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Botanical Society of the British Isles

Edited by Leander Wolstenholme & Gwynn Ellis

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DIARY

N.B. These dates are often supplementary to those in the 2007 Calendar in *BSBI Year Book 2007* and include provisional dates of the BSBI's Permanent Working Committees.

12 May	Council Meeting, Rothamstead	22 Sep	Scottish Committee, Spey Bay
19 May	Scottish Committee, Blairgowrie	10 Oct	Records Committee, London
14 Jul	Committee for Wales, Swansea	13 Oct	Committee for Wales, Aberystwyth
18 Jul	Executive Committee, London	18 Oct	Publications Committee, London
12 Sep	Meetings Committee, London	31 Oct	Executive Committee, London
14 Sep	Training & Education	3 Nov	Scottish AEM, Edinburgh
14-16 Sep	Recorders' Conference, Shrewsbury	14 Nov	Council Meeting, London

Cover picture – The Norfolk Comfrey (*Symphytum* ×*uplandicum* × *S. orientale* ?) at Sustead (v.c. 27) Photo Bob Leaney © 2005 (see p. 6)

Editorial

LEANDER WOLSTENHOLME & GWYNN ELLIS

Congratulations to one of our longest standing members, Peter Hall, who celebrates his 90th birthday on April 30th – Happy Birthday Peter.

Corrections:

Apologies to Phil Smith and Dave Earl for a mistake in the text of the Birkdale Sand-dunes Field Meeting Report (*BSBI News* **104**: 60). The date of the last v.c. 59 record of *Carex* ×*pseudoaxillaris* is given as the 1990s instead of the 1890s which makes the finding of the sedge hybrid seem rather less remarkable than it actually is. We know you won't believe this but it was the scanner that read it incorrectly – really it was!

The address given for **Scottish Natural Heritage** in *BSBI Year Book 2006* was incorrect. SNH moved its headquarters to Inverness in June 2006 and the building at Hope Terrace, Edinburgh, is being sold and so no-one will be there in the future to forward any mail. The new SNH address is: SNH , Great Glen House, Leachkin Road, Inverness IV3 8NW; Phone 01463-725000 Fax 01463-725067. Enquiries@snh.gov.uk and www.snh.org.uk remain the electronic contacts.

The **National Botanic Gardens at Glasnevin**, Dublin, Ireland now has a useful and extensive website with lots of Irish botanical news, resources and information . The web address given in *BSBI Year Book 2007* is now obsolete and the new address is : **www.botanicgardens.ie**. Also the institutional email address that could be added to the entry is: botanicgardens@opw.ie

David Hawker Recorder for v.c. 73 has let us know that the email address given for him in *BSBI Year Book 2007* – david_hawker@ quista.net is now obsolete and hasn't been used for at least 2 years. It is currently **dheco@dsl.pipex.net**

Sedges of the British Isles Edn 3

Although the authors are making steady progress with this new book, its complexity has resulted in a further delay and it is regretted that publication by the AGM in May is unlikely. A date in late June or early July would seem to be more realistic. BSBI would like to apologise to members who have purchased the book, but we are sure it will be worth the wait.

Direct Debits

My apologies to all members who pay by Direct Debit. Since we moved to an Internet system of collecting Direct Debits I have been singularly unsuccessful in getting BSBI mentioned as the originator onto members bank statements. The correct box is ticked but so far all that appears on statements is the amount deducted. I will make every effort to get this sorted before the next DD collection in late January 2008.

Colour in *News*

Once again we would like to thank all contributors who provided colour photos to accompany their articles but it would be nice to have more, and please with full captions including what, where, when and by whom! Many members must walk around with a camera on them most of the time. Why not take more pictures (plants or habitats) on field trips, walks in the countryside or in urban areas and send them in. Several members have offered to make available their photographs for use in *BSBI News* and we are very grateful to them for this but, as we've mentioned before, we often don't know what photos we need until it's too late to ask around. This is one reason why we are so grateful to Richard and Kath Pryce (and why their photos figure disproportionately in *News*); Richard sends a disk with all of one year's photos on them, divided into field meetings or dates, but not necessarily named on the disk so long as each has a unique identification number (as provided by the camera). If we find we need a photo to fill a gap in the colour section we can quickly scan through the disk, pick some out and email Richard for confirmation of their identity and for captions. If any other members would be prepared to do this it could help enormously, and if needs be we can supply blank media.

Receiving Editor *BSBI News*

As mentioned in the last issue, Trevor James will take over as Receiving Editor of *BSBI News* in September 2007. As Leander has now finally retired as Receiving Editor there will be a gap between now and September which will be filled by the General Editor, Gwynn Ellis, for *BSBI News* **106** only. Therefore, for the next issue would contributors please send all contributions to Gwynn Ellis (at the address given on page 56) and not to Leander or Trevor.

And finally a big thank you to Leander who has contributed so much to the success of *News* over the last four years.

Leander has his (final) say

LEANDER WOLSTENHOLME

I'd just like to say thank you to everyone who's contributed articles over the four years I've been receiving editor for *BSBI News*. It really is a remarkable journal that, I feel, truly belongs to the members of the society. I honestly cannot think of another journal that is as open, eclectic and welcoming as *News*. This is very much due to the tremendous amount of hard work and style set by Gwynn. I like to think to myself that four years working at *News* is a fair stint. However, when you compare that length of time to the many years that Gwynn has put in (21 years and 63 issues), it is obvious that I am a mere part-timer. Clearly I have no intention of sparing Gwynn's blushes with this little piece so I shall continue by saying that I have found working on *News* to involve a considerable amount of work and it's really made me appreciate the phenomenal amount of work Gwynn puts into the society. I am in awe. Attending the various meetings as part of my receiving editor's role, (publications committee and council) has also made me appreciate the total amount of voluntary hours that go into the society which is, once again, truly awesome. It really is a phenomenon. I feel sure people will be writing their PhD theses on volunteering and the Society in the future. Long may it continue and long may *BSBI News* continue. I shall very much look forward to receiving my copy in the future.

Plants of fields and hedgerows

The Conference associated with the BSBI AGM at Rothamstead Research on Saturday 12th May 2007

PETER FRY, *52 Lindisfarne Avenue, Leigh-on-Sea, Essex, SS9 3NR*

In addition to the opportunity to observe the longest running continuous plant experiments in England (and more recent ones) at Rothamstead Research near Harpenden participants will be able to see many plants of the countryside. Amongst the classical experiments the Park Grass area is of particular interest to botanists. This area was selected in 1856 for the study of the effect of nutrients on grassland and the plots were marked out in a field near Rothamstead Manor. The unmanured plots contain some 60 species and probably resemble the original vegetation. There are no dominant species but those present are typical of poor farmland including *Briza media* (Quaking Grass) and *Primula veris* (Cowslip). Some plants uncommon in the area like *Dactylorhiza fuchsii* (Common Spotted-orchid), *Listera ovata* (Common Twayblade) and the small fern *Ophioglossum vulgatum* (Adder's-tongue) occur in the short vegetation which thrives following the taking of hay. In plots receiving complete fertilizers, agricultural grasses like *Alopecurus pratensis* (Meadow Foxtail), *Dactylis glomerata* (Cock's-foot) and *Arrhenatherum elatius* (False Oat-grass) become abundant.

The site of the research station is so rich in plants that there are many interesting species for non-members to see during the period of the AGM.

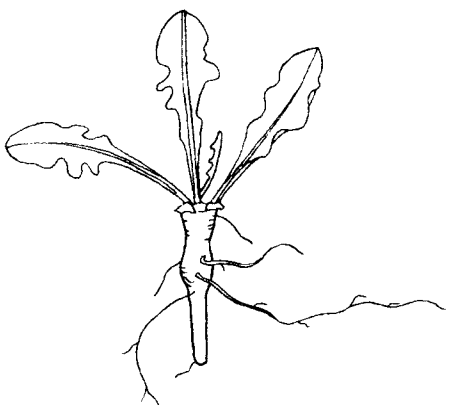
The root of the matter; the vegetative identification of dandelion-like plants

JOHN POLAND, *91 Ethelburt Avenue, Swaythling, Southampton, SO16 3DF*

Basal leaf rosettes of *Taraxacum* (Dandelions), *Cichorium* (Chicory), *Hypochaeris* (Cat's-ears), *Crepis* (Hawk's-beards), *Leontodon* (Hawkbits) and *Hieracium* (Hawkweeds) may be easily confused in the field. The degree of runcinate (backwards-pointing) lobing of the leaves is typical for several taraxacoid species but not always clearly helpful for confident identification, particularly when aberrant plants are encountered. Ironically, although *Taraxacum* is known as 'dandelion', 'dent de lion' is actually the French name for *Leontodon* (*Gk.* Leon = lion; odontos = tooth). Botanists conducting surveys during the winter must thus rely exclusively on vegetative identifications by examining several diverse characters. Fortunately, *Leontodon hispidus* (Rough Hawkbit), *L. saxatilis* (Lesser Hawkbit) and all *Hieracium* species can be excluded on hair structure (as explained in *BSBI News* **101**: 4-6). All the genera considered in this article exude milky latex and are contained within the Lactuceae tribe (see *BSBI News* **100**: 21-22 for more details).

The rootstock (rhizome) and roots often provide essential clues to the genus and this is usually expressed above ground in the habit of the plant. *Leontodon* is shortly rhizomatous; the horizontal rootstock gives rise to 1-several rosettes together. In contrast, most *Crepis* (and *Hypochaeris*) have a vertical taproot, thus only a single rosette is usually present (but beware several plants growing together, or basal branching forming offsets in perennial plants). If necessary, confirmation can be achieved quite unobtrusively by shallow excavation at the base of the plant; uprooting is not required.

Leontodon autumnalis (horizontal rhizome)



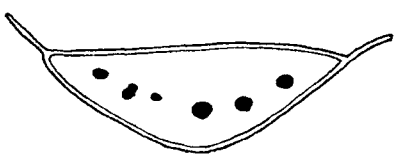
Crepis capillaris (vertical taproot)

The weakly lobed winter leaves of *Leontodon autumnalis* (Autumn Hawkbit) look remarkably similar to *Crepis capillaris* (Smooth Hawk's-beard) - not the typical herring-bone lobed leaves one associates with *L. autumnalis* in late summer. The variability of both species is well illustrated on p. 289 of the indispensable *Plant Crib* (1998). Furthermore *L. autumnalis* has simple hairs unlike the forked hairs of *L. hispidus* and *L. saxatilis*. Indeed, Sell (2006) puts *L. autumnalis* into the genus *Scorzoneroides* (further divided into 11 varietal names!), which appears to be a sound judgement (even if unwelcome by

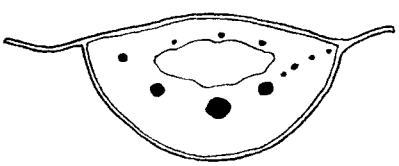
many!). Nonetheless, this species has the horizontal rootstock of *Leontodon* and not the typical vertical taproot of *Crepis*.

Crepis, unlike *Hypochaeris*, has bluish-white latex (subtle!) and usually 5 obvious vascular bundles in the petiole. *Hypochaeris* has white latex (rapidly turning brown) and just 3 vascular bundles in the petiole. For those who are not yet *au fait* with vascular bundles (vb's), they are tightly packed strings of xylem and phloem forming discrete bundles readily visible to the naked eye when the petiole (leaf stalk) is broken.

As many keen-eyed botanists will already be aware, the basal leaves of *Cichorium intybus* (Chicory) may look almost identical to several species of the *Taraxacum* aggregate. Thankfully they can be separated quickly by simply snapping the petiole; it is hollow in *Taraxacum* but solid in *Cichorium*.



Cichorium intybus



Taraxacum

Hypochaeris radicata

Below is a simple vegetative key to just a few of the genera (and two species) of the Lactuceae tribe. I have refrained from adding all the species since the characters generally apply throughout each genera with the exception of the two 'northern' species of *Crepis* (*C. mollis* and *C. praemorsa*), which are shortly rhizomatous.

Leaves in a basal rosette, lobed, hairs (if present) neither scabrid or forked
- Petiole hollow, with white latex
  - Vertical taproot, latex abundant ..... *Taraxacum*
  - Horizontal rhizome, latex sparse ..... *Crepis paludosa*
- Petiole solid, with white latex (often sparse)
  - Petiole with white latex; vertical taproot (may produce offsets in 2nd year)
    - Latex turning brown; petiole with 3 vb's ..... *Hypochaeris*
    - Latex not turning brown; petiole with ≥ 5 vb's ..... *Cichorium*
  - Petiole with bluish-white latex (not changing colour), (3)5(7) vb's
    - Horizontal rhizome; perennial ..... *Leontodon autumnalis*
    - Vertical taproot; biennial (or annual) ..... *Crepis*

I am extremely grateful to Rosalind Bucknall whose excellent illustrations perfectly demonstrate the rootstock habit and show a selection of petiole cross-sections. As always, I would like to extend my thanks to Eric Clement for his continued encouragement.

References:

RICH, T.C.G. & JERMY, A.C. 1998. *Plant Crib 1998*. BSBI, London.

SELL, P.D. & MURRELL, G. 2006. *Flora of Great Britain and Ireland, Vol. 4 Campanulaceae-Asteraceae*. CUP, Cambridge.

Probable hybrid between *Symphytum* ×*uplandicum* and *S. orientale* in Norfolk

BOB LEANEY, *122 Norwich Road, Wroxham, Norfolk. NR12 8SA*

For at least the last eight years I have been aware of a very large colony of an unusual comfrey growing on a road verge in Intwood, Norfolk. In 2003 I sent some material to Franklyn Perring, late BSBI referee for *Symphytum*, who identified it as the above hybrid.

As this hybrid had not apparently been described in the literature, I wrote an article on the find for *BSBI News*, which was accepted for publication, but just prior to this Philip Oswald sent me a description of a comfrey on a road verge in Cambridge which had been determined by Franklyn Perring as being the same hybrid. This was totally different from my plant, so with Franklyn's approval I 'pulled' the article and decided to look into the matter further.

Since then four further colonies have been found, and a considerable amount of further work, outlined below, has convinced me that Franklyn was probably right about the parentage, but that 'my' hybrid has *S.* ×*uplandicum* (Russian Comfrey) as the seed parent, with Philip Oswald's hybrid the other way about. The new BSBI referee for *Symphytum*, Clare O'Reilly, agrees that this is a possibility, but does not feel that this determination can be accepted without additional evidence supporting this putative parentage, from cytological and/or molecular genetic studies (see following paper, p. 9).

It seems significant to me that the Cambridge hybrid colony consists of only a few plants in a very large colony of *S. orientale* (White Comfrey). The hybrid plants are very similar to *S. orientale* in height and habit, but with 'hooped' white and pale blue flowers (very appropriate for a Cambridge plant!). Philip Oswald told me when we visited the site that there had been no further plants in the five years or so he had known the colony, so that the hybrid appears to be very sterile. Also it flowers along with *S. orientale* between March and May. The Norfolk comfrey, on the other hand is much more like *S.* ×*uplandicum* in habit, as tall or even taller, flowers at the same time (May – June), and is plainly highly fertile, I think all this suggests that it has *S.* ×*uplandicum* as the seed parent, whereas the Cambridge hybrid has *S. orientale*.

Colonies:

Plants with identical and very characteristic bud/flower colour, calyx dissection, vegetative characters and habit, have now been found at five sites. The original colony is on a road verge opposite Intwood church (TG1971.0414), and there is a colony of *S. orientale* growing in the churchyard some 50 metres away; the nearest colony of *S.* ×*uplandicum* is around a mile away. Two further roadside colonies occur within a few miles, at East Carlton, and Bergh Apton. All these colonies are in an area a few miles SW of Norwich, but Mary Ghullam has now discovered two more colonies about 20 miles NW of Norwich, within a hundred metres of each other at Sustead. The Intwood colony, and one of the Sustead colonies, are both spreading actively over an area of approximately 200 square metres by the production of numerous seedlings (see colour photos on Front Cover and inside Front Cover).

Description:

The taxon is mainly characterised by a striking combination of pink-red buds and sky blue open corolla, with half dissected calyces and more greyish-green ovate leaves than *S.* ×*uplandicum*, which it otherwise rather resembles in height and habit.

The buds are a gaudy pink-red colour, and the open corolla predominantly a sky blue. However, there is often an intermediate stage when the corolla can have a lot of white in it – either flushed with very pale blue, or with pale blue longitudinal striations, or with pale blue patches on the lobes. Occasionally the longitudinal stripes are purple, on a white ground, or the main corolla colour can be a

very pale blue with pale purple patches on the lobes.

The fully developed corolla is usually a fairly uniform sky blue, but sometimes with whitish or pale blue longitudinal stripes or still with purple longitudinal striations or purple blotches on the lobes. (See colour photos inside front cover).

The calyx is dissected on average to just under half way (2/5 – 3/5).

The leaves are a slightly greyish green, a little paler than those of *S.* ×*uplandicum*, softer to the touch, and more broadly ovate with a tendency to truncate or cordate bases, especially on the upper stem where the leaves of *S.* ×*uplandicum* are still cuneate based.

The petioles are fairly broadly winged, and never decurrent.

The rootstock is oblique or vertical, with no horizontal rhizomes, and not tuberous.

The basal leaves in winter are narrowly ovate to widely lanceolate, with truncate or cordate bases, and widely acute, slightly cuspidate apices. Sometimes the bases can be markedly auriculate.

The indumentum is generally softer and less bristly to the touch than that of *S.* ×*uplandicum*. That of the calyx is made up of a few broad based, curved, thick, bristly hairs, and many more short fine hairs with abruptly hooked tips, which are not found in *S.* ×*uplandicum* at all and look very similar to those found in *S. orientale*. On the stem the hairs are similar, with a few thick, broad-based, curved bristles, and mostly short, fine, hook-tipped hairs. The indumentum on the underside of the midrib of the upper stem leaves is rather different – a few very thick, curved or straight, long bristles, with very tall wide-based pedestals, but again with the same shorter fine hook-tipped hairs in abundance between.

The height of well developed plants is *c.*120–150cm or so, but first year plants are around half this height and noticeably open in habit with long internodes, long petioles and the leaves curving gracefully downwards, unlike the upswept leaves of *S.* ×*uplandicum*. Very old plants seem to be *c.*120–150cm in height, but on close examination, the apparent main stems are often in fact the side branches of an enormous main stem lying horizontally!

Evidence of intermediacy:

As can be seen from the digital photos, the general appearance and habit of the Norfolk comfrey is very suggestive of a hybrid between *S.* ×*uplandicum* and *S. orientale*.

The leaves are much more broadly ovate in shape, and much more cordate or truncate based, than in *S.* ×*uplandicum*, but less so than in *S. orientale*. Their colour is definitely rather pale and greyish-green compared with *S.* ×*uplandicum*, but again not as obviously so as in *S. orientate*. Habit is quite like *S. orientale* because the upper leaves are not 'upswept' like those of *S.* ×*uplandicum*, but hang down in a graceful curve much like those of *S. orientale*. The surface texture of the foliage is intermediate between the bristly feel of *S.* ×*uplandicum* and the soft feel of *S. orientale*.

The floral characters are also persuasive. The large amount of white in the corolla could come from the *S. officinale* parentage of *S.* ×*uplandicum*, but is nevertheless compatible with this hybrid. The corolla scales are intermediate between the narrowly triangular scales of *S.* ×*uplandicum* and the more or less parallel-sided, lingulate scales of *S. orientale*. The calyx is always around ½ dissected, on average to slightly less than half way, which is again intermediate between the 2/3 – 4/5 dissection of *S.* ×*uplandicum* and the 1/4 to 2/5 dissection of *S. orientale*. This calyx dissection seems unique, so much so that it makes the standard keys unworkable – all seem to have a crucial couplet based on whether calyx dissection is below or above halfway.

The single most important evidence of intermediacy, however, is to be found in the indumentum. On the calyx, the stem, and the underside leaf mid-rib, the Norfolk comfrey has thick bristly hairs, usually intermediate in thickness between the thick broad-based bristles of *S.* ×*uplandicum* and the thin bristles of *S. orientale*, but these are always mixed with large numbers of fine, hook-

tipped hairs identical with those found in *S. orientale*, but not found at all at least in local strains of *S.* ×*uplandicum*.

Other possible determinations:

The Norfolk comfrey does not fit any of the pure species or hybrids described in Stace, nor any of the pure species described in *Flora Europaea* (which does not deal with *Symphytum* hybrids). On morphological grounds it would seem, therefore, that the Norfolk comfrey (together perhaps with the Cambridge comfrey), is a new wild growing taxon for the British Isles, and possibly for Western Europe.

There are three possible origins for such a new taxon; either it is a new hybrid, or it is a garden cultivar. not previously 'gone wild', or it is a taxon from outside the area covered by our usual literature.

If the Norfolk comfrey is a new hybrid, is there any other parentage that would be likely to produce the characters found? Since *S.* ×*uplandicum* quite closely resembles the Norfolk comfrey in height, habit and flower colour, and is also generally the only comfrey in the Norfolk area which can establish itself on nutrient rich road verges, it seems reasonable to assume that it is one of the parents. In this case the only other likely parent would be *S. caucasicum* (Caucasian Comfrey), which has a calyx dissected to ¼–½ way, so might be expected to give rise to the characteristic half dissected calyx. However, *S. caucasicum* does not fit nearly as well as *S. orientale* as the 'other parent' in several characters, but mainly in its gradually attenuated leaf bases, which are very like those of *S.* ×*uplandicum* in this respect and so hardly likely to give rise to the markedly truncate or cordate leaf bases of the Norfolk comfrey.

As far as garden cultivars are concerned, the main ones worth considering are those of *S.* ×*uplandicum* or possibly *S. caucasicum* – at least 4 non-variegated cultivars of *S.* ×*uplandicum* are sold as garden plants in the UK according to *RHS Plant Finder* (Lord, 2005).

The question as to whether the Norfolk comfrey may be a newly arrived eastern alien, from an area not dealt with by *Flora Europaea*, came up when I discussed the Norfolk comfrey with Clive Stace at the BSBI Exhibition meeting. Professor Stace agreed that it was very likely to be a hybrid between *S.* ×*uplandicum* and *S. orientale*, but was worried about the high fertility which suggested a pure species. He asked me to look in Bucknall's 1913 account of the whole genus, which included 25 species as opposed to the 14 in *Flora Europaea*, with a large number restricted to Turkey, the Caucasus, or the Middle East. However, virtually all these have yellow or white flowers, and those with pink or blue flowers all appeared to fall down on basic things like calyx dissection or leaf shape. Keying out the Norfolk comfrey using Bucknall's key came to a 'dead end' on species clearly not suitable, even if one took both routes from the couplet dealing with calyx dissection (see above).

Clare O'Reilly has looked into a much more recent account of the whole genus, that of Sandbrick *et al.* (1990), which recognises 41 species. She has made a list of 7 species with pink buds and blue corollas, and without rhizomes, all of which occur in NE Turkey or the Caucasus.

Further work:

To properly compare the Norfolk comfrey with these eastern species, it has been decided to obtain herbarium specimens – including a non-asperous, blue-flowered species, *S. armeniacum*, previously considered a variety of *S. asperum* (Rough Comfrey). Comparison will also have to be made with horticultural cultivars grown in British gardens of *Symphytum* which are non-rhizomatous, and with pink buds and blue flowers; especially the cultivars of *S.* ×*uplandicum*.

If these eastern alien and garden taxa have been excluded, we will then want to have cytological and, if possible, genetic studies carried out to ask if the Norfolk comfrey arose from hybridisation between *S.* ×*uplandicum* and *S. orientale*. Clare O'Reilly is at present. trying to arrange this, perhaps together with garden experiments to

synthesise the hybrid, and statistical morphometric studies. My full description, with drawings, photographs and photocopies, appears to show good evidence of intermediacy. However, my work was done using only three plants from each taxon, with no measurements or statistics, so does not constitute a proper morphometric study.

Conclusion:

Whether the Norfolk comfrey is a hybrid between *S.* ×*uplandicum* and *S. orientale* or not, it certainly appears to be a new taxon growing wild in the British Isles. It shows striking constancy in its characters and is extremely persistent, vegetatively aggressive and fertile, behaving in many ways very much like a pure species. It is just possible that it has undergone chromosome doubling like Welsh Groundsel (*Senecio cambrensis*), in which case it could indeed warrant specific designation. Whatever its origins, there seems no doubt that it is going to become a permanent feature of our flora, and an attractive one at that. It would be worthwhile looking for it elsewhere. Over the next year or so it is hoped that genetic studies will establish its true identity.

Acknowledgement:

I would like to thank Clare O'Reilly for her invaluable support and direction in this work, to Professor Clive Stace for his advice, and to Bob Ellis, Vice-county recorder, for his helpful comments on the first draft on this article.

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Challenges when determining a putative interspecific hybrid

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BSBI *Symphytum* referee, joint beginners referee and member of the BSBI Education & Training committee

With reference to Dr Bob Leaney's useful summary of his studies of a putative *Symphytum* hybrid, I would like to explain why, as referee, I have refrained from determining the Norfolk comfrey as *S.* ×*uplandicum* × *S. orientale*.

There are no set or 'official' diagnostic criteria for the identification of hybrids. Each case must be judged on its own merits (Lowe *et al.* 2004; Stace 1989). A taxonomist must review the available evidence and decide whether it is sufficient; ultimately, 'it is a fundamental difficulty of a historical science like evolution that one can never establish the cause of a past event. It is only possible to show that certain causes [such as a hybridization event] are plausible or, at most, likely…' (Lewontin & Birch 1966 cited in Lowe *et al.* 2004 p206).

The selection of the methods used to evidence hybridity will depend on resources and expertise available, as well as the characteristics of the plants to be investigated. The following is a summary of the evidence commonly used, and ideally as many of the following criteria should be assessed as possible (Stace 1989):

- Overall morphological intermediacy, which is often assessed by multivariate statistical analysis of morphometric data. These statistical tests allow multiple combinations of characters in a single analysis and are conducted by computer programmes. Hybrids also often exhibit transgressive

characters, i.e. characters that are outside of the range of variation exhibited by either parent (Rieseberg *et al.* 1999). Other measures of phenetic intermediacy may be used, such as chemical or anatomical characters.

- Cytology (the study of cell contents) may be informative, in particular, a hybrid generally (but not always) will have a chromosome number intermediate between those of its putative parent taxa.
- Reduced fertility is also indicative of hybridity, which may be assessed by various techniques, such as pollen staining (see Harold 2006). However, reduced fertility, including pollen inviability, may be due to other factors, such as environmental conditions.
- Molecular genetic analyses. Allozyme (involving the study of enzymes, a 'down stream' product of DNA) or molecular marker studies (of DNA itself) may provide definitive evidence of parentage: these 'finger printing' methods produce banding patterns on a gel which, for a hybrid, would show additivity of bands i.e. a hybrid would have a finger print with a combination of bands, some of the unique bands from one parent and some from the other. Other techniques involve DNA sequencing and are outlined in Bateman (2006).
- Reciprocal artificial crosses. Resynthesis of morphologically similar plants to the Norfolk comfrey would provide strong evidence of its parentage, although a negative result would not necessarily negate this. Additional evidence may be provided by back-crossing the first hybrid (F_1) generation to one or both parents and by crossing the F_1 products to produce an F_2 generation, which, in hybrids, may (but not always) produce plants with characters of the parents segregating out to give a wide range of variation. Incidentally, this is a possible explanation for the morphological differences between the Cambridgeshire and Norfolk comfreys – these plants may look very different but could still be the same hybrid taxon.
- Distributional and ecological data may also provide useful circumstantial evidence of putative parentage.

However, these techniques are most likely to identify F_1 hybrids and no single technique is a panacea – arguably not even molecular analysis as, for example, sequencing different gene regions sometimes produces conflicting results. Subsequent hybrid generations, and where introgression has occurred, can be really challenging – for example, molecular markers derived from later generations or back-cross products may segregate or recombine. In any event, reliance on molecular information alone, sometimes referred to as 'DNA taxonomy', is controversial: best taxonomic practice generally combines data from, *inter alia*, morphology, cytology, reproductive biology and genetic studies. In particular, crossing experiments to resynthesise hybrids can provide particularly strong, yet perhaps somewhat undervalued, evidence (Rieseberg & Carney 1998).

In some cases, limited evidence supporting hybridity may satisfy many taxonomists. For example, where plants are sterile (and hybrid sterility is already documented from all known hybrids in the genus), growing between the putative parent taxa and show morphological intermediacy. My view (and I stress that this is my opinion) is that empirical evidence should be obtained as standard practice where a 'new' hybrid is described, such as *Symphytum* ×*uplandicum* × *S. orientale*, which is undescribed and therefore would be new to science. As Bateman (2006) pointed out in his recent article on orchid hybrids, this approach is often not taken and there are many dubious hybrid taxa published as a result. Hybridity is an attractive hypothesis, especially for field botanists hoping for a new British or Irish record! However, although hybridity is clearly widespread in vascular plants (Stace 1989), we should not be too quick to jump at it. The recent finding that a putative hybrid between *Senecio squalidus* (Oxford Ragwort) and *S. inaequidens* (Narrow-leaved Ragwort) may be a developmental variant of *S. inaequidens* (Chicken

2006; Wilcox 2007), is a good example of why caution is needed when identifying 'new' hybrids (N.B. I use the term 'variant' deliberately; this does not necessarily equate to the taxonomic rank of variety. A taxonomist may decide to recognise a variant at an infraspecific rank such as variety or forma, but this has not yet been done in the case of this *Senecio*).

Although the morphological evidence for intermediacy between *Symphytum* ×*uplandicum* (Russian Comfrey) and *S. orientale* (White Comfrey) of the Norfolk comfrey is persuasive, there are other possible explanations. The intense blue corolla may originate from *S. asperum* (Rough Comfrey) but alternatively could be derived from *S. caucasicum* (Caucasian Comfrey). For example, Alan Leslie comments that the Norfolk plant may be a hybrid between *S. caucasicum* and *S. orientale*, although he points out that this combination would be expected to produce at least some rhizomatous growth. Another possibility is that the Norfolk plant is an uncommon or previously unknown cultivar or variant of *S.* ×*uplandicum* or *S. asperum* which has atypical calyx dissection and indumentum or a variant of *S. caucasicum* with atypical habit and leaf morphology.

If any BSBI member knows of a BSc or MSc biology student who may be interested in a molecular research project on the Cambridgeshire and Norfolk *Symphytum* plants, please get in touch with me by email. Similarly, if any member is interested in completing the MSc in Plant Diversity (taxonomy and evolution) at Reading University, I have funding available for a molecular project based at this institution.

Investigating the origin of the Norfolk comfrey would also be a useful pilot study for the BSBI if we decide to take up Richard Bateman's recent suggestion in *BSBI News* that the society have a molecular referee and support its own molecular research projects (as well as part funding those of others via our research grants) (Bateman 2006).

Acknowledgements

I would like to thank Professor Richard Bateman for both checking, and providing useful comments on, this note.

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For more information about hybridisation and taxonomy, and plant taxonomy in general, one of the best introductory texts is *Plant Taxonomy and Biosystematics* by Clive Stace (cited below) and available from Summerfield Books for £15.

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A recently discovered hybrid ivy

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A US researcher, Tara Fletcher Ramsay, using flow cytometry, has found hybrids between the diploid Common Ivy *Hedera helix* (2n=48) and the tetraploid so-called Irish Ivy, *H. hibernica* 'Hibernica' (*H. helix* ssp. *hibernica* 'Hibernica') (2n=96). Both species are naturalised in the United States.

These triploid (2n=72) hybrids were more or less intermediate in foliage, though closer to *H. hibernica* 'Hibernica' in the short, broad, leaf lobes and robust leathery texture typical of Irish Ivy (see Colour Section, Plate 2). The cultivar 'Woerneri', previously regarded as a large leaved *H. helix*, she also found to be triploid. This cultivar was discovered on a wall in Germany in the 1940s.

Quite separate flow cytometry work in Budapest has revealed that three ivies previously thought to be *H. helix* cultivars are also triploids, and almost certainly the same hybrid. We have not seen living material of these yet.

Observations of sparse fruiting on isolated plants of *H. helix* suggest at least partial self-incompatibility, while heavy fruit crops on isolated plants of *H. hibernica* (Atlantic ivy) suggest self-compatibility. Where the US hybrids were found in Seattle the dominant ivy was *H. hibernica* 'Hibernica' with only the occasional plant of *H. helix*. This might be the situation in which hybrids are most likely to be produced.

It appears likely that the hybrids so far detected all involve the commonly cultivated 'Irish Ivy' form of *H. hibernica*. However, where wild Atlantic ivy (*H. hibernica*) is the common wild plant as on the UK's western seaboard in Ireland, the Channel Isles, the Isle of Wight, Isle of Man, the south west peninsula and west Wales, a cultivated *H. helix* pollinated by the surrounding *H. hibernica* (Atlantic ivy) might produce a not very distinct plant. Any ivy with no fruit where surrounding plants are fruiting freely might be a possible hybrid, especially if the leaves are also somewhat intermediate. Dull, leathery foliage, perhaps with some prominent veining, might make a hybrid stand out among the softer, waxy-glossy leaves and almost invisible veins of Atlantic ivy. As *H. hibernica* contributes 2/3 of the chromosomes to the hybrid, the hybrid can be expected to more resemble that species, and the trichome hairs lie parallel with the leaf surface as in *H. hibernica.*

Conversely, in areas where 'Irish Ivy' is either allowed to flower freely or has widely escaped (as in north west USA) and meets wild *H. helix,* any ivy with 'almost' so-called 'Irish Ivy' leaves, but more leathery and dull, would be worth sampling. Mixed areas like near the River Wye at Symonds Yat might also be worth searching.

Any potential hybrids need to be sampled and the cuttings kept damp. Forget referee strictures about not sending 'black mush' in plastic bags! Ivies are long-suffering but do not survive being dried out. Wrap the cut ends in a paper hankie or cotton wool, then damp well.

It is important to collect from really juvenile branches (sterile, running stage). Older and adult (with un-lobed leaves and often fertile) shoots are often un-rootable. Also, cuttings from shoots tightly clinging to walls or tree trunks root less easily. Take at least four cuttings, 15cm or longer, put in a plastic bag and damp soon! Pliant, whippy, plump shoots are best.

Bags of dampened cuttings keep well in the fridge and are not too heavy to send by first class post, preferably early in the week, to Alison Rutherford.

Please give details (e.g. Bank S. end of Birdley Woods, by the B631 to Aston) as I don't have access to maps of everywhere.

This hybrid is not going to be an easy plant to find, but it would be a first for the British Isles and Ireland, and members have often risen to big challenges! It might also be in time for Clive Stace's enlarged hybrid book. Good hunting!

The occurrence of *Dactylorhiza lapponica* in Co. Antrim: a new Irish record

THOMAS ENNIS, *51 Rannoch Road, Holywood, Co. Down BT18 0NB*

On 15 June 1990, J.C.L. Phillips and I located a small colony of *Dactylorhiza* orchids on the Garron Plateau, County Antrim. I consider that this colony contains plants which may be regarded as the first Irish record of the Lapland Marsh-orchid, *Dactylorhiza lapponica* (Laest ex Hartman) Soó (Lapland Marsh-orchid). This species has not previously been recorded in Ireland. There are no Irish records shown in the *New Atlas of the British & Irish Flora* (Preston *et al.* 2002) but the plants are mentioned in Ireland's Wild Orchids (Sex and Sayers 2004, p. 132).

Although the occurrence of *D. lapponica* had been suspected in Great Britain for some time, it was not until 1988 that this was formally published (Kenneth *et al.* 1988). The recognised British sites were all in Scotland, along the West Coast, including the Outer Hebrides and Kintyre. With the discovery of *D. lapponica* so close to Northern Ireland my thoughts turned to a *Dactylorhiza* site in County Antrim that was discovered by R.D. Meikle 'in bog land near the sources of streams which drain the plateau basalt behind Carnlough' (Heslop-Harrison 1956, pp. 56-57). These are the same plants referred to by V.S. Summerhayes as being collected by Meikle in 1949 in County Antrim; at that time these plants were designated *Orchis traunsteinerioides* (Summerhayes 1951, p.259).

I was determined to investigate these County Antrim plants to see whether they were referable to *D. lapponica*. However, the exact location was known to few Irish botanists. I am most grateful to D. Ledsham for providing information that led to us locating a *Dactylorhiza* site to the east of Crockravar. Here, the Garron Plateau rises to over 300m, approached across a terrain of undulating, windswept upland moorland and wet bog. The site itself is located in very wet, flat ground in the headwaters of the Inver River (Irish Grid D240.202). About 120 plants occurred in mineral-rich flush conditions. Companion plants included *Erica tetralix* (Cross-leaved Heath), *Narthecium ossifragum* (Bog Asphodel), *Drosera rotundifolia* (Round-leaved Sundew), *D. anglica* (Great Sundew), *Carex nigra* (Common Sedge), *Trichophorum cespitosum* (Deergrass), *Eriophorum vaginatum* (Hare's-tail Cottongrass), *E. angustifolium* (Common Cottongrass), and *Molinia caerulea* (Purple Moor-grass). On drier, more acid land some distance away were *Calluna vulgaris* (Heather) and *Dactylorhiza maculata* ssp. *ericetorum* (Heath Spotted-orchid). I have since learned from Mr. Meikle (pers. comm.) that his plants were 'growing, rather sparingly, in an area of flat, very sodden bog'. He further stated that 'my plants were collected in the area you indicate, namely the headwaters of the Inver River east of Crockravar'. This site is *c.*110km from the nearest *D. lapponica* site in Scotland (Knapdale, Kintyre). The location has been referred to as 'Heslop- Harrison's site' but in his 1956 paper Heslop-Harrison makes it clear that, although he visited the area, he never saw the relevant *Dactylorhiza* colony there. The present site is therefore considered to be that described by Meikle.

The plants were very small, ranging from 6-20cm in height, most with five leaves and appearing a great deal smaller than plants from populations of *D. traunsteineri* (Narrow-leaved Marsh-orchid) from other locations in Ireland (see Colour Section, inside Back Cover). In many plants the leaves were unmarked but some had sparse, very fine spotting near the tips of the two larger sheathing leaves and a few even had spotting on the underside of the leaves. The sheathing leaves of some had purple-tinged margins. The inflorescence was lax and one-sided with very few flowers; commonly five, but seven or more could be found. Colour ranged from reddish-purple through red to pink. Some had purple-washed bracts. The labellum was three-lobed with the centre lobe

longer than the side lobes, strongly marked with darker lines and dots. The lateral sepals were spreading and marked with darker dots; the dorsal sepal, together with the petals, formed a hood. The spur was thick, straight and circular in transverse section. Careful scrutiny of the plants in the colony revealed a few individuals with heavy solid spots and ring spots on the leaves, extending onto the bracts. These plants closely conform to previous descriptions and illustrations of *D. lapponica* in the literature and in particular are in accord with the characters given by B. Allan, P. Woods and S. Clarke (Allan, Woods & Clarke 1993), where accounts of the distinguishing features of *D. traunsteineri* and *D. lapponica* are summarised. It should also be noted that these authors refer to Scottish populations where the two species grow together and flower at the same time and where the description of the favoured habitat and the plants closely resemble those at the Garron site. One or two larger plants suggested hybridisation, most likely with *D. maculata*, which was present a short distance away on drier ground.

The site has subsequently been examined by others with an interest in Irish orchids, including M.R. Lowe, R. Piper and the late D.M. Turner Ettlinger. Mr Lowe is an acknowledged expert on British *Dactylorhiza* and has specialist knowledge of *D. traunsteineri* and *D. lapponica* populations in Scotland. In recent correspondence he informed me that as the result of increasing experience at new sites for both *D. lapponica* and *D. traunsteineri* in Scotland, 'both of which can now be described as widely distributed along the western coast', he is content that some of the Garron plants should be called *D. lapponica.* He feels that they closely resemble 'the dwarf forms of *Dactylorhiza lapponica* from South Harris', in the Outer Hebrides. Similarly, Professor R.M. Bateman, who is the BSBI co-referee for *Dactylorhiza*, says (pers. comm.) 'I am happy to verify your identification and to state that I have seen many similar plants in Scotland.'

In June 2004 I took water samples and a soil sample from the site. The water samples were taken at approximately 50m intervals, sample 1 being from the upstream end of the site and samples 2 and 3 progressing downstream. Analysis of these samples is set out in Table I below. The Bc measurement is buffering capacity which is an estimate of all dissolved mineral ions in the water sample. The units of measurement are Meq/litre i.e. milli-equivalents per litre. Bc is an attempt to measure the resistance of water to changes in pH. A high Bc will resist pH changes strongly. In an acid peat land context this means that an alkaline spring or seepage can retain its alkaline pH despite the acidifying effect of the surrounding peat. This is very important for both plants and animals associated with the spring.

Table I

Water samples	**pH**	**Bc Meq/litre**	**Alkalinity (mg $CaCO_3$/1)**
Water 1	7.79	332	360
Water 2	7.39	350	400
Water 3	6.85	169.1	17

Analysis of the soil sample, which was taken from near the centre of the site, was dealt with in two sections: litter and peat (see Table II). The % N is given in Dried Material. The high N values shown are deceptive and indicate only that the soils are organic (i.e. mineral-poor) and peaty. Although peat soils have high N values, the N is unavailable to plants and the soils are thus of low fertility.

Table II

Soil sample	Depth	pH	Bc	% N in DM
Litter	5cm	7.58	378	1.44%N
Peat	8cm	7.49	317	2.06%N

Although this occurrence has already been reported (Ennis 2003), the present paper provides more detailed information about the plants and the site, and serves to draw the matter to the wider attention of botanists in Ireland. My earlier paper included background information on the circumstances which led to the eventual identification of the Garron plants.

Throughout I have followed the nomenclature of the *New Flora of the British Isles* (ed. 2, Stace 1997) but it should be noted that, following DNA analysis, recent works have confirmed that British and Irish plants, formerly assigned to the continental *D. traunsteineri*, are best regarded as a separate species, *D. traunsteinerioides* (Bateman 2006). Similarly it seems probable that the British and Irish '*D. lapponica*' referred to here is not identical with the European taxon of that name.

The site lies within the protection of the Garron Plateau Area of Special Scientific Interest which was declared on 31 May 1994.

Acknowledgements

I wish to thank the following for their much appreciated help at various times: Dr R. Anderson, P. Hackney, R.D. Meikle, and Ms E. Platts. I am particularly grateful to J.C.L. Phillips for his enthusiasm and companionship in this quest and I am indebted to M.R. Lowe for his encouragement and advice on the state of knowledge on this taxon over the years and to Professor R. Bateman and B. Nelson for their highly valued assistance in the preparation of this paper.

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Neptune plant – 1

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It is fortunate that the 'Neptune' plant advertised in *The Times* is 'unable to be classified in any botanical category' as it is an animal, *Sertularia cupressina*, a Hydrozoan. J.D. Fish & S. Fish, *A student's guide to the seashore* ed. 2, 1996, says that when dyed it has some commercial value and is used for a variety of decorative purposes, and that a small industry existed round the Thames estuary were it was collected from the sea bed by raking from small boats.

Neptune plant – 2

ANNE REID, *2 East Navarre Street, Monifieth, Dundee, DD5 4QS*

In your editorial in *BSBI News* **104** you enquired if anyone knew more about the 'Neptune Plant' as advertised in various brochures. By coincidence my husband had written to the Advertising Standards Authority (ASA) on this subject in January, after we had questioned the accuracy of the advertisement's claims. He received a reply from the ASA at the end of February and, in light of your query, then requested their permission to reproduce the reply for the benefit of BSBI members. The following passage is a direct quote from the ASA letter.

'I understand that you contend that it is implausible that a plant from the ocean bed would not need watering for years and that the term ocean bed implies a deep surface, where green plants are rare. You also feel that it is slightly insulting to suggest that the plant cannot be classified by botanists. Having made our enquiries, I should inform you from the outset that we do not propose to take further action on this occasion.'

'The Neptune Plant is actually a type of air fern, which is not, botanically speaking, a plant. We spoke to the Royal Horticultural Society who advised us that their expert botanists had confirmed that as the air fern is not a plant, it is unknown to botanical science. Interestingly, the air fern is made up of Hydrozoans, which are a colonial form of marine life. Their dead bodies form this particular fauna which does indeed have a distinctive green colour. As it is not a plant, and appears to be equally adept at living in water or as a decorative piece, it is reasonable to assume that it doesn't need watering.'

We feel that this ruling was rather borderline and, as my husband suggested, a bit like saying that rock buns could not be classified by geologists! However, we hope that the information from the ASA enlightens other members.

Aerial node roots in *Phalaris arundinacea*

JOHN P. MARSHALL, *54 Oak Avenue, Todmorden, Lancs, OL14 5NT*

The observation by Jack Oliver in *BSBI News* **104** of the aerial node roots on *Phragmites australis* (Common Reed) prompts me to mention a similar occurrence on *Phalaris arundinacea* (Reed Canary-grass). Last year was particularly noticeable for the upper nodes of this grass to produce long aerial roots, particularly from heavily leaning stems, the photograph (Colour Section, Plate 3) shows a good example taken in Todmorden, which was then planted at these roots and grew away easily. Agnes Arber in her book *The Gramineae* (1934) describes a variety of Common Reed on the southern shores of the Isle of Wight, the length of which beats that seen by Jack Oliver, 'the culms are like long and slender ropes on the steep sides of the landslips, or to trail in a straight or serpentine direction, without rooting at the joints, to the length of 20 to 40, or even 50 feet. These elongated axes are apparently always sterile and their leaves are very much reduced. Occasionally a few rootlets arise from the joints, but in general the plant lies quite prostrate and entirely unconnected with the soil, so that it may be wound about any object like a cord'. In the same chapter Agnes Arber goes into great detail on the vegetative phase in grasses and includes description and illustration of extra-vaginal branching of Common Reed. It would appear that many grasses are capable of aerial roots and shoots, particularly when they become semi-prostrate as in Jack Oliver's example.

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Himantoglossum hircinum, a new record for Guernsey

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Chris and Helen Pellant from North Yorkshire are regular visitors to Guernsey, and always let me know what they have found on their botanical explorations. In 2006, they phoned me on the last day of their trip in early June to say that they had seen a Lizard Orchid (*Himantoglossum hircinum*) and did I know about it? All I knew was that there have never been any records from Guernsey, or any of the smaller Channel Islands, although it occurs in one small area in Jersey, and is quite frequent on the nearby Normandy/Brittany coast.

Following their directions the large flower spike was found the next day in an area of rough grassland on the golf-course in the north of the island (see Colour Section, inside Back Cover). There was just one plant, with one (and possibly one broken-off) spike, but the plant must have been there several years. The habitat was very similar to where it would be found in France. Well done Chris and Helen, for one of the best new finds of recent years, when most new records are of garden escapes or plants introduced by man from distant parts.

Another missing herbarium located

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A herbarium of some 3,200 sheets recently came to light at the rear of an ancient cupboard in the natural history museum of Eton College (**ETN**). Of these, 2188 were found to consist of vascular plants collected in the British Isles, but especially Yorkshire, in 1816-51 by an anonymous botanist who, on the strength of other evidence, has been convincingly identified as the Rev. William Hincks (1794-1871).

Hincks is known to have participated in the early exchange activities of the Botanical Society of Edinburgh and a few scattered specimens of his have previously been reported from institutions there and at Forres in Scotland and at Cork and Belfast in Ireland, but an apparently more substantial number were at one time in the museum of the Yorkshire Philosophical Society (now The Yorkshire Museum) but had failed to be traced (Kent & Allen, 1984). Whether these last constituted the full-scale herbarium that has now turned up is unclear. It is also unclear how that herbarium came to be at Eton College.

Hincks was brought up successively in Cork and Belfast, where his almost equally well-known botanist father held clerical appointments. Becoming a Unitarian minister in his turn, the son is known to have taught botany, among other subjects, at the dissenting academy in York known as Manchester College. During his years there, 1827-39, he also acted as the Yorkshire Philosophical Society's honorary botanical curator – hence these one-time specimens of his there. York was exchanged for Cork, the city of his birth, in 1849 on his appointment as Professor of Natural History in its newly-established Queen's College. He remained there, however, only four years before emigrating to Canada and completing his career at University College, Toronto.

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Botanical Crossword No. 8

by *Cruciada*

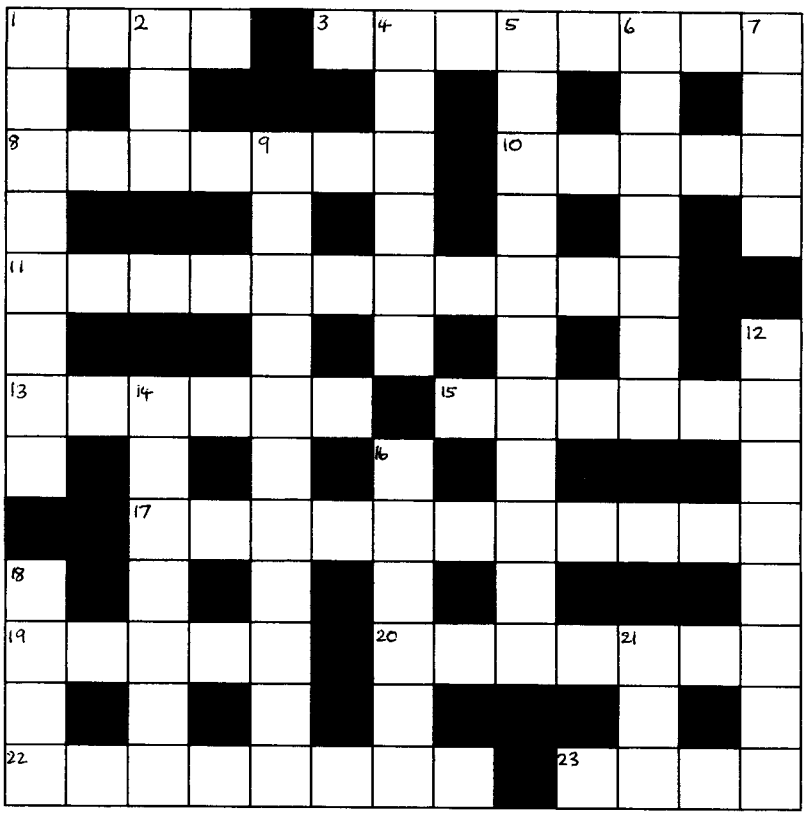
ACROSS

1. Champion server maybe, but opposite hands give the game away (4)
3. No leader can propagate periwinkle bush (8)
8. Gray's cutting up (7)
10. Seaweed tossed about in a gale (5)
11. Passing the summer in interior flower arrangement (11)
13. English saint concocts infusion (6)
15. After field trip perhaps, go to the pub about two for refreshment (6)
17. A poor native disturbed, it transpires (11)
19. Unprepared, penniless, I was somewhere else (5)
20. PR angle adjusted for deep recovery (7)
22. Buy any recording with a pound over two years (8)
23. Finally refer to Sherard's marginalia, for example, to find shrub (4)

DOWN

1. Mythical Antennaria? (8)
2. Age of unlisted Twayblade (3)
4. Put him down as non-specialist (6)
5. More bonny ivy tree than oriental sweet-stalk (6, 5)
6. Split style class (7)
7. Free, free! Home to some 10 (4)
9. As the sunflower turns on her god when he sets/ The same look that she turn'd when he rose (11)
12. Accentor, heal thyself (8)
14. Fruitless to meddle with the French rites (7)
16. Short mountain grass, a whiter shade of pale (3, 3)
18. Hook buried in sandbar beach (4)
21. New gas contract (3)

[For solution see page 33]



Bellis perennis f. *disciformis*

JEANNE WEBB, *Hybeck Old Cleeve, Minehead, Somerset TA24 6HW*

In the summer of 2005, whilst walking along a woodland track near Dunster, in West Somerset, we found a variant of the common daisy, *Bellis perennis* completely lacking ligulate flowers. The plant was growing in the margins of a forest track in the middle of a patch of normal daisies. Only one plant was seen and this survived until the following year (2006) when the enclosed photograph was taken (see Colour Section, Plate 1). This strange variant is evidently rare but has been recorded previously:

'Daisies with the ligulate flowers entirely wanting occur on the Severn bank near Hallen. The form is generally accounted rare.' J.W. White, *The Bristol Flora*, p. 367 (1912)

'The form having flowers wanting the ray florets has been noticed at (VIII) Dappas Hill, Croydon. A.B. [Arthur Bennett]; near Farley Green C.E.B. [C. E. Britton] Rep. B.E.C.,1918, 382.' C.E. Salmon, *Flora of Surrey*, p. 373 (1981).

'Rayless plants were noted by W.M. Mason at Melmcoby (6.3) in 1921, and were seen during the survey at Penrith (50.30) and Ravenstonedale (74.02)'. Geoffrey Halliday, *A Flora of Cumbria* p. 472 (1997).

'The curious rayless form of this plant, in some ways simulating the flowering heads of Eriocaulon, was gathered at Carriglea in 1904. R.W.S.' R.W. Scully, *Flora of County Kerry*, p. 143 (1916).

Apart from the abnormal flower, the plant was healthy but as it was in a very precarious position, the track being graded for maintenance purposes by the foresters, we decided to bring part of it into cultivation. It has survived and multiplied and we have further divided it, both parts now producing identical flowers. No seeds were found upon examination of the very woolly inflorescence of the original plant and we await the next generation of flowers to confirm this. We are interested to see whether or not it produces seed and if so, would it breed true?

We would be pleased to hear from anyone who has found similar plants in the wild.

Degrees of colour-blindness in botany

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Tim Paine's article '*Colour-blind' Botanists* (*BSBI News* **104**: 18) poses the possibility of an interesting survey on BSBI members, but should really be limited to males. Although mothers are the carriers (X–chromosome), females themselves are rarely affected, nearer 0.04% than the 0.4% quoted.

More importantly, males with either total green-blindness (1%) or total red-blindness (1%) might be unlikely to take up botany. As these conditions can be linked, between 1 & 2% of males have one or both of these severe defects. Green weakness (Deuteranomalousness), how-ever, affects 5% of males, and Red weakness 1.5%. If these are linked to any degree, 5-6.5% are affected; so in this country between 6% and 8.5% of males have weak or severely defective colour vision (percentages from Voke, 1978).. The Ishihara plates, good fun to use, will pick up many of the weak colour-vision males, but perhaps not all who see pale-pinks as shades of blue.

It is the 6% or so of Red-green weak colour-vision males who interest me in relation to Botany, especially Dendrology. The fashionable snobbery directed by some males against coppery-tinged tree or shrub variants and cultivars is expressed by terms such as 'dirty' or 'muddy' or 'dingy' or 'dull and dark', etc. Copper Beeches (*Fagus sylvatica* f. *purpurea* or 'Atropurpurea'), Copper Norway Maples (e.g. *Acer platanoides* 'Deborah') and Pissard's Plum (*Prunus cerasifera* 'Atropurpurea') are all recent targets, along

with the beautiful Jersey Sycamore (*Acer pseudoplatanus* 'Atro- purpureum'). This prejudiced opprobrium is seldom directed against cream or golden-leaved variants of the same species, very often much feebler trees: but loss or weakness of yellow (and blue) colour-vision is rare. However males with red-green weakness are common. Instead of seeing flickers of wine-red, green, pink, purple and magenta, they can only perceive 'dingy' or 'dirty' shades (having limited perception of the varied hues), seen by them as little different in colour from a shaded muddy farm track. When such foliage is dense and vigorous, the 'darkness and gloominess' perceived is the consequence of not being able to see different ranges of magenta hues as light shines through chlorophyll and red pigments in the leaves. Colour forms, from cuprea through purpurea to atropurpurea (royal purple), may be due to different levels of purple xanthocyanins and/or red anthocyanins within the leaves. Men with only minor weakness of red-green perception sometimes make a point of praising the extreme colour forms (e.g. atropurpurea) whilst condemning the subtler less pronounced hue variants as 'muddy'.

I also suspect that some of the current prejudice against Monkey-puzzle trees (*Araucaria araucana*) – 'Black / Dark / Out-of-place', etc, derives from the 5-6% green-weak men rather than simple reaction against Victorian plantings; a dangerous prejudice for this species, as there is more genetic variation in European gardens than in the few remaining Andean stands. It is important not to be swayed by the aesthetic pontifications of others, particularly where colour appreciation is involved!

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Colour-blind botanists – the results

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My thanks to those of you who owned up to being colour-blind (see *BSBI News* **104**). Charles Nelson (*BSBI News* **103**) guessed that, extrapolating from UK prevalence figures, there should be 170 affected BSBI members. However, only 11 of you contacted me to report this problem: 2 protanopes (both male); 8 full or partial deuteranopes (7 male, 1 female); and no tritanopes. A lady member with MS reports gradually losing all colour perception as the day goes on.

From all this one might hazard a guess that:
(a) colour-blind people tend not to get into botany;
(b) those that do are shy about admitting it (their colour-blindness, that is!).

Protanopes and deuteranopes both have problems distinguishing reds from greens. Poppies are evidently the commonest traps; and several people reported their spouses' hilarity at their inability to spot them. Other frustrations were redshanks without red legs, seaweed confusion and coloured spots on distribution maps. One unfortunate member had been ruled out of an orchid job at Kew, but had found solace with grasses & sea-lavender.

Uses for grasses

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I would like to add to Elizabeth Rich's 'Uses for grasses' in *BSBI News* **104**: 13, although I'm sure I'm not as elderly as was her informant! Stuffing a bicycle tyre with grass if the inner tube cannot be repaired or replaced whilst out on a ride is a traditional remedy, although I have never had to resort to it. However, as recently as 22nd February, I was

reading in a cycling magazine how a correspondent had done just that. There used to be another useful botanical remedy: until several decades ago, most roadster and many sports cycle inner tubes were fitted with 'Woods' valves, in which the removable insert had a short slender rubber tube (a 'valve rubber') fitted over the innermost part. These rubbers would occasionally split when the tyre was being inflated, or could also fail unexpectedly whilst out on a ride. A good temporary remedy if one was not carrying a replacement was to fit a piece of hollow stem of, say, dandelion, and, of course, take some extra pieces in case the need arose before reaching home or passing a cycle shop.

Eventually, the Woods insert was redesigned to incorporate a spring-loaded plunger. Also, pieces of wood have been used to effect temporary repairs to broken cycle frame tubes (and indeed motor car parts). Where would we be without plants? – asks a mere zoologist!

Plant Rings

RACHEL HEMMING, *The Anchorage, South Woodchester, Stroud, GL5 5EL*

I was interested to read the article on Plant Rings in *BSBI News* **101**. On Rodborough Common, Stroud (SO847.033, v.c. 34) there is a very large ring, clearly visible from the opposite side of the valley. I had always assumed that this was caused by a fungus, despite more fanciful explanations occasionally offered, but was puzzled by the absence of fruiting bodies and the presence of a sedge. I had not at that time realised that a sedge could produce a ring.

The ring is in limestone grassland on a west-facing slope and is formed by *Carex flacca*. When measured on June 28th 2005 the average diameter was 43.7m and the width 1.4m, suggesting it could be as much as 500 years old.

New English names for *Melittis melissophyllum* and *Thesium humifusum*

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Some readers may remember that in *BSBI News* **92**: 31 I suggested that it would be good to find pleasant English names for these two beautiful species, rather than Bastard ....

Anne Hall (pers. comm.) found Balm-leaved Archangel for the *Meilittis* in the *New Cyclopaedia of Botany*, which she thinks was published in the early nineteenth century. Tom Whitehall told me (pers. comm.) that David McClintock gives Bee Balm for the *Melittis* (in *Companion to Flowers* p. 205). He added that John Hutchinson (in *Uncommon Wild Flowers* p. 609) wrote that the corolla fills with 7 to 10mm of nectar, and the very fragrant flowers are visited by humblebees and hawk moths. *Mele* in Greek is 'honey', and *melissa* and *melitta* are a 'bee' – the latter in Attic, the Greek spoken in Athens (Gilbert-Carter). Gilbert-Carter adds that Melissophyllum (literally bee-leaf) is the name of a plant in Pliny.

Both these names run into the same problem: *Melittis melissophyllum* is neither an Archangel nor a Balm. Usually I am not keen on hyphens, but the addition of one to McClintock's name might solve the problem : **Bee-balm.**

I appreciate Geoff Toone's humour (*BSBI News* **98:** 34), but no serious suggestions have been made by others for *Thesium humifusum*. As a senior botanist has said to me, it is neither a bastard nor a toadflax. *Thesium* is the name of a bulbous plant in Pliny, which does not help us, and *humifusum* means spread out on the ground (Gilbert-Carter).

My suggestion, based on its appearance and habitat, is **Stars-in-grass.** I think it suits it well, and some others on whom I have tried it agree.

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Botany in Literature – 45

CONAN DOYLE'S *A STUDY IN SCARLET* – SHERLOCK HOLMES AND BOTANY – AFFINITIES WITH FREUD

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Sir Arthur Conan Doyle (b. Edinburgh 1859 – d. Crowborough 1930) was educated at Stonyhurst and studied medicine at Edinburgh University where he became surgeon's clerk to Professor Joseph Bell. He subsequently set up as a doctor at Southsea, but when the patients failed to materialize, and out of financial necessity and to alleviate boredom, he turned to writing, creating the character of the famous consulting detective, Sherlock Holmes, producing *A Study in Scarlet* (1887), *The Sign of Four* (1889), *The Adventures of Sherlock Holmes* (1892), *The Memoirs of Sherlock Holmes* (1894), *The Hound of the Baskervilles* (1902), *The Return of Sherlock Holmes* (1905), *The Valley of Fear and Selected Cases* (1915), *His Last Bow* (1917), and *The Case Book of Sherlock Holmes* (1927). He also wrote historical romances, such as *The Exploits of Brigadier Gerard* (1896), and a science fiction tale *The Lost World* (1912). Devoted to many causes, including the Divorce Law Reform and a Channel Tunnel, Doyle was also a campaigner, a volunteer physician in the Boer War, and a convert to spiritualism. The character of Watson is obviously based on some of Doyle's experiences as a physician.

A Study in Scarlet, from which the passage below is taken, began life as *A Tangled Skein*, Holmes as Oliver Wendell Holmes, then Mr Sherrinford Holmes, Watson as Ormond Sacker, a retired military surgeon, but after the manuscript was turned down, these names transmuted into the well known ones of Dr John H. Watson and Sherlock Holmes, the name Holmes having been borrowed from a Harvard Professor of Anatomy and Physiology, the science of deduction as perfected by Holmes from the diagnostic methods of Professor Joseph Bell. The 'Scarlet' of the title would appear to be derived from the *Rache*[*n*] scrawled on the wall by a fingernail dipped in blood, as much as the blood Holmes draws from his own fingers, and the colour of London clay. Conan Doyle, sensible romantic that he was, had an affinity for the colour red, as a further adventure 'The Red-Headed League' (in *The Adventures*) testifies.

Holmes himself, was the archetypal bohemian; at the fictitious address of No 221B Baker Street could be found tobacco lodged in Persian slippers, bullet holes in the wall, correspondence skewered by a dagger, cocaine, and Holmes, at times, in a purple dressing gown. Preternaturally gifted, vain, and more often than not emotionally reserved, he was the classically divided man, bouts of frenetic activity while on a case being tempered by periods of great lethargy accompanied by a vacant expression. At over six feet tall, and excessively lean, with sharp, piercing eyes, and a hawk-like nose, he presented 'an air of alertness and decision'. As one who lived solely off his brains he was 'cold, precise, but admirably balanced... the most perfect reasoning and observing machine'. Other than working on a case, his days were spent either at the chemical laboratory, or in the dissecting rooms, and occasionally on walks to the lowest portion of the city. As a result of his rigorous scientific experiments, his hands could be found invariably blotted with ink and stained with chemicals, and 'all mottled over with ... pieces of plaster' where he had pricked himself in order to obtain blood for his tests.

Watson's first acquaintance with him is as a witness to Holmes' cry of pleasure 'I've found it! I've found it!' (nothing emotionally repressed here), the results of this success he rapidly and unabashedly shares with the convalescing doctor, as a precursor to their taking diggings together.

Even so, Watson is at a loss to know what Holmes does, the question appearing unwelcome, yet his 'zeal for certain studies' being remarkable, he feels that he must have 'had some definite end in view'. Perplexed, Watson records:

> I enumerated in my own mind all the various points upon which he had shown me that he was exceptionally well-informed. I even took a pencil and jotted them down. I could not help smiling at the document when I had completed it. It ran in this way:
>
> *Sherlock Holmes – his limits*
>
> 1 Knowledge of Literature: Nil.[1]
> 2 Knowledge of Philosophy: Nil.[1]
> 3 Knowledge of Astronomy: Nil.[1]
> 4 Knowledge of Politics: Feeble.[1]
> 5 Knowledge of Botany: Variable. Well up in belladonna, opium, and poisons generally. Knows nothing of practical gardening.[2]
> 6 Knowledge of Geology: Practical, but limited. Tells at a glance different soils from each other. After walks has shown me splashes upon his trousers, and told me by their colour and consistence in what part of London he had received them.
> 7 Knowledge of Chemistry: Profound.
> 8 Knowledge of Anatomy: Accurate, but unsystematic.
> 9 Knowledge of Sensational Literature: Immense. He appears to know every detail of every horror perpetrated in the century.
> 10 Plays the violin well.
> 11 Is an expert singlestick player, boxer, and swordsman.
> 12 Has a good practical knowledge of British law.
>
> When I had got so far in my list I threw it into the fire in despair. 'If I can only find what the fellow is driving at by reconciling all these accomplishments, and discovering a calling which needs them all,' I said to myself, 'I may as well give up the attempt at once.'

NOTES

1. *Knowledge of Literature/Philosophy/Anatomy/Politics: Nil/Feeble*: While this may be true of Holmes in *A Study in Scarlet*, as his character develops, he outgrows these limits, so that, for example, in *The Adventures* he is found quoting Tacitus (p. 48), in *His Last Bow* he has taken up philosophy and agriculture, and in *The Memoirs* ('The Greek Interpreter') he speculates on changes in the obliquity of the eclipse, while in 'A Scandal in Bohemia' (*The Adventures*), Holmes readily identifies the hereditary king.
2. *Knowledge of Botany: ... gardening*: Although 'appreciation of nature found no place among his [Sherlock Holmes'] many gifts' (Doyle, 2001b: 416), and there is scarcely, apart from general descriptions of scenery, mention of a single plant in *A Study*, *The Adventures*, and *The Memoirs*, it would be incorrect to say Conan Doyle had little acquaintance with botany, for in 'The Yellow Face' (Doyle, 2001b: 303) we find at least an awareness, viz. 'where the first faint shoots of green were breaking out upon the elms, and the sticky spearheads of the chestnuts were beginning to burst into their five-fold leaves'. Like Sigmund Freud (1856-1935), Doyle was a medical man (c.f., for example, physician-botanists Erasmus Darwin, William Withering), and like Freud, he collected books, especially second editions, while a student. Although Freud maintained he 'never had a specially intimate contact with botany' this proved to be a slight understatement (see Souchier, 2006:40-41; 2004: 40-41). The mention of vegetable alkaloids in *A Study* (pages 10, 119) would presumably require a certain knowledge of their origins by Doyle. The discovery of impure nicotine in 1803, and Freud's 1884 paper 'On Cocoa' in *The Cocaine Papers*, would have been known to Doyle especially, with a view to Holmes' cocaine smoking habit.

   As well as the age of the 'Darwinian theory', it was also the age of the monograph, and Freud's dream of the mono-

graph of the genus *Cyclamen* (see Souchier, 2006), uses his paper as a point of contact. Comparatively, Holmes has written monographs on cigar ashes (Doyle, 2001a: 37), deep-sea fishes (Doyle, 2001b: 10), and via callosities, a study on one's trade shaping one's hand (*ibid*: 343); also tattoo-marks (*l.c.*), codes (Glinert, notes in Doyle, 2001b: 539), while in 'The Resident Patient' (*ibid*: 419), obscure nervous lesions are the subject of a monograph by Doctor Percy Trevelyan.

The similarities between Doyle/Holmes and Freud do not end there. Pears, in his introduction to Doyle (2001b), mentions the Italian scholar Carlo Ginzburg who draws a comparison between the Holmesian method of deduction with Freud's method of psychoanalysis. That is to say, that while Holmes pursues 'the little things', and begins with a crime, inexplicable behaviour, disappearing fiancée or wife, or mysterious death, Freud considers previously overlooked trifles (such as facial tics, jokes, and dreams), and begins with a neurosis, both methods involving working through details to the point of origin. Thus, both deal with cases, either via Holmes short stories (as recorded by Watson), or case studies, as in Freud's 'short stories', and also his lectures. Both detective and analyst preserve a distance from their clients and swear secrecy to them (in the case of Holmes) or medical confidentiality, yet both publicise their methods by writing (as above). On the purely material level, Holmes, as well as smoking cigarettes, smokes cigars, Freud similarly, but whereas Freud died of cancer, Holmes is seemingly destroyed in a struggle with Professor Moriarty and plunges into the Reichenbach Falls.

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ALIENS

Introduced 'look-alikes' and other difficult introduced plants in our Cambridgeshire flora

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The following article was published in *Nature in Cambridgeshire* No. 48 (2006), the same issue as that mentioned by David Pearman on pp. 48–49 of *BSBI News* **103** as carrying an obituary of Max Walters by Peter Grubb. The localities mentioned in it are in Cambridgeshire (v.c. 29), but there is good reason to suppose that most of the 'look-alikes' discussed are widely planted in Britain. For example, Arthur Chater has found many of them in Cardiganshire (v.c. 46). See also pp. 342–345 of Oliver Rackham's recent New Naturalist volume, *Woodlands*. The article is reproduced here by permission of the Editorial Board of *Nature in Cambridgeshire*, an independent annual journal for which further subscribers are always welcome (£5 note or cheque made out to Nature in Cambridgeshire to be sent each year to Nature in Cambridgeshire, c/o University Museum of Zoology, Downing Street, Cambridge CB2 2EJ).

For over 60 years I have been studying the British flora, for some 40 years I have worked with Gina Murrell in the Cambridge University herbarium (**CGE**), and for the last 20 years we have been writing the *Flora of Great Britain and Ireland* in 5 volumes. Our main aim has been to include as many races, varieties and hybrids as possible and to show, as Darwin put it, "how their differences run into one another in an insensible series". The huge British herbarium of some 200,000 specimens or more at Cambridge University has been worked through and related to what we have found in much fieldwork. In addition the Cambridge Botanic Garden has been consulted on almost a daily basis. Because we live and work here, Cambridgeshire has received more than its fair share of our fieldwork and Bassingbourn and Histon the largest share of all – Bassingbourn because it is my native village and I know every inch of it, and Histon because I have been on over 100 walks with my good friends Brian and Rosemary Chapman, on which I have tried to name every plant I saw down to varietal level.

Very slowly I began to realise that some of our native plants were not what they seemed to be, plants now termed by Oliver Rackham and others as 'look-alikes'. Some trees and shrubs have long been introduced and are well known and easily recognised, but these 'look-alikes' actually look like our native plants.

The first shrub to attract my attention was the Dogwood, supposedly *Cornus sanguineus*, planted in Histon Wood, which appeared to be more handsome than our native plant. After a detailed examination of it I found the hairs on the under surface of the leaf were flat to the surface and medifixed, while our native plant has them upcurved and fixed at the base: it was *Cornus australis* from the Black and Caspian Seas area. I then searched the planted woods at Bassingbourn and found more of it. Later, in that village, I found it implanted in old hedgerows, where the native plant already occurred.

Careful searching produced a third species with larger leaves and longer petioles, but with hairs like our native *Cornus sanguineus*. This third species seems to be *Cornus koenigii* from southern Russia. It also is planted in new woods and implanted in old hedgerows. Intermediates with a mixture of hair types can also be found implanted in hedgerows and they may reproduce themselves. All individuals of species and intermediates in both Histon and Bassingbourn are known to have been planted in the last 30 or 40 years.

Other shrubs of a similar nature found in these new woods and implanted in hedgerows belong to the genus *Viburnum* but are more difficult to identify. *V. sargentii* from China and *V. trilobum* from North America are 'look-alikes' of our native Guelder-rose, *V. opulus*.

Viburnum lantana, Wayfaring-tree, is part of another difficult complex. *V. veitchii* is a 'look-alike' from China. Hybrids of *V. lantana* and *V. rhytidiophyllum* form part of the complex. *V. lantana* var. *rugosum* may be a distinct variety or may be part of the hybrid complex. *V. lantana* var. *glabratum* supplies an internal case of introduction: our native plant in Cambridgeshire is *V. lantana* var. *lantana*, while *V. lantana* var. *glabratum* is native from south-west England and Wales to the Isle of Wight and is also found in France and Spain. This variety comes into flower about a month earlier than our native plant in Cambridgeshire. Driving along the Royston by-pass in April 2005 I saw one bush only in flower, which was this variety. Walking into Ford Wood at Bassingbourn on 30 April 2005 I found a bush of this variety in full flower, while *V. lantana* var. *lantana* growing nearby was still in tight bud. Bushes of much of this complex can be found in Ford Wood.

Acer campestre, Field Maple, next occupied my attention. The native trees I have known all my life at Bassingbourn have

hairy fruits and are subsp. *campestre*. They rarely if ever seem to produce new trees. Huge numbers of trees planted in new woods, in hedgerows and by roads are glabrous-fruited and are the introduced subsp. *leiocarpum*. It comes into flower a month earlier than our native tree and is in young fruit when subsp. *campestre* flowers. Along the Royston by-pass is a large number of these trees, which are reproducing freely in the shallow ditch by the road. Other trees at Royston have much larger, more divided leaves and seem to be the Japanese *A. miyabei*. Some of the trees of subsp. *leiocarpum* have been planted where you would never expect to find introductions, in the fields between Bassingbourn and Wendy: they were given to farmers by the County Council to plant on their land. Oliver Rackham (*Ancient Woodland,* new edition, p. 239) writes: "Maple reproduction, which seemed in the 1970s to be declining, has revived since (especially where woods are coppiced or elms have died) and is very probably adequate." Is this anything to do with the mass introduction of subsp. *leiocarpum*?

When *Betula pendula*, Silver Birch, was introduced from Europe to North America it hybridised freely with their native species *B. populifolia*. Now *B. populifolia* is introduced in our planted woods at Histon and along streets and I am reasonably sure it is hybridising with *B. pendula*. Other birches from Asia are also introduced, some related to *B. pubescens*.

Histon Wood contains all three native varieties of Alder, *Alnus glutinosa* var. *microcarpa*, var. *glutinosa* and var. *macrocarpa*, as well as the introduced *A. incana* and hybrids with all the native variants. *A. incana* is planted around many Cambridgeshire fields.

An introduced variety of Spindle, *Euonymus europeaus* var. *intermedius,* certainly adorns our planted woods and hedgerows with a splash of colour. In comparison, our native var. *europaeus* is a dowdy plant. Var. *intermedius* is said to come from Switzerland. I saw this variety recently in a field hedge at Bassingbourn, where it took me completely by surprise.

A very large-leaved, large-fruited beech, sometimes called 'Prince George of Crete', is widely planted as a hedge around fields, recreation grounds and gardens. It probably belongs to the beeches of the Balkans, which are intermediate between the main Beech of Europe, *Fagus sylvatica,* and the Oriental Beech, *F. orientalis*, and is probably best called *F. moesiaca*. A magnificent tree of it grows by the Village College at Bassingbourn, side by side with a small-leaved variety of *F. sylvatica*, var. *rotundifolia,* and the normal plant, var. *sylvatica*. A fastigiated form of *F. moesiaca* is planted along Cavendish Avenue in Cambridge. It should be remembered that *Fagus sylvatica* was not known at all in Cambridgeshire to John Ray in 1660.

The hazels of Bassingbourn are fascinating. *Corylus avellana* forma *avellana*, our native plant, grows where it ought to grow by our streams, mainly in the old fen area. The most fascinating is the Balkan Nut, *Corylus maxima*, which grew all round the area of the medieval Castle Manor and was probably brought there by Lord Tiptoft about 500 years ago. *C. avellana* forma *schizochlamys* is frequent in the same area. Most of the bushes planted in the new woods, where I have been able to see nuts, are *C. avellana* forma *grandis*. (See the article in *Nature in Cambridgeshire*, No. 23 (1980): 50–52.)

Most people are familiar with *Sorbus intermedia*, Swedish Whitebeam, but there are two other similar species, *S. austriaca* and *S. mougeotii*. All three are widely planted in Cambridgeshire, sometimes in the corners of fields as well as on roadsides and recreation areas.

Many willows and poplars are clearly planted. It was common practice in Bassingbourn to plant new trees and shrubs of these genera when trimming hedgerows. A straight pole was trimmed and simply stuck in the ground, and it grew. One of the most

common was *Salix cinerea* × *viminalis*, which produced useful, straight, pliant poles.

Where do all these trees and shrubs come from? All I can say is that most of them seem to have been planted in the last 30 or 40 years. There are eight of the new so-called 'woods' in Bassingbourn and most of the trees and shrubs in them are not native. It is also probable that the contents of all Bassingbourn hedges are mostly not native. Even those by natural streams have been implanted to some extent. At Histon the new Histon and Girton 'Woods' are also full of non-native trees and shrubs. However, Histon does seem to have good natural hedges along much of Gun's Lane.

In the garden magazine, *Horticulture Week*, of 23 September 2004, there is an article by Glen Munro entitled 'Tree Planting'. In it he makes the following statements:

"Last year the Forestry Commission planted an estimated 25,282 ha of trees. And with more emphasis being placed on issues such as nature conservation and landscape restoration, the number of trees being planted is set to escalate."

"National Forest chief executive Susan Bell believes this level of tree planting is unprecedented in Britain. A indication of the scale of work going on can be seen in the National Forest Company's new strategy for the continued creation of the National Forest. The new planting target has been set at 4,000–5,000 ha."

"Another aim of National Forest company is to create extensive biodiversity change, with the knitting together of thousands of hectares of woods, heathland, wetlands and hedgerows."

The same author, Glen Munro, in the issue of this magazine of 4 November 2004, writes:

"More trees are being imported into the UK. The value of tree importation has grown from £46.8 million in 2002 to £51.8 million in 2003, according to figures from DEFRA."

It is not only the present which is involved. Most of the hedges in Bassingbourn are enclosure hedges, which in that village were created soon after 1806. A similar state of affairs appears to occur at Histon. The most common shrub is of course Hawthorn, *Crataegus*. Sometimes there are up to six kinds or more in a hedge (see the hedge around the outside of Girton Wood); sometimes there are miles of hedge with every bush like peas in a pod (see the hedge by the old Bassingbourn track to Royston). So far I have identified in Cambridgeshire hedges *Crataegus monogyna* subsp. *monogyna*, *C. monogyna* subsp. *nordica* var. *nordica*, *C. monogyna* subsp. *nordica* var. *speciosa*, *C. monogyna* subsp. *monogyna* var. *laciniata*, *C. monogyna* subsp. *leiomonogyna*, *C. monogyna* subsp. *azarella*, *C. kyrtostyla*, *C. curvisepala* and *C. pseudoheterophylla*. These taxa all have one style and possibly only *C. monogyna* subsp. *nordica* var. *nordica* and var. *speciosa* are native. *C. laevigata* occurs in our woods and has two to three styles. Its hybrids with *C. monogyna* are frequent; if you search the bush you will almost certainly find some flowers with more than one style. I know of only one tree of *C. laevigata* in Bassingbourn hedges and that is in a hedge surrounding a meadow owned by my family. I have always been told that my grandfather planted this hedge with bushes from Waresley Wood. In gardens you will find various forms of *C. monogyna, C. laevigata* and their hybrid, some with double flowers and others with red flowers and some with both. They are occasionally found in the wild. *C. curvisepala* in one hedge at Dry Drayton shows intermediates with *C. monogyna*. To see the difference in these plants you need to look at the colour of the back of the leaf, division of lobes, length of petiole, size and hairiness of leaf, stipules, size of flower, overlapping of petals, and size and colour of fruit. If part of the hedge comes into flower before the rest it will almost certainly be a different taxon. Only the larger thrushes can eat some of the larger berries. Fieldfares tend to pass through and take the larger ones, leaving the small ones for the sedentary Blackbird and Song Thrush, although

Redwing will also want these. Mistle Thrush will sometimes guard a large-berried tree. In this way the various taxa will be distributed differently.

At Bassingbourn, enclosure hedges on the chalk tend to be of one taxon, but on the site of the old fen they are much more likely to be of variable species and to include native *Viburnum opulus* var. *opulus* and *lantana* var. *lantana*, *Ligustrum vulgare* and *Prunus spinosa*. Presumably these plants were easily available in the old fen, while on the chalk uplands all the new plants had to be brought in. Ashwell Street has been straightened over much of its length. Sloes and Damsons are some of the main constituents of some of the hedges.

Oliver Rackham, in *The illustrated history of the countryside* (1994, p. 81), writes: "The Great Enclosures, though not a universal transformation, were a time of more new hedging than ever before or since. The hedges planted between 1750 and 1850 – probably about 200,000 miles – were at least equal to all those planted in the previous 500 years. The same applies to stone walls in moorland country as well as on former open fields. A thousand million or more hedging plants were necessary, which founded the fortunes of several Midland nursery firms." The only disagreement I have with this is that I think as many have been planted in the last 30 or 40 years, but by roads, in new 'woods', in forestry plantations and on farmland. The number of species in a Cambridgeshire hedge does not tell us its age unless the identification of the taxa is considered very carefully.

As well as the planting of trees and shrubs there is the use of wild flower seed, which is not always what it seems to be. Unfortunately there seems to be no record as to where it has been sown. On the Melbourn by-pass there have been for many years three subspecies of Chicory, *Cichorium intybus*. On the Gog Magog Hills wild flower seeds produced for several years a mass of Oxeye Daisy from May till September. First to come into flower was the introduced tetraploid, *Leucanthemum vulgare* subsp. *ircutanum*. This was followed by the native diploid, *L. vulgare* subsp. *vulgare*, and finally by the garden fertile hybrid *L. superbum*. There also occurred the introduced *Senecio erucifolius* var. *viridulus* as well as the native var. *erucifolius*.

One group of plants appears to be widely sown in wild flower seed. These are plants of which a selected variant used to be grown as a hay crop: *Trifolium pratense* var. *sativum* and var. *americanum*, *Medicago lupulina* var. *major*, *Trifolium repens* var. *grandiflorum*, *Onobrychis sativa* subsp. *sativa*, *Lotus corniculatus* var. *sativus*, *Medicago sativa* subsp. *sativa*, *Cichorium intybus* subsp. *intybus*, *Anthyllis vulneraria* subsp. *polyphylla*, and *Vicia sativa* subsp. *sativa* and possibly subsp. *cordata*.

One should beware of early-flowering Primroses and Cowslips: they are not usually our native subspecies. This also applies to Snowdrops, the very early-flowering ones usually being a different subspecies or even a completely different species.

In 1998 a field of wheat in Bassingbourn near the Royston by-pass was covered with an umbellifer up to 200 cm high. It was a very large Fool's Parsley, *Aethusa cynapium*. We have two variants of this species which are common in our countryside. Subsp. *agrestis* is a dwarf plant which flowers and fruits in our stubbleland after the corn has been cut: it has clearly adapted to the height of the stubble. Subsp. *cynapium* grows from 20–50 cm and is found on waste land and field margins and flowers much earlier in the summer. These two subspecies, grown side by side from seed in the Cambridge Botanic Garden, retained their different heights and their flowering periods did not overlap at all, so they could not hybridise. The very tall plant found near Royston is another, continental subspecies, *A. cynapium* subsp. *giganteum*. In the same year I found another field of wheat by Gun's Lane in Histon containing the same plant. I am told that the representative of the herbicide firm who came to look

at the Bassingbourn field thought it was Hemlock. I assume he meant *Conium maculatum* because of its height, although the old inhabitants of Bassingbourn called *Anthriscus sylvestris* 'hemlock'. The story does not finish here. In 1993 the village of Bassingbourn was given a large number of *Narcissus* bulbs to plant in the village. This they did in front of the moat, which originated with the medieval Richmond Manor and which is locally called the Horse Pond, as the horses washed their feet in it after a muddy day in the field. Among these bulbs grew up another giant *Aethusa* which was not quite the same as the ones in the wheat field; it also is found in continental Europe and is referable to subsp. *cynapioides*. I then looked at the bulb fields on the Kneesworth–Meldreth boundary, from which the bulbs came, and found more of it. In 1994 the same plant had come up in my friend Bill Robinson's garden at Bassingbourn. The large *Aethusa* has not appeared again in the wheat fields, but the second one has appeared again in the Bassingbourn garden in 1998 and 2003.

The apomictic genus *Hieracium* is a good example of how it is possible that species can move about on vehicles. In 1952 I found several different species growing on the chalky bank of a cutting just east of Royston (but in Melbourn parish, v.c. 29). The Swedish botanist Nils Hylander had just described many new species of *Hieracium* from introduced plants in Swedish grasslands. When he visited Cambridge I took him to Royston and showed him the species there, which he recognised as being similar to those in Sweden. He suggested that the species he pointed out would retain their characters in cultivation, which they did. When the Royston by-pass was built it opened up a new area for the *Hieracium* species to spread. Not only did the old ones spread, but new species came in, probably on the tyres of the construction vehicles involved, which had probably visited other similar sites. The following species now occur at Royston (Hertfordshire, but in v.c. 29): *Hieracium aterrimum* Hyl., *cardiophyllum* Jord. ex Boreau, *firmiramum* Hyl., *gentile* Jord. ex Boreau, *grandidens* Dahlst., *koehleri* Dahlst., *lepidulum* (Stenström) Omang, *neosparsum* (Zahn) P.D. Sell, *onychodontum* Hyl., *quadridentatum* Hyl., *seriflorum* Hyl. and *sylvularum* Jord. ex Boreau. It is likely that none are native to Great Britain. Another species, *H. sublepistoides* (Zahn) Roffey, not at Royston, somehow got into Bassingbourn cemetery. It also appeared on the Gogs during the Second World War. I have seen it as a native plant high up in the Austrian Alps.

Perhaps the most remarkable of hawkweed stories is of finding a plant of *Hieracium rionii* in a crack in the pavement on the side of School Lane at Histon. When I told Bryan Chapman that it was a native of the Swiss Alps, he said that the chap who lives there probably brought it back on the wheels of his caravan; he often travels about Europe. It is not quite as simple as that. It was introduced to the Cambridge Botanic Garden, where it became a weed, and David McCosh brought me specimens from another garden where it had become a weed. The Histon plant could have come from a nearby garden.

Talking about Compositae and the Second World War, I am reminded that a large number of old tanks were stored at Milton. In this area appeared a whole range of *Picris hieracioides* of southern Europe, *P. hieracioides* subsp. *villarsii* var. *villarsii*, var. *leteae* and var. *arenaria*, and *P. hieracioides* subsp. *grandiflora*. They spread along the old Histon railway and out into the grassy areas in and between Histon and Girton Woods. None of them were the native Hawkweed Oxtongue, *P. hieracioides* subsp. *hieracioides*, which grows on the Devil's Ditch.

How far do these Composite seeds blow or travel on the muddy tyres of vehicles? I did not know Great Lettuce, *Lactuca virosa*, anywhere in the Bassingbourn area until the Royston by-pass was built. After the *Lactuca* was found in that locality it was not

long before I found it in Ashwell Street and soon in other places.

One has also to beware of a species of plant in quantity where you would not expect it. In Girton Wood, which was planted over a former arable field, there have been many plants of *Crepis biennis* and some *C. tectorum* over the last few years. A grassy area, where I was told wild flower seed had been sown, near Harlton Wheatsheaf also produced a large number of plants of *Crepis biennis*. Likewise around the large roundabout south of Arrington, where it was fairly obvious that wild flower seed had been planted, *Crepis biennis* appeared in quantity. I have no evidence that *Crepis biennis* is in wild flower seed, but the circumstances are suspicious. Another possibility is that the vehicles moving from one roadside alteration to another or from one grassland to another are taking seeds in mud on their tyres.

A good example of this is the fleabanes of the genus *Conyza*: in the last few years *C. floribunda* var. *floribunda* and var. *linearifolia*, *C. sumatrensis*, *C. daveauiana* and *C. canadensis* var. *simplex*, var. *canadensis*, var. *incisa* and var. *robusta* have all occurred in quantity in and around Cambridge, particularly where building and repair work is being carried out. All also appeared in quantity in the Botanic Garden, though not deliberately introduced there.

The great difficulty in identifying most of the preceding taxa is that they are not in most books available to the public, even in the recent flood of tree books. Many genera of plants go all round the northern hemisphere and a series of taxa replace and gradually grade one into another and are often called a cline. Other taxa are confined to particular ecological situations and where they meet they hybridise. The difference is that the geographical intermediates tend to reproduce themselves exactly at any given point while the ecological hybrids are variable. Ice ages have caused taxa to retreat south by one route and go north again by another. For thousands of years Man and his animals have been moving plants either deliberately or accidentally over huge areas. Sometimes the plants remain distinct, at other times they hybridise with the taxa they come up against. A good example is Japanese Larch, *Larix kaempferi*, native of the mountains of central Honshu, Japan. When introduced to Europe it crossed with native European *L. decidua*, the hybrid being fertile and now a common tree. Most botanists would call taxa so widely separated species. Others would argue that taxa which are interfertile are not good species. My argument is that it does not matter what you call them as long as you recognise all taxa which are distinct morphologically and have their own ecology and distribution.

Two words in common usage badly need interpretation, **native** and **conservation**. Very few of our Cambridgeshire plants are native in the spots in which they are growing. I suppose sea shores, mountain cliffs, boggy places and natural streams are the most likely places to find native plants, and those are scarce in Cambridgeshire. In other places, if Man stops interfering, many plants quickly die out. We can only end up with a list of plants which have been here for a long time as being native, but it is very unsatisfactory. Everything which is done to keep these plants going I call conservation. I am not against planting trees, but buying in plug plants from a nursery which has imported them from the continent of Europe and planting them in the countryside I do not call conservation. The County Council has recently 'cleaned up' Ashwell Street and the Bassingbourn Parish Council spent £300 on plugs to put in their planted woods. If we are not careful John Prescott will fill half of southern England with concrete and conservationists will fill the other half with plugs of non-British plants.

Bupleurum longifolium L.: another new British record for Warwickshire (v.c. 38)?

JOHN M. PRICE, *10 Bishopton Lane, Stratford-upon-Avon, Warwickshire CV37 9JN*
JAMES W. PARTRIDGE, *85 Willes Road, Leamington Spa, Warwickshire CV31 1BS*

Warwickshire, maybe because of its central position in England, has a limited score of first British records. It is therefore pleasing to announce the appearance of an alien Hare's-Ear, *Bupleurum longifolium* L., in the Stratford-upon-Avon garden of J.M.P.

He first noticed it in April 2006 as a single weed-like plant in a raised border among alpines, bulbs and dwarf shrubs. This grew rapidly to reach a height of one metre and when it flowered in June it was clearly a *Bupleurum* species (Hare's-Ear), with perfoliate leaves and greenish-yellow flowers. The complete plant was sent to J.W.P., who confirmed that it was not a species known in Britain, and sent it to the BSBI Apiaceae Referee, Mervyn Southam, who identified it as *Bupleurum longifolium* L. ssp. *longifolium*.

This stout herbaceous perennial is distinguished from the other Hare's-Ear species previously recorded in Britain because it has perfoliate upper leaves but also 2-4 bracts in the inflorescence. It is native in Central Europe, from France to the Carpathians and Bulgaria, mainly in the mountains (Tutin in *Flora Europaea*, Vol. 2, 1968). It is not listed in Clement and Foster's *Alien Plants of the British Isles* (1994).

How it arrived in Stratford-upon-Avon, a notably un-mountainous region, is a mystery; whilst it may have lain dormant with the alpines, a more likely reason is that it was carried over by a bird as the area is immediately under a well-known and important migration route.

However, Gwynn Ellis tells us that an internet serch reveals that this species is a fairly well-known garden plant, in the catalogues of some seed merchants; local dispersal is another explanation.

Aster squamatus could be on its way to you

A new alien for Ireland and England

PAUL R. GREEN, *46 Bewley Street, New Ross, Co. Wexford, Ireland*; paulnewross@eircom.net

I got off the Dart (train) at Blackrock Station, Co. Dun Laoghaire-Rathdown (vice-county H21, Co. Dublin) and decided I would walk the rest of the journey to Northumberland Avenue. Along Seapoint Avenue I found *Anemanthele lessoniana* (New Zealand Windgrass) and *Cordyline australis* (Cabbage-palm), both self-sown in the pavement cracks. I was thinking to myself it would be nice to see a species I had never encountered before, when rounding the corner into Brighton Vale (road) (O/226.291) there all along the roadside by a wall was a plant I did not recognise at all. It had tiny white flowers about the size of *Conyza canadensis* (Canadian Fleabane) and narrow green leaves up to 8cm long (see Colour Section, Plate 4). Two specimens were taken to study at home.

Looking at the flowering head and seeing the phyllaries I realized it was an *Aster*. A very different plant from the showy species grown in gardens. Scanning the internet for pictures of *Asters*, after scrolling down many pages of photos I came to several that matched my plant perfectly, including photos taken in Plymouth, Devon. This is the first time I have used the internet to identify a plant. A good internet site is MaltaWildPlants.com set up by Stephen Mifsul. This web-site gives the common name as Narrow leaved Aster. David Fenwick calls it South-eastern Annual Saltmarsh Aster (Fenwick, 2007). One specimen was sent to Eric Clement, who agreed with my identification, and the other specimen has been placed in **DBN**.

Aster squamatus is a native of south/central America. On a visit to Spain and Portugal in late November 2006 I saw the *Aster* growing along many roadsides, in ditches, on disturbed ground and at the base of walls around all the towns I visited. As it is so common in these two countries it must have been there for many years.

I found it new to Ireland on the 21st October 2006 where there were well over a hundred plants. It was found at Millbay Docks, Plymouth (SX470.540) by Phil Pullen during the summer of 2006, the first record for England. It was well established on waste ground, growing with *Conyza bilbaoana* (Bilbao's Fleabane) and also found as a weed in land bordering the Plymouth Pavilions car park. Millbay Docks has a regular ferry service to Roscoff in Brittany and Santtander in northern Spain and it is assumed that the plants arrived in Plymouth from this continental ferry traffic. It will be interesting, given time, to see how this Aster behaves and if it becomes another one of the many common alien species of these islands.

Reference

FENWICK, D. 2007. Boringdon Park – Alien Invasion, *BSBI News* **104**: 39-42.

REQUESTS & OFFERS

Birmingham & the Black Country Recording Scheme

IAN TRUEMAN , MIKE POULTON , CHRIS PARRY, SARA CARVALHO
EcoRecord, Birmingham and Black Country Wildlife Trust, 28 Harborne Road, Fiveways, Edgbaston, Birmingham, B15 3AA

2007 will be the final year for records for a proposed Flora of this industrial area which extends over 700 square kilometres and covers the cities of Birmingham and Wolverhampton and the boroughs of Walsall, Sandwell and Dudley. The editors would like to thank the three vice-county Recorders for their help and all those who have contributed records so far.

We would be grateful for any further contributions. We are particularly interested in records from within the scheme period which started in January 1997, located to at least to the 1 km square. We can supply recording cards on request but any interesting records will be gratefully received.

We will be organising a series of field days to which all are invited. Details may be obtained from Sara Carvalho at EcoRecord, Birmingham and Black Country Wildlife Trust, 28 Harborne Road, Fiveways, Edgbaston Birmingham B15 3AA, telephone 0121 454 1808, email enquiries@ecorecord.org.uk

Survey of naturalised Rhododendrons - an easy follow-up

ARTHUR CHATER, *Windover, Penyrangor, Aberystwyth, Ceredigion SY23 1BJ*
JAMES CULLEN, *Stanley Smith (UK) Horticultural Trust, Cory Lodge, PO Box 365, Cambridge, Cambs., CB2 1HR*

Contributors to the 2006 survey of naturalised *Rhododendron ponticum* received an interim report on the results, and we would now like to follow this up with a further survey in May this year. It is much easier this time, as no specimens are required, just a simple form on which 6 characters need to be scored from up to ten randomly selected flowering bushes in a population. Anyone can take part, including those who sent specimens last year. The forms will be available to download from the BSBI website, or they can be obtained by sending a s.a.e. to Arthur Chater. James Cullen will send a report on the survey (covering both years) to everyone who takes part.

The results so far indicate that while the mass of material from naturalised populations

broadly falls within the morphological range of Iberian *R. ponticum*, in any sizeable population there will be specimens which show individual or several morphological characters of *R. catawbiense R. maximum* and perhaps *R. macrophyllum*. The whole mass of material is aggressive and spreads rapidly by seed. This picture more or less complements that discovered by Milne & Abbott, Origin and evolution of invasive naturalized material of *Rhododendron ponticum* L. in the British Isles, *Molecular Ecology* **9**: 541-556 (2000) who found, using molecular techniques, that most of their material was *R. ponticum*, but that about 12% showed genetic material of other species including certainly *R. catawbiense* and *R. maximum*. The morphological evidence so far suggests though that 12% is rather low. A surprising further discovery in 2006 has been that the variation within the native Iberian populations of *R. ponticum*, from which our plants were originally imported, is very much greater than had been previously supposed.

The situation in the British populations could have arisen in two ways. Iberian *R. ponticum*, though failing and under some threat in its native habitats, when introduced could have found itself in a situation where it could become aggressive, as by being grown and selected in gardens and nurseries with other species it picked up some of their variation and in doing so acquired some of their aggressiveness. If this was the case, most of the plants would have to be identified as *R. ponticum*, with only some showing the influence of other species. Alternatively, all the species involved could have hybridised quite rapidly in nurseries in the early and middle 19th C., giving rise to a hybrid swarm or neospecies, which had considerable aggressiveness due to hybrid vigour (a common feature of *Rhododendron* hybrids)). In this case, all the plants would have to be considered a hybrid, although only some would show this morphologically.

The 2007 survey is aimed at getting an idea of how widespread the characters of these other species are in the naturalised populations, by recording the pedicel indumentum, length of calyx lobes, colour of the corolla and of its spots, and the ovary indumentum. Please get hold of the forms and take part by surveying one or more populations!

Flora of dry stone walls

JOHN PRESLAND, *175c Ashley Lane, Winsley, Bradford-on-Avon, Wilts., BA15 2HR*

I have been carrying out a survey of the flora of dry stone walls in my parish. For the writing up, I want to refer to previous work of this kind, but have been unable to find any accounts, either of this flora in general or of any specific wall or area. All wall flora publications encountered have referred almost entirely to mortared walls, even if walls in general was the subject. Please can anyone help?

I wonder, also, whether anyone would be interested in carrying out similar surveys of dry stone walls in their own areas. I am particularly interested to get data on Cotswold sites, but would still be very interested in such walls elsewhere. I would be happy to send relevant information to anyone wanting to carry out a survey along the same lines as my own, to aid comparison, but any kind of data would be welcome. If there really isn't any previous work on this habitat, it could be ground-breaking. The sources of contributions would, of course, be acknowledged in any publication for which they are used.

Solution to Crossword page 18

Across

1. Acer; 3. Oleander; 8. Anatomy; 10. Algae; 11. Aestivation; 13. Tisane; 15. Repair; 17. Evaporation; 19. Alibi; 20. Grapnel; 22. Biennial; 23. Rosa

Down

1. Amaranth; 2. Era; 4. Layman; 5. Araliaceae; 6. Digynia; 7. Reef; 9. Orientation; 12. Prunella; 14. Sterile; 16. Poagia; 18. Barb; 21. Neo

In A Rush

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The *Juncus* species, *J. inflexus*, *J. effusus* and *J. conglomeratus* are common rushes. I am looking into these three taxa and their hybrids: *J.* ×*diffusus* is relatively straightforward and can be done even on non-flowering material (but not in the field for non-flowering). *J.* ×*kern-reichgeltii* is a problem plant and needs confirmatory characters developing for the species and the potential hybrid when not in the field. If recording, please collect material of all the above, 1-2 stems (at least the top half) or if you have material of these species in your herbarium I would be grateful to have a look at these. Anyone who has genuinely identified material of this hybrid from doing the ID in the field and or subsequent verification from a referee these plants would be a very useful starting point. I am keen to receive material also of the rush, *J. pallidus* and its hybrids with *J. inflexus* and *J. effusus*. These were mainly recorded around the Middlesex and Bedfordshire areas and may be extinct now? However, if anyone has material in personal herbaria this would be useful. It would also be useful to receive any other species of rush to look at, and develop non-field characters for the purposes of ID, especially for hybrids (e.g. *J.* ×*surrejanus*; In relation to the next Atlas a simple exercise, collect a voucher of *J. acutiflorus* / ×*surrejanus* from one or more sites in a tetrad from any recording/field meetings from anywhere, same for *J.* ×*diffusus*, I will accept vegetative material (save them up and send in later with record details)) and I would be happy to look at any material. From Ireland, it would be useful if someone could send some material of *J. planifolius*, said to be common in parts of W. Galway. Except for herbarium material it would be preferred if the sender keeps a duplicate and I would write or email the reply in a normal letter to cut down on costs.

Epipactis leaf study

MICHAEL WILCOX, *32 Shawbridge St, Clitheroe, Lancashire, England, BB7 1LZ*

Wanted, a single cauline (stem) leaf (without damaging the plant – if necessary with permission from landowner) from any species of *Epipactis*, from one or more individuals from one or more populations in flower and preferably with a close up photo of the flowers to help with verification of the ID of the plant. Also including any vars, such as *E. helleborine* var. *youngiana*. Leaves to be quickly pressed and sent anytime thereafter to the address above.

Seed Study

MICHAEL WILCOX, *32 Shawbridge St, Clitheroe, Lancashire, England, BB7 1LZ*

In relation to a seed study, anyone recording and or coming across *Drosera* species and potential hybrids in the field please send material. Please do not collect the whole plant. Two typical leaves, (well pressed) and only if capsule/s are present, and therefore enclose 1 or more capsules. I would look at any personal herbarium material if it fits the general description above (though I imagine it would be the whole plant – if collected when flowering I will still have a look at it but cannot promise much).

Seed Herbarium

MICHAEL WILCOX, *32 Shawbridge St, Clitheroe, Lancashire, England, BB7 1LZ*

The *Drosera* request above is also associated with this one. As John Poland's vegetative key is well under way, it was thought that another area of botany, which may be helpful, is that of the seeds. These are variously named for different genera, such as, spores, seeds, caryopses, achenes, fruits, berries and so on, from ferns to trees and non-natives. I had started a 'seed' collection but gave up after a while (due to lack of coverage on my part). However, with the help of BSBI members perhaps this can be re-developed. Please send the seed, and if possible with a specimen, particularly for non-natives (so there is some kind of verification of where the 'seed' came from). In some cases, for example very common taxa, a photo would be ok. For all the above please follow the code of collecting and like the *Drosera* study, please be conservative.

NOTICES

BSHS OEC Image Competition 2007

The Outreach and Education Committee of the British Society for the History of Science offers a prize of £250 for an original image to be used for teaching/communicating the history of science.

The winning image or images (in the case of a tie) will be announced at the OEC sessions at the BSHS conference in Manchester, June 30 2007. The winner(s) will grant permission to the BSHS to make the image(s) available for download free of charge on the BSHS OEC webpage, but will retain copyright over the image, which will be watermarked with the winning name(s) and the BSHS logo.

Eligibility: there are no restrictions on who may enter the competition; in particular, entrants need not be a member of the British Society for the History of Science. The entry may be the work of more than one individual, and if so, all must be named and details provided in the materials submitted for the prize. There is no restriction on the number of submissions any entrant may make for this prize.

Subject: any topic or topics in the history of science and or technology and or medicine. The image must not use any copyright material on which the copyright is not owned by (any of) the entrant(s).

Medium: any artistic idiom - cartoon, photograph, drawing, graphic montage, etc.

Format: for entry purposes a jpeg or TIFF image of up to 500kB file size will be accepted. More specific requirements may be made of the winning entry for display and download purposes.

Commentary: entrants may submit a text up to 500 words in MS-Word or Rich Text format to

i) propose a caption for the picture,

ii) explain how the image could be used for learning & outreach activities in history of science,

iii) acknowledge any sources of direct or indirect inspiration for the work.

iv) confirm that they have not used any copyright material on which they do not own copyright.

Submission: the image file and commentary entry should be attached to an email submitted to image-competition@bshs.org.uk with the body of the emailing giving the entrant's

i) full name
ii) postal address
iii) email address
iv) telephone number

Deadline: 17:00 hours, 8th June 2007 (UK time)

Criteria: the judges will evaluate the images according to the following desiderata

1) originality
2) clarity & immediacy
3) breadth of appeal to diverse audiences
4) cogency of commentary

The judges reserve the right to exercise discretion over aesthetic considerations.

Enquiries: any questions about this prize should be directed to outreach@bshs.org.uk

Information on the BSHS Outreach and Education Committee can be found at http://www.bshs.org.uk/bshs/outreach

For the OEC 2006 Essay competition see http://www.bshs.org.uk/bshs/outreach/essay_competition/index.html

FIELD MEETING REPORTS – 2006

Reports of Field Meetings are edited by, and should be sent to: Dr Alan Showler, 12 Wedgwood Drive, Hughenden Valley, High Wycombe, Bucks, HP14 4PA, Tel.: 01494 562082. Potential authors of reports should note that they should not be much longer than 500 words (half a page of *News*) for a one day meeting and 1000 words (1 page of *News*) for a weekend.

Woodwalton & Holme Fens, Hunts. (v.c. 31), 24th & 25th June

Day 1- 24th June - Woodwalton Fen

TERRY WELLS, MAURICE MASSEY, ALAN BOWLEY, JANE CROFT, KEVIN WALKER

A large party of BSBI members assembled at Woodwalton Fen on a bright Saturday morning for this the first of two day's botanising in Huntingdonshire's famous fenland reserves. Our first species of note were tall specimens of *Sonchus palustris* (Marsh Sow-thistle) growing in a ditch near the car-park and further on some stately *Senecio paludosus* (Fen Ragwort) in an area of cleared scrub. Both species were introduced to the fen by N.C. Rothschild in the 1920s. The sow-thistle flourished, spreading vigorously along ditches throughout the reserve whereas the ragwort disappeared by the 1950s. However, a small population of the ragwort now survives in one small area following a successful reintroduction in 1992 as part of English Nature's Species Recovery programme. One of our group, David Dupree, described how he rediscovered the plant at Stuntney in Cambridgeshire in 1973 (currently the only truly wild population) and Terry Wells told us a little of its exacting ecological requirements and re-establishment at other sites in the region.

Our next stop was the famous 'stilted bungalow' in the middle of the reserve, built by the Rothschilds to provide a luxurious base for their entomological expeditions. Here we were given a number of short talks on the history, conservation and management of the fen, its special habitats and species and the ambitious plans to re-create Whittlesey Mere, an enormous wetland which was finally drained in the 1840s. We then split into two groups, one heading south and the other north. The mixed fen community along the ride edges introduced us to uncommon fenland species such as *Calamagrostis canescens* (Purple Small-reed) and *Juncus subnodulosus* (Blunt-flowered Rush). In the dykes the yellow and white flowers of *Utricularia vulgaris* (Greater Bladderwort), *Berula erecta* (Lesser Water-parsnip) and *Hydrocharis morsus-ranae* (Frogbit) were coming into flower whereas the pinkish leaves of *Lemna gibba* (Fat Duckweed) were easy to spot amongst the much smaller alien *Lemna minuta* (Least Duckweed). Along more open stretches there were also scattered clumps of *Carex elata* (Tufted-sedge), *C. pseudocyperus* (Cyperus Sedge) and *Butomus umbellatus* (Flowering-rush).

In the shade of some carr we found a few stands of the 'stingless' variety of *Urtica dioica* var. *galeopsifolia* (Stinging Nettle), a characteristic feature of the East Anglian fens, and in some damp ruts *Stellaria uliginosa* (Bog Stitchwort), a plant not seen on the reserve for many years. We then visited the splendid 'Heath Field' which holds many calcifuges with localised distributions in Eastern England. Most notable was the huge stand of *Myrica gale* (Bog Myrtle) at one of its few inland sites, growing amongst a three-foot high sward of *Cladium mariscus* (Saw-sedge), with scattered *Dryopteris carthusiana* (Narrow Buckler-fern), *Cirsium dissectum* (Meadow Thistle), and a confusing array of short and long-stemmed forms

of *Carex viridula* ssp. *brachyrrhyncha* (Yellow Sedge). Also noted nearby were large stands of *Holcus mollis* (Creeping Soft-grass), a new species for the reserve. One can only guess at how many botanists must have passed by without noticing it!

The fen meadows at the south of the reserve have long been famed for their populations of rare species, most notably *Viola canina* ssp. *montana* (Heath Dog-violet) at one of its few British sites and *Dianthus armeria* (Deptford Pink), first discovered in 1905 by E.W. Hunnybun (of *Luzula pallidula* fame), which sadly has not been seen for many years. The violet still occurs with *Viola canina* ssp. *canina* and V. *riviniana* (Common Dog-violet). The community was a rich mixture of Carices, most notably *Carex flacca* (Glaucous Sedge), *C. pallescens* (Pale Sedge), *C. panicea* (Carnation Sedge), *C. spicata* (Spiked Sedge), *C. viridula* ssp. b*rachyrrhyncha,* and more locally *C. disticha* (Brown Sedge), *C. echinata* (Star Sedge) and *C. pulicaris* (Flea Sedge), both in their only localities in the county. The field also had good numbers of marsh orchids, including *Dactylorhiza praetermissa* (Southern Marsh-orchid) and *D. incarnata* subsp. *incarnata* (Early Marsh-orchid) and possibly a single specimen of the rare hybrid between the two D. ×*wintoni.* But the star of the show was undoubtedly the much rarer *D. traunsteineri* (Narrow-leaved Marsh-orchid) which has been known from the same spot since its discovery by Maurice Massey in 1978. Alan Silverside also positively identified a few specimens of *Euphrasia nemorosa* (Eyebright) which appears to be the only taxon present in the county.

The adjacent fen meadow was clearly much wetter allowing species such as *Veronica scutellata* (Marsh Speedwell) and *Juncus subnodulosus* to flourish. They were also joined by a confusing green variety of *Stellaria palustris* (Marsh Stitchwort), and in the lowest depression three plants of *Viola persicifolia* (Fen Violet). This is possibly Huntingdonshire's most important plant, currently known from Woodwalton Fen, Wicken Fen in Cambridgeshire and one site in Oxfordshire where it hybridises readily with *Viola canina* ssp. *canina* to produce a confusing mixture of intermediates. The Woodwalton plants appear to be pure and have been the subject of detailed autecological studies by Jane Croft. Our next stop was to admire one of the few lowland populations of *Carex lasiocarpa* (Slender Sedge), which although vigorous produces very few flowers. Nearby Maurice Massey also showed us its very rare hybrid with *C. riparia* (Greater Pond-sedge), *C.* ×*evoluta,* discovered by him in 1978, and currently only known from one other site in Britain.

The ditches and open water-bodies along the northern edge of the reserve have always been some of the best for aquatic plants and in one, which had recently been cleared, there were fine stands of *Sium latifolium* (Greater Water-parsnip) growing with *Oenanthe aquatica* (Fine-leaved Water-dropwort). Maurice Massey also managed to grapnel both *Potamogeton lucens* (Shining Pondweed) and *P. natans* (Broad-leaved Pondweed) but not the hybrid *P.* ×*fluitans* which grows nearby. Along the edge of the ditch there was also the occasional *Lathyrus palustris* (Marsh Pea) sprawling over the reeds and on the muddy margin of a pond lots of the distinctively awned *Alopecurus aequalis* (Orange Foxtail). On our meander back to the car-park two impressive aliens drew our attention, *Telekia speciosa* (Yellow Oxeye) and *Senecio fluviatilis* (Broad-leaved Ragwort), both again introduced by the Rothschilds to provide nectar for their beloved fenland insects. Back at the car-park a few plants *of Erysimum cheiranthoides* (Treacle Mustard) and *Geranium lucidum* (Shining Crane's-bill) were noted before we departed to our respective accommodation and a well earned evening meal.

Day 2 - 25th June - Holme Fen and Darlows Farm

TIM PANKHURST

We gathered in the morning at Holme Fen NNR, the largest pure birch woodland in the country. The Fen covers part of what was once the Whittlesey Mere and also contains raised mire, fen, heath and open water habitats. Exploring the woodland first, *Betula pendula* (Silver Birch) forms an almost continuous canopy over large areas although there are also large stands of mature *Alnus glutinosa* (Alder) with occasional *Quercus robur* (Pedunculate Oak), *Ilex aquifolium* (Holly) and *Taxus baccata* (Yew). The patchy understorey is dominated by *Sambucus nigra* (Elder) but there are also occasional plants of *Salix cinerea* (Grey Willow), *Rhamnus cathartica* (Purging Buckthorn) and *Frangula alnus* (Alder Buckthorn). These woods are the only site in Cambridgeshire for *Ceratocapnos claviculata* (Climbing Corydalis) which here is an abundant scrambler around the woodland floor and indicative of the acidity of the soils, derived from acidic *Sphagnum* peats. Also notable was the extraordinary abundance of *Dryopteris carthusiana* (Narrow Buckler-fern) and the presence on a shaded path of the hybrid cinquefoil *Potentilla ×mixta.*

The group then toured the north-western part of the site where vegetation associated with the relict raised mire can be found; drier heathy areas are dominated by *Teucrium scorodonia* (Wood Sage) with patches of *Calluna vulgaris* (Ling) and *Erica tetralix* (Cross-leaved Heath) while examination of drainage ditches produced the flaccid, submerged form of *Juncus bulbosus* (Bulbous Rush). Examination of flushed zones produced a selection of rushes and sedges and, the plant of the day, *Luzula pallidula* (Fen Woodrush) which is only known in the UK from Holme Fen.

After a pleasant lunch, a smaller party proceeded on to Darlow's Farm, between Holme and Woodwalton Fens, to look at the recently acquired farmland which is part of the Great Fen Project; this project aims to massively extend the area of land in the vicinity which supports fen and allied vegetation. It is a long-term project in its early stages and cultivation of the fields has only recently ceased. As a result they support a rich array of weed species including plentiful *Vulpia myuros* (Rat's-tail Fescue) and *Urtica urens* (Small Nettle). A late and somewhat disappointing trawl of the ditches on the farm produced only *Potamogeton natans* (Broad-leaved Pondweed), although there have been records of a number of other species in the past.

Brynberian Moor and Carn Alw, Preseli Hills, Pembrokeshire (v.c. 45) 15th July

H. WILLIAMS & S. B. EVANS

On a perfect summer's day, a small group of members were joined by a larger number from the local branch of the Wildlife Trust of South and West Wales to explore an area at the eastern end of the extensive area of common land grazing known as Brynberian Moor on the lower slopes of the Preselis. A precedent had been set for such a joint meeting in 1969. 18 members of the Society and the Trust had met on 16th August of that year to explore the central part of Brynberian Moor – see the report by T.A.W. Davis in *Watsonia* **8(2)**: 188 (1970).

The Common Land is sheep grazed, though perhaps not as heavily as in the past when there were also cattle and ponies. Recent changes in farming support seem to have led to fewer sheep compared with the 1980s. Most of the sheep spend the winter and spring months on the limestone pastures of the Army's Castlemartin Range in South Pembrokeshire and this practice dates back to the 1950s.

Brynberian Moor is dissected by numerous small streams and rills. Impervious glacial clay, the Irish Sea till, covers most of the underlying sedimentary rocks of Ordovician

Age. Because the clay is moderately calcareous in places there are numerous peaty base-rich seepages and springheads mixed with more acid flushes where peat has accumulated. The upper slopes are dotted with spectacular dolerite outcrops or tors and their tumble of associated blockfields. The tors were initially formed during a time of tropical climate but have more recently been shaped during the Ice Ages.

During the gentle ascent to Carn Alw, *Moenchia erecta* (Upright Chickweed) was examined in very short winter flushed turf where old tracks funnelled down from the slopes above. Streamside *Oreopteris limbosperma* (Lemon-scented Fern), *Euphrasia* spp. (Eyebright), and large amounts of *Wahlenbergia hederacea* (Ivy-leaved Bellflower) were also seen. The bouldery slopes beneath the tor had scattered *Thymus polytrichus* (Wild Thyme) which is unusual at such an elevation inland in Pembrokeshire.

The party lunched on Carn Alw, which, unusually for the Preseli hills is a rhyolite tor. Lunch was taken within its Iron Age fort which is guarded by a *chevaux-de-fris* (an area of low, pointed stones, set at an angle in the ground). They were subsequently shown *Huperzia selago* (Fir Clubmoss) on the rock outcrops below the tor before descending into the wet areas to the north east. There we found a profusion of *Anagallis tenella* (Bog Pimpernel) and *Hypericum elodes* (Marsh St John's-wort) together with *Carum verticillatum* (Whorled Caraway), *Narthecium ossifragum* (Bog Asphodel) and *Pedicularis palustris* (Marsh Lousewort). Many plants of *Pinguicula vulgaris* (Common Butterwort) and a few berries of *Vaccinium oxycoccos* (Cranberry) were also located in the wonderful flushes for which Brynberian Moor is so famous. Attempts to refind the *Lycopodiella inundata* (Marsh Clubmoss) were not successful. A small population had been found by one of us in 1979 north of Cam Alw. Suitably open areas were still present despite the decrease in grazing so it might yet be found at this its easternmost station on Brynberian Moor. It is still prospering elsewhere on Brynberian Moor as are *Pinguicula lusitanica* (Pale Butterwort) and *Drosera intermedia* (Oblong-leaved Sundew) and all three had been examined by the joint meeting of 1969.

In addition to the flora, a number of superb dragonflies were on the wing including *Coenagrion mercuriale* (Southern Damselfly) and these too were identified by the experts in our midst. On returning to the cars a few members of the party were taken a short distance by Stephen Evans to the south east side of Foel Drygarn to be given the chance to discern *Hammarbya paludosa* (Bog Orchid) at a known location.

Shetland (v.c. 112), 17th-20th July

PAUL HARVEY, ALEX LOCKTON & SARAH WHILD

Botanists mostly visit Shetland to see its famous rarities, many of which cluster conveniently together on the Keen of Hamar on Unst, close to the island's even more famous bus shelter. But despite the fact that Shetland has the most impoverished native flora of any county in Britain, there are many other interesting botanical sights to see and sites to visit.

The field meeting this year was designed not just as a sightseeing tour but also as an active recording session in order to build up the post-Atlas distribution maps. Paul Harvey was the organiser and guide, Sarah Whild was responsible for identification of plants, and Alex Lockton was given the task of collecting records. When the group discovered it had two BSBI referees in its number – Arthur Copping (*Festuca*) and Ian Denholm (*Dactylorhiza*) they were pressed into service as well. Over the four days we visited the three main islands, from Grutness in the south of Mainland to Saxa Vord at the north end of Unst, made 1,314 records of 276 species and collected 20 voucher specimens of interesting finds. We don't know if this is a good score for a field meeting, but that is what we managed.

Loch of Gards was the first stop, where the group admired *Potamogeton ×gessnacensis* (*P. natans* × *P. polygonifolius*) (a hybrid pondweed), where it had been discovered by Chris Preston & Pete Hollingsworth ten years previously. In Quendale Dunes we saw *Carex maritima* (Curved Sedge) and *Gentianella amarella* ssp. *septentrionalis* (Autumn Gentian) in some abundance, and a huge population of Adder's-tongue Fern. Although none of the plants were growing in pairs, a quick reference to Scott & Palmer's Flora convinced us that size alone was enough to distinguish them as *Ophioglossum azoricum*.

There was some excitement at the sight of a clump of *Poa flabellata* (Tussle Girse or Tussac-grass) on the trip north, but it was not found outside a garden. On Unst the group explored the Keen of Hamar, where we saw *Cerastium nigrescens* (Shetland Mouse-ear), *Arenaria norvegica* (Arctic Sandwort), *Arabis petraea* (Northern Rock-cress) and *Draba incana* (Hoary Whitlowgrass), but there was no real need to record them as they are closely monitored by the SNH wardens, who even post signs to lead 'human botanists' to good specimens. Three groups then went off for some serious recording of remote spots, including Saxa Vord, the Hill of Clibberswick and the Burn of Caldbeck. The latter was the most profitable, with Stephen Bungard's group recording *Sparganium natans* (Least Bur-reed) and *Carex diandra* (Lesser Tussock-sedge). Ian Denholm led a mission to find *Carum carvi* (Caraway) at Baltasound – listed in the *New Atlas* as a common species in this area – but none was to be found and we were later informed that it has all but disappeared.

Back on Mainland on the 19th July there was a quick visit to Catfirth – possibly the smallest nature reserve in Britain – and a brief stop at Urafirth to see *Mertensia maritima* (Oysterplant); then an expedition up Ronas Hill to record quadrats around *Saussurea alpina* (Alpine Saw-wort), which was found in some abundance. The entire group spread out to search for *Melampyrum pratense* (Common Cow-wheat), a rare woodland relic that was once found on the north side of the hill, but without success. This was done in dense fog, but the hot summer weather arrived the next day, and the group started by admiring the *Hieracium pugsleyi* at Weisdale Kirk. At Effirth we found *Ruppia cirrhosa* (Spiral Tasselweed) but no one could identify what we believed was *Atriplex praecox* with any confidence. In the afternoon we explored the coastline at West Burrafirth with the county recorder, Walter Scott, where there was a fabulous stand of *Mimulus ×burnettii* (Coppery Monkeyflower), hose-in-hose.

Hanchurch Hills & Wyre Forest, Staffs. (v.c. 39) – *Rubus* Meeting 21st-22nd July

DAVE EARL

On the Friday evening we met at Cannock Chase exploring woodland rides finding 15 species of Bramble which included *Rubus criniger*, *R. platyacanthus*, *R. rubristylus*, *R. eboracensis*, *R. intensior*, *R. leightonii* and a single clump of *R. bloxamii*.

Our explorations continued on the Saturday about the Hanchurch Hills Water Tower where additions included *R. accrescens*, *R. turritus*, *R. hylocharis* and *R. pallidus*. Our next stop was the 'Triangle of Rough Ground' at Whitmore SJ799.422, the type locality for *R. daltrii*; other species present were *R. murrayi* and *R. lintonii*, the latter occurring some distance from the main Norfolk populations.

We travelled west to see *R. insectifolius* at Bloreheath, also finding *R. hindii* and a local endemic known as 'The Bridgemere Bramble', and then crossed the border into Shropshire to see *R. macrophyllus* and *R. fuscicortex* at Cobscot SJ68.38.

The party negotiated the City of Stoke-on-Trent to see the specialties of the South Pennines about Rudyard, which included *R. distractiformis*, *R. painteri* and *R. calvatus*. The day ended in the Cheddleton district where *R. rhombifolius*, *R. incurvatiformis*,

R. adenanthoides, *R. lindebergii* and the very localised endemic *R. obesifolius* were seen. After the meeting the leader was rewarded with a first Staffordshire record for 'The Alderley Edge Bramble' along the banks of the Cheddleton railway on the way to obtain a well-earned pint.

On the Sunday we travelled down to the southern limits of v.c. 39 to Seckley Wood where most of the Wyre Forest specialities were found including *R. pampinosus*, *R. informifolius*, *R. condensatus*, *R. angloserpens*, *R. armipotens* and a small patch of plants assumed to be *R. obscuriflorus*. After lunch we travelled on to Stanford-on-Teme in Worcestershire where, in addition to seeing good populations of *R. angloserpens* and several of the Wyre Forest brambles, we also found the local endemic *Rubus triangularis*. Our final stop was at Sapley Common where Mike Porter confirmed the presence of *R. tenuiarmatus* growing in the hedgerows with *Rubus triangularis*, *R. vagensis* and *R. echinatus*. Surprisingly, this was the only location at which we saw *R. ulmifolius* during the weekend on which a total of 53 *Rubus* species were seen on what must have been the hottest week of 2006.

Glynhir Recording week (v.c. 44) 22nd – 29th July

KATH PRYCE (with species notes by RICHARD PRYCE)

Saturday 22nd July

The week began with the arrival of the eleven participants at Glynhir in time for lunch. After the meal the party travelled the few miles to the other side of Ammanford to visit the rhos pasture fields at the Caeau Blaenau-mawr SSSI where prescribed management seems to have been less than effective in recent years with the adjacent, non-SSSI part of the holding now having greater plant diversity resulting from a more intensive grazing regime. The site owners met us at the start and accompanied us for some of the time and it was refreshing to find them so interested and keen to manage the site for biodiversity. In rank, rush-dominated vegetation a small plant of *Dryopteris ×deweveri* (*D. carthusiana* × *D. dilatata*) was discovered, which was a new record for the hectad, but no *D. carthusiana* was seen. Elsewhere several sedge species were recorded including *Carex pallescens* (Pale Sedge), *C. pulicaris* (Flea Sedge), *C. laevigata* (Smooth-stalked Sedge) and the hybrid *Carex ×fulva* (*C. hostiana* × *C. viridula* ssp. *oedocarpa*). *Isolepis setacea* (Bristle Club-rush) was observed and studied after Chris Cheffings told the party that the nuts have ridges (as opposed to smooth in *I. cernua* (Slender Club-rush)) which is a feature visible through a ×10 hand lens. Small areas of NVC M24 fen meadow occur in the furthest field visited where *Cirsium dissectum* (Meadow Thistle) was frequent together with *Achillea ptarmica* (Sneezewort), *Valeriana officinalis* (Common Valerian) and *Succisa pratensis* (Devil's-bit Scabious). On the return to the cars, the slower, back-end of the party noticed a sizeable clump of *Osmunda regalis* (Royal Fern) growing adjacent to the track which those anxious to get back in good time for dinner had missed! After the meal the usual discussions and study took place in the studio upstairs before everyone retired relatively early after their journeys and the hot weather, which continued with a vengeance throughout the week.

Sunday 23rd July

By breakfast-time our numbers had increased to twelve with the overnight arrival of Alan Silverside from Paisley. The whole party went to the M.o.D. Pendine Ranges on Laugharne Burrows where several others joined us for the day. The first area examined was the drier dunes at the east end of the site where there were several scattered *Orobanche minor* (Common Broomrape) plants and about twenty spent flower-spikes of *Ophrys apifera* (Bee Orchid) in patches of disturbed ground, where it had not been seen in past years. More exciting (although not perhaps in a visual sense!) were the few diminutive plants of *Anagallis minima* (Chaffweed) which were found after intensely searching a wet artificial hollow where they were almost indistinguishable

from small *Anagallis arvensis* (Scarlet Pimpernel) and, surprisingly, *Salix repens* (Creeping Willow) seedlings (separated by their red stems). *A. minima* has only been recorded on the Pendine Ranges twice before (by J.F. Thomas pre 1957 and Andy Jones in 1996) and this discovery, in a new part of the dune system, was something of a triumph of determination on the part of those present. It is only the fourth v.c. record.

A single plant of *Carex hostiana* (Tawny Sedge) was growing on the edge of the track adjacent to the East 4 Range, the traditional *Liparis loeselii* (Fen Orchid) site, another new hectad record, and at a site well botanised in the past. Part of the *Liparis* slack had been cleared of scrub and rank vegetation during the previous winter as part of a planned management programme and was thoroughly searched by those present but no *Liparis* plants were found either in the newly exposed sand or in the overgrown area. On the opposite side of the track, several plants of *Carex punctata* (Dotted Sedge) were still present, although the area in which they are growing is becoming very overgrown by alder scrub and it is feared that it will soon be overwhelmed and exterminated. Later, at the extensive fen west of the Witchett Pool, tens of flowering plants of *Gymnadenia conopsea* (Fragrant Orchid) were scattered through the rank sward together with locally frequent *Epipactis palustris* (Marsh Helleborine).

Monday 24th July

As, today, Richard had to leave the gathering to attend the Royal Welsh Show, participants were split into small groups to do what many perceive to be the highlight of our meetings, namely to disperse into the wilds of Carmarthenshire to do tetrad recording! The sense of going where no botanist has gone before, with the possibility of a new discovery just around the corner, is the driving force behind this desire. In common with many recorders in the BSBI, Richard has been trying for some time to instil into square bashers the need to collect more detailed records, rather than just making ticks on tetrad cards. This is essential for all but the commonest plants and, at the very least, he asks that rare and uncommon species be recorded with a GPS 8-figure grid reference, including a list of associated plants, and preferably recording a DAFOR estimate for each. This will enable future monitoring as well as being of value for conservation and other purposes. The groups recorded or monitored tetrads on Mynydd Llanllwni (Chris Cheffings, Margot Godfrey, Jean Green & Guy Moss), SN53E and SN53I, where *Wahlenbergia hederacea* (Ivy-leaved Bellflower) was seen (Jean always associates our Carmarthenshire meetings with this species!) and Woodhouse Wood near Llanddowror (Delyth Williams, Graeme Kay, John Killick and Martyn Stead), SN21L, where Martin identified *Rumex ×dufftii* (*R. obtusifolius* × *R. sanguineus*) which was a new vice county record.

Arthur Chater and Alan Silverside examined a former coal processing site at Cwmmawr (SN51G) which was disappointingly desiccated following the long period of hot dry weather but nevertheless collected an *Epilobium* which was confirmed the following day by Geoffrey Kitchener as *Epilobium ×floridulum* (*E. ciliatum* × *E. parviflorum*), new to the hectad. They continued westward to explore Mynydd Llangyndeyrn (SN41R and SN 41W) where they recorded *Anisantha diandra* (Great Brome) by a straw stack at Tygwyn farm, the second vice county record. The area also yielded *Dryopteris ×deweveri*, *Potentilla* × *suberecta* (a hybrid tormentil), *Euphrasia anglica* (English Eyebright) and *Euphrasia confusa* × *E. nemorosa*, all new hectad records, whilst *Senecio ×ostenfeldii* (*S. jacobaea* × *S. aquaticus*) seen at both sites, was new for both hectads.

Dinner was excellent as usual – lots of home-grown fruit and veg – and several people wandered in the walled garden afterwards having absorbing conversations with Carole (the proprietress of Glynhir) about all the produce she grows. (She is quite a special person, and I will not forget the relaxed walk around the garden with her that evening, discussing the garden, life, hospitals, operations, etc.!).

Tuesday 25th July

'*Epilobium* (Willowherb) Day' began with our meeting-up at Llandeilo Station with

Geoffrey Kitchener who had generously broken into his family holiday to be with us. We were also joined by Mike and Chris Porter from Brecs, so it was a good day for brambles too. After being uneasily quizzed by the guard of the stopping 10:16am as to why we were not boarding the train (he received an appropriate answer that totally baffled him), the party motored up the Dulais valley to Mike and Kate Jenkins' farm near Taliaris, where more *Epilobiums* were found, including the only *E. palustris* (Marsh Willowherb) hybrids of the day, but also *Wahlenbergia* and their three Tamworth pigs. Kate supplied very much appreciated cups of tea to quench our thirsts in the sweltering heat. A return was then made to Glynhir to eat packed lunches in the shade, followed by a search for *Epilobiums* in the yard and walled garden. At this point some members who were feeling the heat ducked out of the afternoon session which included visits to Pentregwenlais Quarry and Pantyffynnon Station. The tally for the day, thanks to Geoffrey's expertise, included abundant *Epilobium tetragonum* (Square-stalked Willowherb) at Pantyffynnon, *E. ciliatum* × *E. obscurum*, *E. montanum* × *E. ciliatum*, *E. parviflorum* × *E. ciliatum*, *E.* ×*aggregatum* (*E. montanum* × *E. obscurum*), *Epilobium* ×*dacicum* (*E. obscurum* × *E. parviflorum*), *E.* ×*floridulum*, *E.* ×*fossicola* (*E. ciliatum* × *E. palustre*), *E.* ×*interjectum* (*E. montanum* × *E. ciliatum*) and *E.* ×*limosum* (*E. montanum* × *E. parviflorum*) as well as *Rubus ulmifolius* × *R. vestitus* and included many new hectad records.

On the return journey, a short stop was made to photograph the fine show of *Eschscholzia californica* (Californian Poppy) growing in a gateway close to Glynhir, which had been admired several times previously as participants passed-by but, always, the prospect of the evening meal had been more enticing than stopping to examine the plants! (see Colour Section, Plate 3).

After dinner Barry Stewart set up two moth traps in the grounds and said he'd be back at 7.00am to identify all the moths.

Wednesday 26th July

The two moth traps were opened at the crack of dawn by Barry who identified 120 different species. He was rewarded by being invited to join us at breakfast. Daytime saw most of the group going to the Welsh Wetlands Centre at Penclacwydd on the coast east of Llanelli, apart from Margot who wished to do some urban recording and was sent to examine the backlane weeds in Llandovery, and Alan who was anxious, whilst in Wales, to go to Snowdon in search of *Euphrasia rivularis* with Andy Jones. The Penclacwydd group was expanded by the arrival of Sam Thomas the previous evening and George Hutchinson from NMW who joined us for the day. The morning was spent looking around the Millennium Wetlands where numerous identification posers were presented by the planted willows and alders. *Sison amomum* (Stone Parsley) was located at numerous wayside sites: this species was introduced, probably from Slimbridge, when the area was being developed, and now seems to be quite well established. Non indigenous varieties of both *Achillea millefolium* (Yarrow) and *Malva moschata* (Musk Mallow) were pointed out by Arthur, both having been sown during the landscape planting scheme.

After lunch, the party walked east along the cycle track to explore on the seaward side of the bulwark. A few plants of *Seriphidium maritimum* (Sea Wormwood) dotted the upper saltmarsh and the stands of flowering *Limonium vulgare* (Sea Lavender) were very attractive, whilst back nearer the Centre, more than thirty clumps of *Althaea officinalis* (Marsh-mallow) were found and avidly photographed (see Colour Section, Plate 2).

Meanwhile, Margot had discovered *Carex divulsa* ssp. *divulsa* (Grey Sedge) and *Sanguisorba officinalis* (Greater Burnet) on roadsides at the edge of Llandovery and a lawn with *Wahlenbergia hederacea* near the centre of town – a profitable visit!

Thursday 27th July

Most of the group went to Mynydd-y-Gareg near Kidwelly in order to examine acid grassland and heath and a disused quarry in Millstone Grit. Andrew Stevens, the day's leader, met us at the village hall where a single white-flowered plant of *Mimulus* ×*hybridus* (*M. cupreus* × *M. smithii*) (a hybrid musk) was seen self-sown in a stone boundary wall (see Colour Section, Plate 3). The

party followed the line of an old tramway along which grew *Dryopteris ×complexa* nothossp. *complexa* (*D. affinis* ssp. *affinis* × *D. filix-mas*) (a hybrid male-fern) determined by Sam Thomas, *Epipactis helleborine* (Broad-leaved Helleborine), *Centaurea scabiosa* (Greater Knapweed) and *Clinopodium vulgare* (Wild Basil). After lunch the party looked at various garden throw-outs in the old quarry as well as a small stand *Carex acuta* in the pond, which was also considered by those present to be of garden origin. Chris Cheffings discovered a single sporeling of *Osmunda regalis* established on an area of *Sphagnum* carpet below the acid rock face now colonised by *Calluna vulgaris* (Heather), *Erica cinerea* (Bell Heather), *Ulex europaeus* (Gorse), birch and willow.

Disappointed that limestone was not accessible at the Mynydd-y-Garreg site, the party travelled to an old quarry near Banc-y-Mansel north of Drefach, where much of the vegetation of the bare limestone workings which was lush and verdant a few weeks previously was found to be very parched. Nevertheless about a dozen plants of the introduced and escaped spotted-leaved *Hieracium scotostictum* (a hawkweed) were seen growing at the foot of a shady cliff. This colony was discovered by Viv and Tony Lewis in 2004 but not determined until February 2007 when David McCosh examined material from the population which Richard had collected and deposited in NMW.

The party arrived back at Glynhir quite early, exhausted by the hot weather where a cup of tea before dinner gave the opportunity to discuss the day with Jean and Margot who had been to Newcastle Emlyn having seen *Sison amomum* (also seen here previously by Tony and Viv) and *Polypodium ×mantoniae* (*P. vulgare* × *P. interjectum*) (a hybrid polypody) on the river banks near the castle.

Friday 28th July

The majority of the party spent the morning at Ffrwd Fen SSSI where the *Lathyrus palustris* (Marsh Pea) population was found to be flourishing. Here, in the drainage pills, the party was shown *Eleogiton fluitans* (Floating Club-rush) and *Hydrocharis morsus-ranae* (Frogbit), whilst nearby *Oenanthe fistulosa* (Tubular Water-dropwort) was growing in the dense reedbed dominated by *Phragmites australis* (Common Reed) with fringing *Phalaris arundinacea* (Reed Canary-grass). This tall fen was contrasted with the nearby damp acid grassland which had *Carum verticillatum* (Whorled Caraway), *Potentilla palustris* (Marsh Cinquefoil) and *Eriophorum angustifolium* (Common Cotton-grass) whilst elsewhere, on sandy, better-draining soil, the *Ornithopus perpusillus* (Bird's-foot) known in the past was unsuccessfully searched for.

The main attraction of the day was the visit to the RAF Pembrey Sands bombing range at Tywyn Burrows. A stop at the helipad yielded at least twenty very desiccated plants of *Gentianella uliginosa* (Dune Gentian) but no *Spiranthes spiralis* (Autumn Lady's-tresses) where it was last seen some ten years ago. The species is now feared extinct in the county. In a small disturbed sandy area between the helipad and the firebreak, *Carex distans* (Distant Sedge), *C. punctata* and *C. viridula* ssp. *viridula* (Small-fruited Yellow-sedge) were all seen growing in close proximity and several intermediate plants were also discovered. It was not clear, however, which was hybridising with which so Arthur collected specimens which he subsequently had examined by Mike Porter and Robin Walls whose conclusion was that the plants were *Carex ×luteola* (*Carex distans* × *C. viridula* ssp. *viridula*) which proved to be the first Welsh and third British record (see Colour Section, Back Page).

After lunch by the new ponds, where many dragonflies were recorded by Steve and Ann Coker who had joined us for the day, the party searched the lush, lightly-grazed, top-salt-marsh vegetation outside the main range boundary fence. I will not forget the consternation when Alan announced that the area looked a very likely site for *Anagallis minima* and Richard replied that it had never been seen here, when moments later Alan nonchalantly parted the sward to reveal an abundant understorey of this diminutive plant. Richard made some disbelieving comment but was pleased to have been proved wrong! This year's meeting had proved to be memorable for the rediscovery of this species, with the few plants earlier in the week at Pendine, now

followed by this large population at Tywyn Burrows. H.H. Knight had recorded the species from Pembrey in 1910 but it is not clear as to where exactly this record refers: certainly this part of the dune-system would not have had suitable habitat at that time. Others searched the area around and it became obvious that it was not enough to be shown the plant – everyone wanted to find some of their own (which they did) and Martyn Stead was determined to find a flower to show us. Inevitably he was successful, although the vast majority of plants were in fruit, and we even managed some tolerable photos. I was particularly pleased that I had not missed this visit as the photos alone were by no means adequate to give an impression of the tiny size of the plant or its abundance in the habitat (see Colour Section, Plate 1).

These discoveries provided a suitable climax to the week and after breakfast the following morning, we all said our farewells whilst looking forward to the 2007 get-together!

Berwyn Mountains NNR, Merioneth (v.c. 48), 12th August

SARAH STILLE

Only three people, myself, Martin Rand and John Hansen assembled at the rendezvous in Llandrillo at the appointed time. We waited for two other people who had booked then John drove us to the Milltir Gerrig, the highest point reachable by road and the start of our walk along the main Berwyn ridge. Our first stop was at a grid reference for *Andromeda polifolia* (Bog Rosemary) which Arfon Hughes, CCW Berwyn NNR warden, had given me, but although we spent a good half hour in among the peat hags, we failed to find it – Arfon sent me a very nice picture of it the following week! We pressed on up to the summit of Moel Sych, where we found *Carex bigelowii* (Stiff Sedge) in somewhat lush grassland – very different from the over-grazed habitat there a couple of years earlier when Peter Benoit and I had failed to find it. Continuing to Cadair Berwyn we soon found signs of the Berwyn specialty, *Rubus chamaemorus* (Cloudberry), fairly widespread along the south side of the ridge among the characteristic vegetation. The weather was fair but flowering was mostly well over because of the very warm, dry summer and we were really too late this year. From the summit ridge Martin was tempted to scramble down to some yellowish ferns we could see, hoping for *Dryopteris oreades* (Mountain Male-fern) or even *D. expansa* (Northern Buckler-fern). There was none but he did find *Cryptogramma crispa* (Parsley Fern) and *Huperzia selago* (Fir Clubmoss), neither common in the Berwyns, to reward his efforts. On Cadair Bronwen, we spent more time hunting for *Listera cordata* (Lesser Twayblade) which I had found on the previous day, again without success. There was more *R. chamaemorus*, and abundant *Vaccinium myrtillus* (Bilberry) and *V. vitis-idaea* (Cowberry) growing together but although we looked for quite some time we didn't find the hybrid. (It must be a question of timing – perhaps local conditions where the hybrid is found facilitate the two parents being fertile at the same time.)

The long walk off the ridge and back down to Llandrillo village was rewarded by Martin's finding *Festuca vivipara* (Viviparous Sheep's-fescue) in the badly rutted footpath, and in the lane *Phleum bertolonii* (Smaller Cat's-tail) and *Ornithopus perpusillus* (Bird's-foot). We rather agreed with John's remark that he felt the reduction in grazing of recent years was perhaps being taken too far, and certainly the vegetation was very lush everywhere. It had been a fine day in the hills in good company, and although we had found only a few of the specialities, there is no doubt that there is plenty of botanical exploring still to be done here.

ANNUAL EXHIBITION MEETING 2006

Edited for publication by ALAN SHOWLER,
12 *Wedgwood Drive, Hughenden Valley, High Wycombe, Bucks.*, HP14 4PA

A good number of members and guests made the journey to Leicester to view the 31 exhibits, not to mention to chat with friends and visit the University Herbarium. As last year, summing up is not easy and is not helped by the lack of abstracts for two-thirds of the exhibits, even though in many cases the title on the programme gives a good summary.

Posters were displayed by:

Nichola Hawkins on 'Margins and meadows, showing the effect of the 2003 CAP set-aside reforms' and 'Ten flowers to meet by the age of five' to encourage children to look at wild flowers.

Sarah Whild on 'What's in your quadrat?' and with details of 'Field identification skills qualifications'.

The Institute for Analytical Plant Illustration showed plant illustrations and gave details of forthcoming courses. The Institute was founded by the late Michael Hickey in 2004. Its aim is to encourage the scientific illustration of flowering and non-flowering plants in order to clarify identification features, compare and contrast structure and function, record sequences in plant growth and development and communicate the diversity and intricacy of plant structures. The illustrations exhibited showed how illustration can serve botany in these ways. The Institute encourages collaboration between botanists and illustrators and is open to professionals and amateurs who share its aims.

Displays were provided by:

The Wildlife Trusts, Staffs. Branch and by the **Burton Conservation Volunteers** showing the work done by the two groups.

Chris Leach exhibited British plant galls and had information on the British Plant Gall Society for prospective members.

Alex Lockton had a 'Coordinator's corner' for those wishing to co-ordinate and **Jane Croft** was busy, as always, trying to cajole/canvass prospective leaders for field meetings in 2007.

John Poland was exhibiting his 'Vegetative key to the British flora' which hopefully will soon have us botanising all winter and also had a (difficult!) identification quiz. Had he not kept his eyes open, some of his specimens might well have been sneaked on to the nearby 'Help!' table still run by **Sean and Ann Karley** to help with the identification of puzzling plants. After many years they would welcome a takeover bid from any member so that they can have a well-earned rest. Their appeal last year failed; if you would be willing to take on this little job, please contact them.

Mary Dean appealed for help too in 'Searching for the Saltmarsh Sedge, *Carex salina*'. Known from only one site in Britain, 18 more have been searched on the N.W. coast of Scotland with no success.

Not so **Michael Braithwaite** who with 'St Abbs Head NNR – 30 years of plant recording' seems to have plotted every Purple Milk-vetch (*Astragalus danicus*) plant in his patch, along with 29 other species. For a break he looked at '*Crambe hispanica*, a naturalised crop?'; the plant seems to be spreading from the fields in which it was planted.

Similar detail was displayed by **Ken Adams** in 'High resolution mapping of BSBI Scarce Species along the coast of Essex'. He showed the distribution of a number of saltmarsh plants plotted by 1×1km. squares around Fobbing, Vange and Canvey (some seen by the writer, but most, regrettably, not).

James Partridge showed specimens of 'Some recent new hybrid records for Warwickshire, v.c. 38', *viz.* Haw Medlar (×*Crataemespilus grandiflora*), Kattegat Orache (*Atriplex* ×*gustafssoniana*), Wurzell's Mugwort (*Artemisia* ×*wurzellii*) and a Pirri-pirri-bur hybrid (*Acaena* ×*inermis*). Also on show was a 'new' nettle from Warwick, *Urtica membranacea.*

Ruth Berry showed in 'Art in nature' more of her superb photographs of flowers, leaves, grasses and ferns, taken throughout the year. Pressed specimens are photographed on a light box using a macro lens and fine grain film and the resulting negatives are printed on tinted paper. This emphasises their characteristics and also shows the beautiful and unusual patterns created in nature.

Ann Conolly & John Bailey had photos and descriptions of 'Stripe markings on Japanese Knotweed'. These have long been known but are of uncertain origin, with generally two stripes, one each side of, and parallel to, the midrib.

Richard Gornall in 'Allopolyploid speciation in *Callitriche*' showed the evolutionary origin of *C. platycarpa* to be that of a tetraploid derivative of *C. stagnalis* and *C. cophocarpa.*

Martin Cragg-Barber as usual displayed plant oddities in 'Some 2006 aberrations and clover-leaf patterns'. These included Daisy (*Bellis perennis*) with mottled white variegation with a wide white margin and green centre, roadside verge at Malmesbury; Wall Speedwell (*Veronica arvensis*) 'Chedglow' seed from a 2005 plant (which had leaves with yellow centres and narrow green margins) separated into some green and some yellow, the latter self-sustaining; Pendulous Sedge (*Carex pendula*) with the flower spike opposite rather than alternate, from near Malmesbury; Dandelion (*Taraxacum officinale*), a new proliferous form with two stems within one gross fasciated one, from the stationmaster's house, Hullavington; Hart's-tongue Fern (*Phyllitis scolopendrium* f. *muricatum*) with a tendency towards pinnateness, but no sign of spores on the upper surface as seen in previous years, from Chedglow, Wilts.; Honesty (*Lunaria annua*), cultivar 'Chedglow' with extra leaflets at the base of the leaves, less pronounced on the type from a garden at Chedglow; London Plane (*Platanus* ×*hispanica*) with leaf attached to fruit, from RBG Kew; Ribwort Plantain (*Plantago lanceolata*) with a range of flower aberrations including one with a normal spike interrupted by a length of bare stem (from Kerry Robinson, Baldock); White Clover (*Trifolium repens*) showing leaf patterns emerging over 15 years from various cultivars and the same species showing pseudo-polyphylly, resembling phyllodic clovers by having a cluster of leafy shoots sticking up in the air, but these are not from a flowering shoot.

Anne Daley showed photographs entitled 'BSBI from my archives, 1986 – 2006' showing well-known and unknown faces and with a separate section on 'Memories of Francis Rose'.

Photographs too from **Gill Gent** in 'French Bartsia (*Odontites jubertianus*) in Northants.' showing the plants on the World War 2 airfield at Spanhoe. It is not known how they came to be there, nor for how long; since it is late-flowering it may have been over-looked for a considerable time. There is a possibility that seed was brought back from a French airfield during or after the war.

'Native flora conservation in a Herefordshire churchyard' was presented by **Yolande Heslop-Harrison** and was concerned especially with St Leonards Church at Hatfield, Herefs. A general description was followed by conservation regimes employed and a comprehensive list of the plants to be found in the churchyard. However, the concern was more general and centred on the work of a small charity – Caring for God's Acre – operating over the area of the Hereford Diocese (S. Shropshire, Herefs. and small parts of Worcs., Powys and Gwent). Advice is obtainable for those interested, not only locally but also living further afield, from CFGA, 6 West St., Leominster, Herefs., HR6 8ES.

The exhibit by **Michael Foley & Mike Porter** concerned the 'Mountain Pansy (*Viola lutea* var. *hamulata* Baker) in N. Yorkshire'. In the mid-19th century J.G. Baker described an unusual *Viola* from Richmond racecourse and Marrick Moor, both in N. Yorks., and to which he applied the name *V. lutea* var. *hamulata.* It had small yellow flowers, petals standing forward, and stipules with sickle-shaped (hence

'*hamulata*') lateral lobes. Although a fire at Baker's home in 1864 destroyed virtually all his property, surviving material collected in 1863 from Marrick Moor can be found in **BM** and **LIV**; these are potential types of the name.

In June 2006 an examination of Marrick Moor, at one time an important lead-mining area with a distinctive flora, of which one component is *Viola lutea,* led to the discovery of a vast population of Baker's plant. It had slightly cupulate flowers (9-11mm. vertically) the upper petals of which were white, the laterals yellow-white and the lowest yellow. An examination of the stipules showed them to possess the sickle-shaped character. The plants present probably approached a million and were quite densely distributed over a large area.

What was especially interesting was the uniform morphology between individual plants, especially in flower size and colour. However, sometimes amongst them, and clearly distinct, were small groups of the normal, much larger-flowered *V. lutea* with all-yellow petals and flowers 18-20mm. vertically. Again, these were uniform between themselves and distinctly spatially segregated into homogenous groups amongst the very much more frequent and smaller '*hamulata*' variety. Similar plants had been seen at a site in the Scottish Border area and it was suggested that both populations might be the hybrid *V. lutea* × *V. arvensis.* Specimens and photographs were displayed.

Finally, there were a series of exhibits from Wales, even though the first, by **David Cann & Tim Rich** concerned 'The status of *Sorbus devoniensis* in Ireland'. In Sept. 2006, funded by the BSBI, all the Irish sites were surveyed. Of the 20 previously known sites 13 were refound and 5 new sites discovered. The current population in Ireland is about 116 trees in 19 sites in 5 vice-counties, but it seems to be declining in Wexford, Kilkenny and Carlow. There seems no reason why it should be regarded as an introduction in Northern Ireland; the habitats are the same as in Devon, the trees have been there a long time and there is no evidence that it has been planted.

Katharine Slade & Tim Rich gave an account of their work on 'Pollen studies in British *Hieracium* section *Alpina*' which is attempting to understand evolution and molecular variation within the British representatives, using Alexander's stain. *H. alpinum* was investigated in detail as it is an ancestral species with both sexual diploids with high fertile pollen production (rare in E. Europe), and more widespread triploids lacking pollen; no pollen has been found in British herbarium specimens. Stainable pollen was however observed in several other species of British *Hieracium* sect. *Alpina.* The results may have implications for the evolution of sect. *Alpina* across Europe.

There was more about these plants in 'Distribution and conservation of four Welsh endemic *Hieracium* species' from **Jerome Sawtschuk & Tim Rich**, with the former studying them as part of his degree at Rouen University. For each species, historical records were reviewed and then used to direct fieldwork to assess the current status of the plants and their conservation needs. *H. cambricogothicum* is probably extinct. *H. pachyphylloides* was rediscovered after 50 years in 2 out of 7 sites and is locally common on the Great Orme. *H. rectulum* has proved difficult to distinguish from *H. submutabile.*

All this work deserves a book, and sure enough one is due shortly. **David Tennant & Tim Rich** provided information on 'British alpine hawkweeds' to appear early in 2007, with specimen pages, etc.

Finally, if all this seems too worthy, there is still hope for us all. Go and do what Tim Rich did in 'Conserving the flora of a continent in one morning' (your reviewer still thinks he read 'Saving the world in one morning' but maybe not); take your mother to Antarctica and whilst there gather seed, with the necessary permit, of the only two flowering plants, *Deschampsia antarctica* and *Colobanthus quitensis* (Caryophyllaceae). Easy isn't it? And by the way, you must resist the temptation, like Tim, to bring back a cuddly penguin for your daughters to play with. Well left, Tim, there are no icebergs in Cardiff Bay!

BOOK NOTES

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Another apology, but this time my last. I think that Jon Atkins will take over this column along with the post of Book Reviews editor, in the autumn. I have really enjoyed the job when I have made the time, and apologies for the instances where I have not.

So, for this issue again, I am indebted to Sue Atkins for the few notes below.

Flowering Plant Families of the World. Heywood, V.H. Kew Publishing 2007. 424pp. Colour illustrations and distribution maps throughout. Hardback £27.95

A new and updated edition of Professor Heywood's standard encyclopaedic guide to plant families, their identification, classification and distribution.

Flora of North America series volume 24: Commelinidae (in part): Poaceae, part 1. OUP 2007 911pp. hbk £58.00.

The first part of the Grasses, part 2 having already appeared in Volume 25.

The orchid genera Anacamptis, Orchis, Neotinea- systematics, taxonomy, morphology, biology, distribution, ecology, hybridisation. Kretzschmar, H., Eccarius, W., and Dietrich, H. Echinomedia 2007. 544pp, colour photos, distribution maps, diagrams, keys. hbk 98.00 euros.

Thorough treatment reflecting current knowledge, well-illustrated with close-up photos and habitat shots.

The Caucasus and its Flowers. Holubec, V., and Krivka, P. Loxia, Czech Republic. 388pp, a generous number of high-quality colour photos, (both of mountain landscapes and flowers in close-up), maps, some drawings. Large hbk 50.00 euros.

The first illustrated book in English on the flora of this impressive mountain range which extends from the Black Sea to the Caspian Sea. Aimed at lovers of mountain flowers as well as growers of rock garden plants, the focus is on the families Saxifraga, Primula, Crocus, Draba, Daphne, Rhododendron and Pedicularis, although many other families are represented.

(DAP – a stunning work, with a flora naturally not that dissimilar from NE Turkey.)

Les Plantes Protégées de Lorraine – Distribution, écologie, conservation. Muller, Serge. Parthénope, France, 2006. 376pp. Many colour photographs and distribution maps. Pbk 37.00 euros.

A species by species account of the rare and protected flowering plants of the French region made up of Meurthe-et-Moselle (54), Meuse (55), Moselle (57), and Vosges (88).

Flowers of Turkey – A photo guide. Pils, Gerhard. Published by the author, 2006. 408pp, colour photos of 4153 species of ferns and flowering plants, each with small insets to give detail of height, habit and flowering season. Hbk 79 euros.

A brief note of distribution, habitat and altitudinal range accompanies the generic name.

(DAP – This is easily the best attempt I have ever seen to cover the whole flora, covering over 40%. Yes, the pictures are smallish, and occasionally not the best, but overall a *tour de force*, and well worth the money in not too big or heavy a format. It covers grasses and sedges as well as everything else, and to give a taste of coverage there are 36 *Lathyrus*, 51 *Silene*, 39 *Hypericum* and 75 *Astragalus*! Absolutely indispensable for any trip away from the Mediterranean coast.)

La biodiversité du département de la Seine-Saint-Denis: Atlas de la Flore Sauvage Filoche, S., *et al.* Collection Parthénope, France, 2006. 504pp. (in French). Hbk 60 euros

Another massive tome on the French flora, this time covering a small but highly-populated area just north-east of Paris. A-Z listing of species, with colour photo, distribution map and brief description for each, including Latin and French names. There

are also sections on protected species, introductions, and various habitats with their associated plants.

Water Meadows: History, Ecology and Conservation. Cook, Hadrian & Williamson, Tom (eds). Windgather Press, 2007. 151pp, b&w and some colour illustrations, maps, graphs, figs. Pbk £19.99.

Floated water meadows were areas of low-lying grassland which were regularly 'drowned' – artificially irrigated – at certain times of year to stimulate the early growth of grass in the spring and improve the summer hay crop. Looks at the archaeology and hydrology, importance to agriculture and future conservation of these important features of Britain's rural landscape.

Wiltshire Botany

Issue No. 9 of this journal is now published. It contains a supplement to the preceding special issue, which was devoted to a presentation and analysis of the most important plant records since recording for the 1993 Wiltshire Flora ceased at the end of 1991. The supplement includes articles on brambles (including a complete list of tetrad records for all species found in Wiltshire), arable weeds, ancient woodland indicator plants, taxa recorded before the 1993 Flora but absent from it and refound since, and some special Wiltshire plants.

There are also two stand-alone articles, one on self-seeding conifers in Northeast Wiltshire and one on a woodland in the South of the County. The usual annual selection of records is also included – for 2005.

Contributions to the journal are welcome on any aspect of Wiltshire botany. Articles should be submitted to John Presland, 175c Ashley Lane, Winsley, Bradford-on-Avon, BA15 2HR, who will also be pleased to discuss proposed articles informally (Tel: 01225 865125). A leaflet is also available offering guidance to authors on the most helpful forms in which to submit articles.

Copies of No. 9 and some earlier issues are available from Rosemary Duckett, 50A The Butts, Westbury, Wiltshire BA13 3EX (Tel 01373 858296; email: rosemary.duckett@virgin.net). The cost is £5.00 post free. Cheques should be made out to Wiltshire Botanical Society.

OBITUARY NOTES

MARY BRIGGS, *Hon. Obituaries Editor, 9 Arun Prospect, Pulborough, West Sussex, RG20 1AL*

With regret we report the death of Mrs Pam Copson in December 2006. She had been the BSBI Vice-county Recorder for Warwickshire (v.c. 38) from 1978 to 2002. The current recorder, James Partridge has sent the following note:

Very characteristically, Pam made it very clear that did not want any formal obituary or memorial service, but it would be inappropriate if her passing went un-noticed.

She had been Senior Curator at Warwick County Museum 1975-2002, where she established a modern, purpose-built herbarium (WARMS). She was exceptionally conscientious in co-operating with the various BSBI projects (Monitoring Scheme, Arable weeds, Churchyards, Flora 2000 etc.) during her long term of duty as County Recorder. Her particular gift was to recruit and educate volunteers, of whom I was one.

While endorsing James' very good appraisal of Pam, I would add also that Pam gave considerable support and help to John Bowra with his *Oenothera* studies. She also wrote his Obituary published in *Watsonia*.

We also report with regret the deaths of the following members notified since January 2007 (year of joining in parentheses): Mr J.B.S. Hodge of Surbiton, Surrey (1987); Mr J.F. Hope-Simpson of Keynsham, Bristol (1952); Mr J.W.D. Semple of Holywood, Co. Down (V.c. recorder H39 and Irish Committee member) (1995).

All the above will be sadly missed.

RECORDERS AND RECORDING

Panel of Referees and Specialists

MARY CLARE SHEAHAN, *61 Westmoreland Road, Barnes, London SW13 9RZ*; mc_sheahan@hotmail.com

Change of address

Dr R.N. Carter, Referee for *Lactuca*, has moved to Carter Ecological Limited, Edmunds House, 40 The Green, South Bar, Banbury, Oxfordshire OX16 9AE

Panel of Vice-county recorders

DAVID PEARMAN, *Algiers, Feock, Truro, Cornwall, TR3 6RA*; Tel: 01872 863388

Changes of Recorders

V.c. 5 (S. Somerset). Mr S. Parker to be the senior VCR, and all correspondence to him, at 26 Laburnam Rd, Wellington, Somerset, TA 21 8EL.

V.c. 13 (W. Sussex). All correspondence to Dr A.G. Knapp, at 7, Trinity Close, Pound Hill, Crawley, Sussex, RH10 3TN, and not to Mrs M. Briggs.

V.c. H39 (Co. Antrim). Following the untimely death of Mr J.W.D Semple, Mr N. McKee becomes sole recorder 67 Temple Rise, Templepatrick, Ballyclare, Co Antrim, N. Ireland, BT39 0AG

Changes of Address

None.

NOTES FROM THE OFFICERS

From the Hon. General Secretary – *DAVID PEARMAN*

Algiers, Feock, Truro, Cornwall, TR3 6RA; Tel: 01872 863388; DPearman4@aol.com

Head of Research & Development

We are delighted to say that we appointed Kevin Walker, currently at CEH, Monks Wood, after interviews in January. He brings with him a wealth of practical field experience together with a formidable publishing record – many members will have seen his papers in *Watsonia* and *British Wildlife* on floristic changes, including extinctions, on conservation issues including rare plant introductions and on Rum! He will start in July, and will be present at all the autumn meetings from the Recorders' Conferences to the Exhibition meetings.

Archives

I would like to amplify what Mary Briggs wrote in the last issue (p. 73, when writing about Conference reports).

With the impending move of the Botany dept to the new Darwin Building, we have discussed the position of the Society's archives with Mark Spencer, Head of the British Herbarium. We have agreed to leave there runs of the society's journals, the Conference reports (referred to by Mary), the old Council minutes and the small photographic archive. In addition the files needed by Peter Fry, as the assistant HGS, will stay. All the rest (in truth a heterogeneous collection) will go to Shrewsbury with the rest of the Society's papers, to be housed in the Gateway by kind permission of the University of Birmingham.

From the Scottish Officer – *JIM MCINTOSH*

BSBI Scottish Officer, c/o Royal Botanic Garden, Inverleith Row, Edinburgh, EH3 5LR;
Tel: 0131 2482894; j.mcintosh@rbge.ac.uk

BSBI Scottish Computerisation Project

Computerising Vice-county Recorders' records vastly increases their usefulness. It is an important first step in projects such as checklists, Rare Plant Registers and floras, and it allows VCRs to map and analyse their records and respond to queries more easily. The data contributes to the Atlas Updating Project and you can already see the newly computerised data from the first Computerisation project on the BSBI Maps Scheme webpages. It should benefit conservation too – as the records will be available to SNH, and other conservationists, and used to help in their day to day work. Consequently, I have put a lot of time and energy into a series of computerisation projects. The first of which is complete, the second is underway, and a third will commence in autumn 2007.

Contractors have nearly completed a second project to computerise some 135,000 BSBI vascular plant paper records from five Scottish VCRs. This year's project is generously supported by the Esmée Fairbairn Foundation. Generally only the main dataset held by the Recorder – or a part of it – is being computerised. The BSBI would like to thank the contractors and Vice-county Recorders for their painstaking diligence.

Site Condition Monitoring

We have just delivered a further five Site Condition Monitoring reports to SNH thanks to BSBI volunteers. The sites were Ben Chonzie, Bagavies and Rescobie Lochs, Dalcroy Promontory, Glen Tanar and Keltneyburn. This brings the total number of Site Condition Monitoring reports prepared by BSBI volunteers and myself over the past three years to 33. Site Condition Monitoring aims to monitor the condition of SSSIs designated to protect vascular plants. The work entails trying to refind populations of nationally rare or scarce 'target' species and reporting on their precise location and size, and whether there is evidence of regeneration or damage, using GPS, photographs, sketches and forms.

I've just met SNH and agreed a continuing annual programme of half a dozen or so Site Condition Monitoring sites for the next few years and we need more volunteers to help. (I feel guilty about asking the same ones to contribute all the time!) The work puts your botanical skills to good use. It also takes you to some really interesting places – and is a lot of fun. We need volunteers to lead on each site, to organise fieldwork and write the reports, as well as volunteers to help out with the fieldwork. A secondary aim is to get botanists and others with an interest in the site together and exchange expertise and understanding and this has been really interesting and sociable. If you would like to get involved please get in touch.

Platanthera bifolia

Last summer we helped SNH with a single species survey of *Platanthera bifolia* (Lesser Butterfly-orchid), and invited people to submit detailed records, including population estimates using pre-printed forms, or via a dedicated page on the SNH website. Some 600 records were submitted and SNH are currently analysing the results and will report them shortly. Of course as members of the public were involved too, a number of the records were found to be *Platanthera chlorantha* on examination of photographs or subsequent follow-up visits. But even these records are valuable. An additional benefit of the project was just to get people in the field and recording – and making contact and contributing records to their local Vice-county Recorder.

Carex maritima

Carex maritima is a very pretty and distinctive little sedge. Over the past two years the BSBI has run a small project to understand why its populations have apparently declined so dramatically between the two Atlas recording periods. Botanists have tried to refind key populations along Scotland's eastern and far north coasts, including on Orkney and Shetland, with variable success. A clearer picture is beginning to emerge, but further work to refind populations is still required especially in the Northern and Western Isles. If you are planning a holiday in any of these areas this summer, please get in touch with the Vice-county recorder (via me if more convenient) and ask how you could help!

Change of Scottish Annual Meeting venue to Edinburgh – again!

The Scottish Annual Meeting was overdue to return to Glasgow in 2007. Unfortunately we have again been unable to secure suitable accommodation in Glasgow and will return to the Royal Botanic Garden in Edinburgh. We apologise to any members who are inconvenienced and hope to return to a venue in the west in 2008. The date remains Saturday 3 November 2007.

Coordinator's Corner

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

Site Floras and Axiophytes

Many thanks to everyone who responded to my articles on Site Floras and Axiophytes (our proposed new system of indicator species for conservation habitats). These are clearly concepts whose time has come, although of course they are nothing new. Many Wildlife Trusts, for instance, have drawn up lists of indicator species and surveyed their sites systematically for decades. Steve Woodward kindly sent a copy of his 1992 Fl. of Swithland Wood, which is available for free from Leicester Museums (send Steve £3 to cover postage). It is fascinating and brilliantly thorough, but to my mind illustrates the dilemma of over-recording – it is so much work that other people are not likely to do anything similar, or to repeat it. What we are trying to do now is distil the essential elements from such examples and create a simple technique that will achieve the desired results for the minimum effort.

I apologise that it is taking some time to get definitive guidelines on the production of either Site Floras or Axiophyte lists, but we are working on them. This year we are planning Floras of the Stiperstones here in Shropshire and of the island of Mousa in Shetland, where Reinoud Norde has recently produced an amazingly thorough site survey for the RSPB (many thanks to Reinoud and the RSPB for the loan of a copy). When I mention that he stayed in the bothy on this otherwise uninhabited island for days at a time, you can see the problem. But if anyone is planning to be in Shetland or Shropshire this summer and wants to contribute to these projects, please get in touch with Sarah Whild (s.j.whild@bham.ac.uk), and we hope Training & Education Committee will be bringing similar projects to other counties in a year or two.

There are three problems which have bedevilled site surveying in the past. Firstly, the conservation organisations may not have had the expertise to get their axiophyte lists right – it is not an easy job, and the expertise of the BSBI is absolutely vital in this regard. Secondly, the level of effort expended in site surveys is often not sufficient. If you do two surveys ten years apart and only record half the species present each time, then there would have to be a truly catastrophic change

for your monitoring efforts to detect anything – in which case you hardly need the analysis. From our experience with the Floras of Attingham Park and Haughmond Hill, it seems that a site might be expected to experience something like 10% turnover of species in quarter of a century, so you clearly have to get at least 90% of species during a site survey for it to have any value as a monitoring tool.

The third problem for axiophyte lists and site surveys in the past is the inability to manipulate the data without full computerisation. If you have 500 species in a site, and maybe 5,000 records, it is clearly out of the question to do the analysis by hand. But once you are fully computerised these tasks suddenly become routine. History will record that the development of the computer database has done for botany what the invention of the telescope did for astronomy. As long ago as 1788 Gilbert White was condemning botanists for making endless lists without 'advancing any real knowledge,' but I think it is now becoming clear that those lists really do have scientific value if we can manipulate them. Computers give us that ability, and allow us to see all the things we could previously only guess at.

Full computerisation of data sets enables us to perform some astonishing calculations, and it has become a regular occurrence now for someone to come up with a fascinating new graph or map displaying botanical data in a way that no-one has seen before. Although most county recorders are still ploughing through huge backlogs of data, we are now increasingly getting enthusiastic reports that someone has finished databasing everything they can lay their hands on. David Pearman recently phoned to say how excited he was that most of the historical data for Dorset has now been input, and Andy Amphlett has produced a graph for Banffshire showing how many records had been made each year. The potential for analysis is enormous.

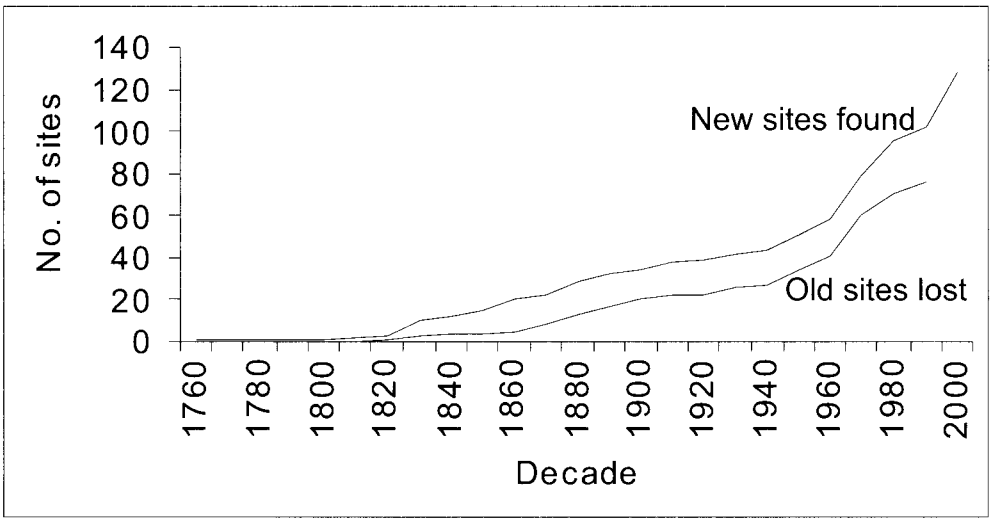
***Carex maritima* project**

Along those lines, data continues to roll in for the Curved Sedge (*Carex maritima*) project. Last year I made a rash prediction that more sites would be found, and recommended surveying the east coast of Scotland – despite the received wisdom, oft repeated, that it is in decline, especially along the east coast. It was therefore highly gratifying that Ian Green has now found a new population on the very east coast from which it is allegedly vanishing. Possibly just coincidence, but I'll stick my neck out and say that the evidence still shows an increase in this species, not a decline at all – and we really should be basing our statements on evidence wherever possible.

The graph below is an interesting way of showing how many sites are known at any one time. The upper line shows the discoveries of new sites and the lower line the losses (which I have taken to be anywhere for which there is no post-2000 record). The fact that the lines are diverging shows that the total number of extant sites is indeed increasing.

There are two possible explanations for this. One is that *C. maritima* is colonising new sites faster than it is disappearing from old ones; the other is that we are simply discovering sites that were there anyway. There is no rational way to interpret this map as a decline in the species, although you can see that the gap between the two lines narrowed somewhat in about 1970, but it has now widened again.

My prediction from this graph is that there are still quite a few *C. maritima* sites yet to be discovered, as there is no sign of a plateau in the rate of discovery. So please get out there again this summer and see if you can find them.



The rate of discovery (top line) and loss (bottom line) of *Carex maritima* sites. The gap between them indicates the number of extant sites at any point in time. As the lines are currently diverging, the data shows that the species is increasing, although there is a possibility that our data is still too incomplete for this to be proven definitively.

STOP PRESS

The Victoria and Albert Museum have an evening lecture on Monday 2 July 2007

Anna Pavord: Picturing Plants

Surrounded by pictures of plants, it is difficult to imagine a time when there weren't any. Drawing on material from her most recent book, *The Naming of Names*, acclaimed gardening writer and correspondent Anna Pavord will trace the development of botanical painting from the earliest known images of the sixth century to the modern day.

19.00-20.45 (wine reception with speaker and book signing 20.00-20.45). £15.

To book call 020 7942 2277 / 2278 or email membershipevents@vam.ac.uk quoting BSBI.

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