a note of your interest along with a CV detailing your relevant experience by the **1st of March**.

BSBI website hectad distribution maps, ‘oldest on top’

MICHAEL BRAITHWAITE, *Clarilaw Hawick, Roxburghshire, TD9 8PT*

Alan Hale has now upgraded the hectad distribution maps on the BSBI website so that one has an extra option of how to display the five date classes, -1930 (light blue), 1930-1969 (yellow), 1970-1986 (green), 1987-1999 (purple) and 2000- (dark blue). As well as the option to view any one of the date classes individually you have two options: ‘show all (oldest on top)’ and ‘show all (most recent on top)’. If you haven’t tried this, do so now and you will find a whole new world has been opened up.

The default map, as previously, is in the ‘most recent on top’ format. This allows you to see what coverage there has been in the most recent date class, 2000-2009, which is helpful if you need to see how our BSBI repeat-recording is going. You can also use these maps to see where decline may have occurred, just like those in the *New Atlas*. Taking coverage in the 1987-1999 date class as almost complete, you can look for ‘dots’ of earlier date classes to get a feel for what might have been lost and when.

You cannot use the ‘most recent on top’ format to study the spread of a species over time. That is where the ‘oldest on top’ maps come in. If you look at the map for *Conyza canadensis* (Canadian Fleabane), (see inside Back Cover), you will see dramatic evidence for the continuing spread of this species. Previously it was necessary to view the maps in the old *Atlas* and the *New Atlas* side by side to get a feel for this, so bringing it all together on the website is a great step forward. But you can now go one better than the *New Atlas* by seeing the spread that has occurred in the decade 2000-2009. In the case of *Conyza canadensis*, the map demonstrates that spread is continuing. In interpreting recent spread, you need to take into account the fact that there is only patchy coverage for the v.cc. in 2000-2009. You can review the recent coverage for a particular species by switching back into ‘most recent on top’ format.

Coverage has varied from date class to date class. Thus, in the map for *Conyza canadensis*, there are rather few green ‘dots’, as coverage was poor in 1970-1986. Much of the spread that occurred then was not picked up until 1987-1999, and shows as purple ‘dots’. So you should infer that there are less green ‘dots’ than there should be and more purple ‘dots’ than there should be. There are also likely to be too few light blue ‘dots’ because of poor coverage pre-1930.

There is much variation from species to species in how good the ‘oldest on top’ maps are at showing spread. There are many aliens that were not adequately recorded until 1987-1999, and even then coverage was often far from complete. So you may find that the 2000-2009 recording mainly shows the filling-in of gaps in previous coverage and that it is difficult to assess the real spread in 2000-2009. Often a species suddenly comes into fashion for recording and records proliferate. Sometimes it is real spread that has driven the new-found interest, but the circumstances need reviewing case by case before conclusions can be drawn. Even for native species, coverage was far from perfect in 1987-1999, especially for the more critical species, so for them, too, apparent spread in 2000-2009 may be no more than improved recording coverage. Trees and shrubs remain something of a no-go area in the study of spread, as the history of recording plantings has been so uneven.

Some species you may like to have a look at in ‘oldest on top’ format are *Allium paradoxum*, *A. triquetrum*, *Anisantha diandra*, *Atriplex prostrata*, *Buddleja davidii*, *Cochlearia danica*, *Conyza canadensis*, *Coronopus didymus*, *Epilobium brunnescens*, *E. ciliatum*, *Galega officinalis*, *Geranium pyrenaicum*, *Ophrys apifera*, *Polystichum setiferum*, *Puccinellia distans*, *Spergularia marina*, *S. rubra* and *Valerianella carinata*.

Annual Exhibition Meeting: vegetative ID quiz

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Thanks to everyone who took part in my quiz at the Annual Exhibition Meeting in London last November. The prize was simply a mention of the top five highest scoring entries in *BSBI News*. Joint congratulations to **David Bevan** and **Brian Laney** for a highly respectable 13 out of 15 correct identifications of what was quite a challenging test of ID skills.

Special congratulations to **Imogen Joyce** (aged 10) who scored an impressive 12 of 15, with just a little bit of help from granddad Geoff. Well done Imogen! [She is also our newest and youngest member (at 30/12/2009). Ed]

Other high scores came from **Helena Crouch** and **John Swindells**.

The specimens were: (1) *Hypericum calycinum* (Rose-of-Sharon), (2) *Arbutus unedo* (Strawberry-tree), (3) *Ligustrum ovalifolium* (Garden Privet), (4) *Taxus baccata* (Yew), (5) *Lunaria annua*

(Honesty), (6) *Leontodon autumnalis* (Autumn Hawkbit), (7) *Waldsteinia ternata* (Dry Strawberry), (8) *Foeniculum vulgare* (Fennel), (9) *Delairea odorata* (German-ivy), (10) *Geranium macrorrhizum* (Rock Crane's-bill), (11) *Acacia dealbata* (Mimosa), (12) *Laurus nobilis* (Bay), (13) *Parietaria judaica* (Pellitory-of-the-wall), (14) *Aucuba japonica* (Spotted-laurel), (15) *Stachys byzantina* (Lamb's-ear).

No-one correctly guessed *Waldsteinia ternata* (Dry Strawberry) on their quiz sheets, although *Fragaria vesca* (Wild Strawberry) and *Duchesnea indica* (Yellow-flowered Strawberry) are remarkably similar (see Group RO in the *Vegetative Key* for the splits).

Don't forget that the BSBI are running Field Identification Skills Certificate (FISC) tests if anyone would like to try something a little more serious (see: www.bsbi.org.uk for details).

NOTES FROM THE OFFICERS

From the Hon. General Secretary – **DAVID PEARMAN**

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Members of long standing

Last year I listed those who had joined in 1949 or before and this year another five reach 60 years of membership: Dr James Cadbury, Mr F.N. Hepper, Mr Clive Jermy, Dr A.B. Ireland and Dr Michael Proctor.

Hon. General Secretary

At the AGM last May, both Lynne Farrell and I were appointed for 2009/2010. The arrangement between us was that I would act 'till the end of December 2009, and she thereafter. So please address any communications from now on to her. I remain as Chairman of Records committee and thus responsible for V.c. recorders, etc.

From the Head of Research and Development – KEVIN WALKER

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Threatened Plants Project 2009

We have had another excellent response to this project in 2009 with well over 500 completed recording forms returned to me. I suspect there are at least another 100 or so lurking on recorder's desks so the total will hopefully pass the 650 mark. Once again we have very good coverage for the most widespread species (see table below). The best recorded have been *Coeloglossum viride* (Frog Orchid), *Oenanthe fistulosa* (Tubular Water-dropwort) and *Gnaphalium sylvaticum* (Heath Cudweed) with recorders sending in valuable records from all corners of the country. The returns for *Vicia orobus* (Wood Bitter-vetch) and *Groenlandia densa* (Opposite-leaved Pondweed) are

encouraging given how rare these species are over most of the country. We have made a special effort with some of the rarer species this year (e.g. *Carex ericetorum* (Rare Spring-sedge), *Fallopia dumetorum* (Copse-bindweed) and *Melampyrum cristatum* (Crested Cow-wheat)) but I feel we may need more targeted survey work to fill in important gaps next year. For example, work on *Melampyrum* in Essex this year, one of its former UK strongholds, has shown how dire the situation is for this species. In 2009 Ken Adam's could only relocate about 12 populations, and suspects that it could well be on its way to extinction within five years unless the management of its remaining sites is dramatically altered.

Species	Returns 2009	Species	Returns 2009
<i>Carex ericetorum</i>	25	<i>Gnaphalium sylvaticum</i>	77
<i>Cephalanthera longifolia</i>	35	<i>Groenlandia densa</i>	58
<i>Coeloglossum viride</i>	97	<i>Melampyrum cristatum</i>	11
<i>Dianthus deltoides</i>	45	<i>Oenanthe fistulosa</i>	75
<i>Fallopia dumetorum</i>	12	<i>Vicia orobus</i>	64

If you still have completed forms please send them to me as possible as we hope to start digitising the data in January. Remember we are interested in both positive and negative returns so please fill in a form even if you didn't find the target species. We are still happy to receive data for the 2008 species although if we don't receive it soon it may be too late to be included in the analyses (but the data will find its way into our system).

Next year's species

The species for this year's (2010) TPP survey were listed in the last News (*Chrysanthemum segetum* (Corn Marigold), *Hordeum marinum*, *Juniperus communis* (Juniper) (lowland England populations only), *Melittis melissophyllum* (Bastard Balm), *Meum athamanticum* (Spiguel), *Herminium monorchis* (Musk Orchid), *Polystichum lonchitis* (Holly-fern),

Sibbaldia procumbens (Sibbaldia), *Sium latifolium* (Greater Water-parsnip), *Viola lactea* (Pale Dog-violet)). I've already had members in touch to say they would like to get involved, but often they have been unsure of how to participate. The best approach is to get in touch with your vice-county recorder (listed in the BSBI Yearbook or on the Website under 'Recorders') and see what activities they have planned for your vice-county. There may be field meetings that you can attend with a focus on TPP species or the VCR may be willing to delegate sites to you. Failing that you can just download the details from the website and have ago yourself, selecting populations that you know well.

Each year we select populations that we would like BSBI members to revisit, based on the records we hold. To make this as easy as possible for recorders we only use records

localised to at least a 1km square, and preferably to 100m. This year we will also exclude any records submitted in the last few years to save recorders have to revisit sites they may feel have been well covered in recent times. There has also been some dismay about the spread of ‘randomly’ selected sites which in remote areas often requires lengthy journeys, or even boat trips. This is probably most acutely felt in the highlands of Scotland where the numbers of recorders available are few and far between. Unfortunately it is difficult for us to take this into account in selecting these sites. What we would suggest is that you do the selected sites where-ever feasible and substitute any you feel are just too difficult to reach.

We are currently in the process of selecting sites so these should be with VCRs by the end of the month. So please contact them or keep an eye on the website for updates.

An ideal surveillance scheme?

In December BSBI were awarded a contract by JNCC to develop an ‘ideal surveillance scheme’ for UK plants. This is a collaborative project with Plantlife, Centre for Ecology and Hydrology and British Trust for Ornithology and will aim to look at the ways different organisations approach surveillance in the UK with a view to developing a common approach that makes the most of our existing schemes (Local Change, Countryside Survey, Common Plant Survey, Environmental Change Network). This will address the optimal set of species to survey and survey method, number of visits required, parameters to be recorded and the numbers of samples needed to record significant change. The work is due to be completed by the end of March and the results should help to inform the Recording Strategy and underpin any future modifications to the Local Change methodology.

Species extinction report

During December BSBI staff were drafted in to help write a Natural England report on ‘species extinction’ due to be published in the New Year. This report, which covers all taxonomic groups, will focus on species declines in England, and is intended to raise awareness of the scale of the problem,

highlight the main causes and call for action to reverse losses. The planned launch is intended to pre-empt this year’s General Election and place these issues firmly on the new Biodiversity Minister’s desk – so it is a real opportunity for the Society to contribute its unrivalled knowledge to this decision-making process. Many thanks to the many recorders who responded so helpfully to our enquiries about specific sites and species, often at very short notice.

One of the more interesting off-shoots of this work has been an assessment of the status of plants at an England, rather than a GB or UK level. Wales and Scotland have already done this but it is only now that we are really starting to see the whole picture for England. Working with Simon Leach of Natural England, we were able to produce a list of around 330 species that appear to be endangered in England either because they are in so few sites or have declined dramatically in recent times. Although there was a lot of overlap with the 2005 Red List, this list included around 90 species considered ‘Least concern’ at a GB level. Most of these are ‘northerners’ that have suffered dramatic declines in the lowlands (e.g. *Antennaria dioica* (Mountain Everlasting), *Carex limosa* (Bog-sedge), *Drosera intermedia* (Oblong-leaved Sundew), *Hammarbya paludosa* (Bog Orchid), *Lycopodium clavatum* (Stag's-horn Clubmoss)). We were also able to quantify (for the first time) the number of English extinctions: including four hawkweeds the total came to 40 species, with thirteen surviving elsewhere in GB (e.g. *Carex maritima* (Curved Sedge), *Hydrilla verticillata* (Hydrilla), *Melampyrum sylvaticum* (Small Cow-wheat), *Najas flexilis* (Slender Naiad), *Polygonatum verticillatum* (Whorled Solomon's-seal), *Scheuchzeria palustris* (Rannoch-rush), *Spiranthes roman-zoffiana* (Irish Lady's-tresses)). At this stage the results are very preliminary but the lists are likely to form the basis of an ‘England only’ Red List which we expect to follow, once Natural England, Defra and the like, have had time to take the results on board.

Conservation action for plants in Scotland

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At the November BSBI/BSS Scottish Annual Meeting, we heard how the BSBI, Plantlife and the Royal Botanic Garden Edinburgh are working together on plant conservation, supported by Scottish Natural Heritage. Questions to the panel underlined how effective the three organisations can be in working together to achieve what is essentially the same goal but coming from different directions. This partnership has always existed, but last year it was formalised and called CAPS - *Conservation Action for Plants in Scotland* and a first meeting was held and the following idea emerged:

Non-native plants

From a Plantlife perspective, there are a number of ways that closer working with BSBI and vice-county recorders (VCR) would reap dividends. For example, the meeting discussed invasive non-native plants. Plantlife already pursues an active agenda in terms of policy work on invasive species. They also recruit and train volunteer ‘Flora Guardians’ to monitor, on an annual basis, habitats close to where they stay, for the impact of selected non-native invasive species. However, Plantlife has more volunteers than sites! Ideally, we need sites where the following criteria are met:

The presence of the following species:
Impatiens glandulifera (Indian Balsam),
Rhododendron ponticum (Rhododendron),

Fallopia japonica (Japanese Knotweed),
Symphoricarpos albus (Snowberry) or *Allium paradoxum* (Few-flowered Leek). For aquatic species, we would like to match volunteers to sites with *Crassula helmsii* (New Zealand Pigmyweed), *Azolla filiculoides* (Water-fern) or *Myriophyllum aquaticum* (Parrot’s-feathers).

Sites are accessible to the general public. This means they are close to access points and are not land to which access is generally prevented, e.g. M.O.D. land, railways etc.

It would be fantastic if Plantlife could have details of populations that meet these criteria. Plantlife can then, if possible, match that site to a keen and willing volunteer. The VCR would also then be able to meet new local plant enthusiasts and help Plantlife with their training, if they wished. And of course they will be given the resulting annual monitoring data.

Rare plant Flora Guardians

Another area of work where we hope to work together more closely is in matching up rare plant Flora Guardians with VCRs, in a mentoring scheme, if there is interest. Again Plantlife have a number of Flora Guardians across Scotland who monitor annually ‘Back from the Brink’ species close to where they stay. A full list of BfB species in Scotland is on the Plantlife website (www.plantlife.org.uk). Key species include:

Habitat	BfB Species
Atlantic heath	<i>Arctostaphylos alpinus</i> , <i>Pseudorchis albida</i>
Coastal pasture	<i>Astragalus danicus</i> , <i>Dactylorhiza viridis</i> , <i>Gentianella campestris</i> , <i>G. uliginosa</i> , <i>Hierochloa oderata</i> , <i>Oxytropis halleri</i> , <i>Platanthera chlorantha</i> , <i>Primula scotica</i> .
Montane high altitude	<i>Artemisia norvegica</i> , <i>Astragalus alpinus</i> , <i>Athyrium disentifolium</i> , <i>Bartsia alpina</i> , <i>Betula nana</i> , <i>Carex atrofusca</i> , <i>C. lachenalii</i> , <i>C. rariflora</i> , <i>Cystopteris montana</i> , <i>Erigeron borealis</i> , <i>Juncus castaneus</i> , <i>Lychnis alpina</i> , <i>Minuartia rubella</i> , <i>M. sedoides</i> , <i>Phleum alpinum</i> , <i>Poa glauca</i> , <i>Sagina saginoides</i> , <i>Saxifraga cernua</i> , <i>S. cespitosa</i> , <i>Sibbaldia procumbens</i> , <i>Salix lanata</i> , <i>S. lapponum</i> , <i>Veronica alpina</i>
Pine woodlands	<i>Goodyera repens</i> , <i>Linnaea borealis</i> , <i>A5 Moneses uniflora</i> , <i>Orthilia secunda</i> , <i>Pyrola media</i> .

Specifically, what we are looking for are (reasonably) accessible BfB rare plant populations, which could be usefully monitored over a period. They could be populations which are believed to be under threat or in decline, for example. Plantlife volunteers range from skilled botanists to enthusiastic people keen to learn. If VCRs would like to meet keen volunteers in their vice county, and would be willing to act as an informal mentor to the Plantlife

Flora Guardian, both parties, and plant conservation, would benefit! Please contact Jim McIntosh if you would like to be involved in this scheme and Jim and Deborah will match you up with mentees!

These are just a couple of the opportunities for Plantlife Flora Guardians and BSBI VCRs to work together. We look forward to hearing from you, if you are interested in being involved in either.

COORDINATOR'S CORNER

ALEX LOCKTON, 66 North Street, Shrewsbury, Shropshire, SY1 2JL; (coordinator@bsbi.org.uk)

What are 'associated species'?

Something that has bothered me for some time is the concept of associated species, which is creeping into all botanical publications from identification handbooks to scientific papers. As far as I can see, 'associated species' is a loosely defined term under which you can essentially list any plants you like as long as they were within a few hundred metres of their target. I find that over the years I have added lots of associated species to my various databases, but I have never found any use for them except to produce new lists of associates – i.e. to print them out again, as if that accomplished anything.

I have heard several justifications. If you are searching for a rare plant in a remote moorland, then sometimes it can be a helpful clue if you come across another, slightly less rare, plant that experience has shown often occurs nearby. Fair enough, and very useful, but that clearly does not apply to the vast majority of associated species lists that appear in print.

Another justification is that a list of associates can act as a substitute for a full vegetation quadrat – easier to do and almost as useful. I can see the argument: N.V.C. analysis can be performed on fairly short lists without abundance or frequency scores, and the right answer is often obtained. So, to put this to the test, I have just analysed the associated species of *Festuca altissima* given in the new *Grasses* handbook, using MAVIS – a natty

little computer program for vegetation analysis that the Centre for Ecology & Hydrology gives out. This was a list of just seven species that included no trees, and yet it is a woodland plant. The answer came out as U16 *Luzula sylvatica* – *Vaccinium myrtillus* tall-herb, which is a moorland vegetation from the uplands of the north and west. Which struck me as interesting, but probably wrong. However, shortly below that in the list of options was W12 *Fagus sylvatica* and W8 *Fraxinus excelsior* woodland, which may well both be correct in different parts of the country. What's more, if you looked into it in detail, I would be willing to bet that *F. altissima* occurs in humid W8 and W12 woods whose ground flora bears a striking resemblance to U16 heath. There's a potential dissertation in that. But never mind – clearly there is some phytosociological value in even the most basic list of associates.

A third reason for a list of associates is to create a mental image of the habitat. It is not, perhaps, as helpful to a botanist to write 'on sloping ground in dense shade and high humidity on Silurian limestone overlain by a humus-rich soil' as 'in a dingle of ancient beech woodland with a ground flora of *Luzula sylvatica*.'

So there are, in fact, good reasons for lists of associated species. But – and this is a very big but – I don't like having three very different reasons for doing something. We would not allow the authors of a Handbook to have three

reasons for including an illustration. Imagine that one species had a nice photograph for aesthetic purposes; the next one had accurate botanical illustrations of diagnostic features; and the third one had a watercolour sketch of its habitat. The editors would go ballistic, and of course they would insist on the same style and purpose of illustration for each species. I suggest that we need to apply the same sort of scientific discipline to the concept of associated species. We should define the term and say what is acceptable within that definition. If it is to be used for phytosociological purposes, for example, then it should be localised, dated, systematic and repeatable. If it is merely to conjure a habitat impression, then it should be clearly identified as such (and preferably omitted from a scientific publication). Editors (and authors) need to be aware of this dangerous term 'associated species' and question its purpose whenever it arises, especially if the author is not completely explicit about what it means.

Say hello to date class 5

I am so relieved that date class 4 is over at last. Over the last few years we have been trying to persuade BSBI recorders to structure their recording so we can have an ongoing program of survey over the entire country over regular ten year intervals. I have always promised that this would involve no extra effort whatsoever – just a more efficient and effective way of working. And yet the complaints I get are always based on a misunderstanding. For example, one person wrote to me recently and said 'I cannot finish this date class by 2010 – I need until 2020.' That's a bit like saying 'I can't allow tomorrow to arrive until I've finished this job.' It is so silly that I don't really know how to respond. But it is a common misconception.

The best explanation I can come up with is that some botanists believe that there is such a thing as perfection. When they produce a county *Flora*, for example, they believe that it will actually say where all the plants of the county occur. This strikes me as extremely naïve. It would be interesting to know what

proportion of the plants out there really are ever seen and recorded by a botanist: 1%? 0.1%? More like 0.0000001%, if we are honest.

What other factors influence the perfection of our data? For several years now the BSBI has been running Field Identification Skills tests on a range of botanists from beginners to experts. These show that even when experienced botanists get plenty of time to survey a fairly small area of vegetation they never come up with the same list as each other, and no-one ever gets all the species. Everyone makes a few errors, too. The honest truth is that all the data we collect is full of errors of omission, misidentification and transcription. That does not mean that the data have no value, it merely means that there will never be a point at which any survey is perfect and complete. If we gave you a thousand years to finish recording a county you would be further from finishing it by the end of that time than you were at the beginning, because so much would have happened in the meantime that you had missed.

So please try to understand this: you cannot fail a date class. If you like recording plants, then go outside and make some records. Do a good job of it by identifying things as accurately as you can and sending the resultant records to us (or to your county recorder). Unless you send the records to us they don't count. We will produce maps and analyse the data. For instance, we can look at the proportion of grasses that someone records and work out how good their ID skills are. We can often find out when someone has made an error of identification, or ticked a species they didn't really see, or when they have knocked off early because of the rain and gone home. Such things happen all the time, and they are not really failings – they are merely attributes of the data. Just do what you can. The more you do, the better; and the better your work, the better; but it will never be perfect. That's just the way it is. DC5 has started: 1st January 2010 till 31st December 2019. If you want to do some recording, you can be part of it. You would be very welcome.

DIARY

N.B. These dates are often supplementary to those in the 2010 Calendar in *BSBI Year Book 2010* and include provisional dates of the BSBI's Permanent Working Committees.

23 Jan Committee for Ireland	6 Mar Committee for Scotland
28 Jan Records Committee, London	10 Mar Database Subcommittee, Leicester
2 Feb Publications Committee, London	17 Mar Council, London
3 Feb Meetings Committee, London	7 Aug Irish AGM, Co. Mayo
10 Feb Training & Education	17 Sep Recordors' Conference
12 Feb Committee for Wales, Aberystwyth	26 Nov Conf. - History and discovery of the
24 Feb Executive Committee, London	British Flora, Birmingham

**CONTRIBUTIONS INTENDED FOR
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Lycopodium annotinum growing on fallen trunk of large Scots pine in Abernethy Forest (v.c.96).
Photo A. Amphlett © 2009 (see p. 22)



Landoltia punctata in Treborth Botanic Garden nr Bangor (v.c.49); *Lemna minor* also present at picture edge. Photo J.H. Bratton © 2009 (see p. 55)



Oenanthe fistulosa along dune slack ditch on Sefton Coast (v.c.59). Photo P.H. Smith © 2009 (see p. 13)



Part of the sandy saltmarsh in the estuary of the Afon Crigyll, Rhosneigr (v.c.52), with particularly abundant *Limonium binervosum* agg.
Photo E.I.S. Rees © 2009 (see p. 24)



Comparison between *Limonium recurvum*, with densely grouped inflorescences forming a compact clump (l), and *L. procera / britannicum* (r). The two shown were <1m apart at Rhosneigr (v.c.52). Photos E.I.S. Rees © 2009 (see p. 24)



Bisexual *Salix xfriessiana* catkins on bush on Sefton Coast nr Formby (v.c.59). Both photos P.H. Smith © 2009 (see p. 18)

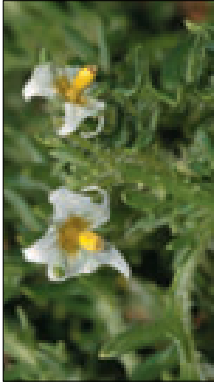


Female *Salix xfriessiana* catkins on same bush as above on Sefton Coast nr Formby (v.c.59). Photo P.H. Smith © 2009 (see p. 18)

Plantago major with paniculate inflorescence, from roadside nr Marchamley (v.c.40). Photo R.A. Dawes © 2008 (see p. 39)



Solanum triflorum at Formby Point (v.c.59) with flowers and fruits. Photos P.H. Smith © 2009 (see p 56)



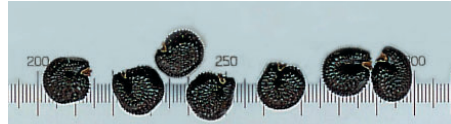
White Horehound (*Marrubium vulgare*) in fruit, Dysynni Broadwater (v.c.48). Photo J. Maynard © 2009 (see p. 83)



Agastache rugosa, disturbed ground, Thruxton (v.c.12). Photo M. Hodgkiss © 2009 (see p. 59)



Portulaca oleracea ssp. *sativa* with seeds (r), disturbed ground, Thruxton (v.c.12). Photo M. Hodgkiss © 2009 (see p. 58)



Solanum villosum ssp. *minutatum*, disturbed ground, Thruxton (v.c.12). Photo A. Mundell © 2009 (see p. 59)



The Master's words of wisdom, John Poland at Ffrwd Fen, Pembrey (v.c.44).
Photo K. Pryce © 2009 (see p. 75)



Dysynni Broadwater (v.c.48) – picnic on shingle bank. Photo J. Maynard © 2009
(see page 83)