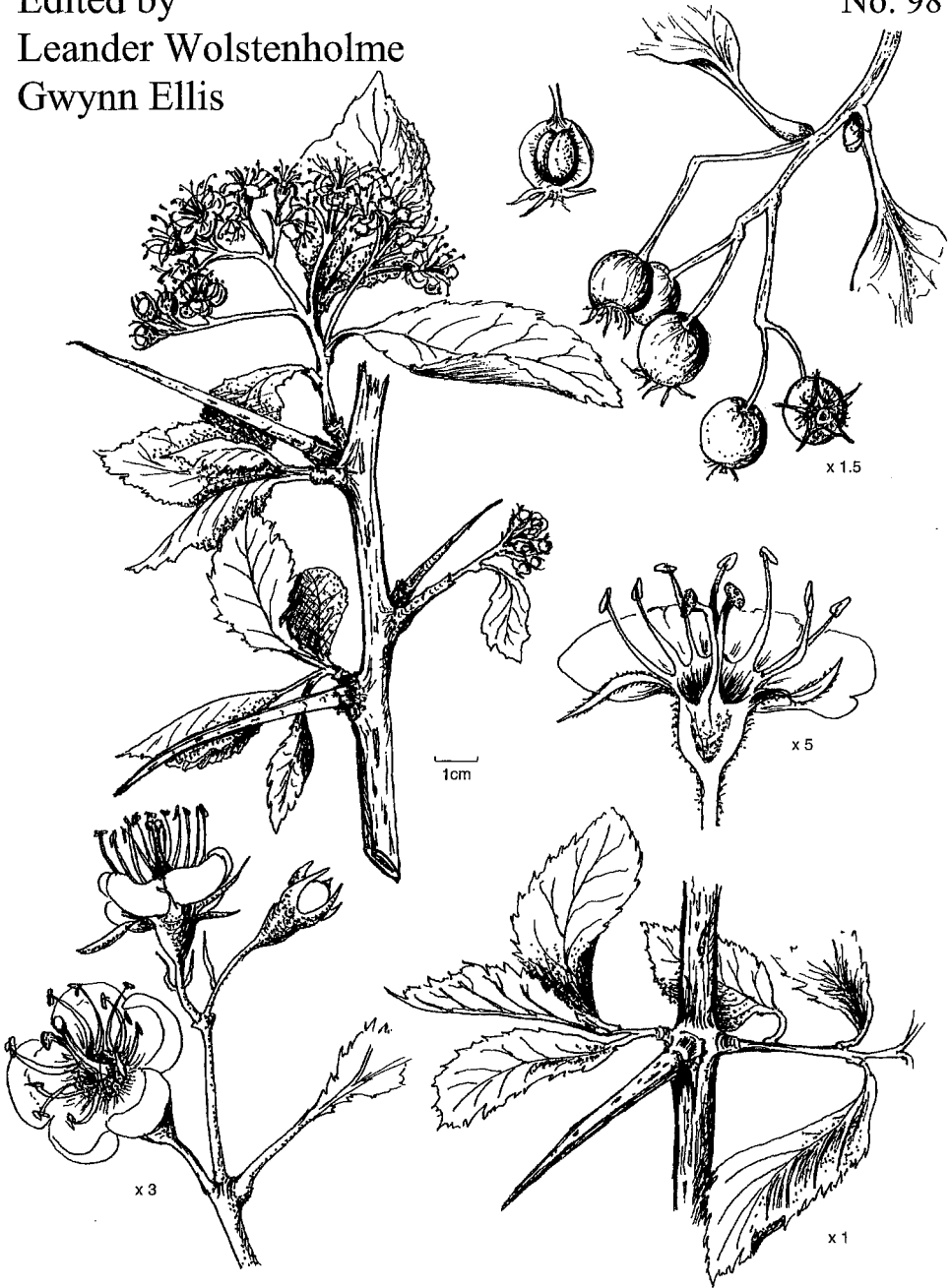


Edited by
Leander Wolstenholme
Gwynn Ellis



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IMPORTANT NOTICES

COUNCIL MEMBERS

There are vacancies for three for the three-year period from May 2005. Please send any nominations to me, in writing, with consent of nominee to serve if elected, by mid February.

DAVID PEARMAN (Hon. Gen. Sec.) Algiers, Feock, Truro, Cornwall, TR3 6RA

FROM THE PRESIDENT

I hope you had a good Christmas, but the New Year is now upon us and, at last, after many months of negotiations with prospective funders, a BSBI Development Officer has been appointed. Dr. Gabriel Hemery will be taking up his post at the end of February with the task of enabling the Society to meet the changing and ever-increasing demands of the future. BSBI has relied in the past mainly upon the services of a few volunteer officers but in spite of their dedication and proven competence, in recent years has outgrown its capacity to develop in this ever more challenging environment. The Society is rather late in following in the footsteps of some other similar societies which, in taking this major step, have never looked back and I hope that the future of BSBI will now be assured by being able to keep abreast of the pace of change.

BSBI in the plant world has often been likened to the British Trust for Ornithology as the corresponding body in the bird world, in providing reliable and accurate data for many purposes, not least of which are inputs into wildlife legislation and Biodiversity Action Planning, as well as the distributional and phytogeographical information for which it is more usually associated. Whereas BSBI has been largely self-funding or in receipt of limited grants only for specific projects, the BTO has been able to develop over the years by tapping into major funding sources. In the future I hope that the BSBI might also draw on these resources and the appointment of our first permanent staff member will facilitate this ambition.

Gabriel comes to us from the Northmoor Trust for Countryside Conservation having developed and managed their broad-leaved forestry research centre. He also has considerable experience in working collaboratively with partners, managing multi-disciplinary teams, strategic planning and developing business plans.

Most of you will have your first chance of meeting Gabriel at the BSBI AGM at Ferryside, Carmarthenshire, in May. I hope that he will be able outline how he intends to implement the BSBI's development priorities over the next year or two. I, and I am sure, you too, welcome him to his new post and will assist him in every way possible in shaping the Society's future and wish him success.

Also at the AGM, Bob Ellis will be able to update us on progress with Local Change. I hope that, by now, all field records have been sent to him as I know that he intends to start data processing in earnest in January. Bob has been very encouraged by the very high proportion of data that has been sent electronically, a great step forward from the majority of records received for input during the *New Atlas* scheme. This will allow him welcome additional time for analysis of the data and the production of the final report.

A booking form for the Ferryside AGM is included in this mailing, together with *BSBI Year Book 2005* detailing the wide range of other BSBI meetings which should be attractive to all members as they cater for varying degrees of botanical expertise. I look forward to seeing you during the season.

RICHARD PRYCE, President

1st January 2005

**CONTRIBUTIONS INTENDED FOR
BSBI NEWS 99
should reach the Receiving Editor before
MARCH 1st 2005**

DIARY

N.B. These dates are often supplementary to those in the 2005 Calendar in *BSBI Year Book 2005* and include dates of the BSBI's Permanent Working Committees.

Permanent Working Committees

25 Jan Records Committee, London	10 Feb Publications Committee, London
2 Feb Training & Education Committee, Birmingham	24 Feb Executive Committee, London
2 Feb Meetings Committee, London	16 Mar Council Meeting, London

- 7-9 February Barcoding of Life Conference, Natural History Museum, London (see p. 50)
 18-25 June Excursion to the Catalan Pyrenees (see p. 49)
 21-26 August IVth International Congress of Ethnobotany, Istanbul, Turkey (see p. 51)
 14-16 September Atlantic Oakwoods Symposium (BSS), Oban (see p. 50)

EDITORS

EDITORIAL

Leander's whereabouts: The *BSBI News* Receiving Editor has moved from Liverpool to Manchester. It is **IMPORTANT** that all articles for publication in *News* be sent to Leander at his new address which can be found inside the front cover. During his move from Liverpool Museum to Manchester Museum most correspondence was forwarded to him but a glitch with emails resulted in some sent to him at Liverpool during the last 2 weeks of November and the first two weeks of December being lost rather than forwarded. If anyone sent an email during those dates and has not received a reply would they please accept his apologies and send the message again to: Leander.Wolstenholme@Manchester.ac.uk
Congratulations to Peter Benoit our vice-county recorder for Merioneth (v.c. 48) who has now been in post for 50 years, our longest serving vice-county recorder.

Correction to *BSBI News* 97 Colour Plate 3

The photograph numbers 1-7 and captions illustrating the life history of *Primula farinosa* were unfortunately 'shuffled' by the General Editor and therefore present a somewhat garbled picture to the possible puzzlement of readers. The author David Hamblen, to whom profuse apologies are due, has provided the following brief replacement captions, each incorporating a date:

Plate 3 top row: (1) **Dormant**, 15 March. (2) **Early vegetative**, 9 May. (3) **Late vegetative**, 3 September. (4) **Flowering**, 5 June.

Plate 3 bottom row: (5) **Post flowering (Beginning of fruiting)**, 7 July. (6) **Fruiting**, 19 September. (7) **Senescent**, 19 November.

Note: all but one of the photographs, are of the same plant on a vertical cliff; the exception is that of 3 September (on a *Sesleria* tussock).

Important Stonewort Areas report: Amanda Miller, Species Recovery Officer for Plantlife International, informs us that their report, mentioned by David Pearman in *BSBI News* 97, is available from Plantlife's web page http://www.plantlife.org.uk/html/goods/goods_publications.htm. The full version of the report can be obtained by contacting Plantlife on 01722 342730 or enquiries@plantlife.org.uk

Colour section (centre pages): Plate 1: *Ophrys omegaifera* *dyris* (p. 25); *Leucanthemum paludosum* (p. 47). Plate 2: *Asplenium marinum*, *Phyllitis scolopendrium*, *Asplenium trichomanes*, *Ceterach officinarum* & *Asplenium adiantum-nigrum* on walls (p. 28). Plate 3: Green endophytes in roots of *Lemna trisulca* (p. 34). Plate 4: *Iris graminea* var. *pseudocyperus* (p. 46)

Update to members list in *Year Book 2005*: Rather than have the members list out-of-date even before it is published; an update will appear at the back of every *BSBI News* if space allows

EDITORS

NOTES FROM THE HON. GENERAL SECRETARY

Development Officer

It must be some years since this was first mooted, though certainly under a variety of names (Executive Officer, Executive Secretary, Chief Executive). Whatever title the job description has been the same – to assist the Society's volunteer officers in dealing with the outside world (government, Agencies, NBN) and to help them to better present our data and to try and bring more people into botany. We are delighted to report that the final funding from the three agencies has transpired, and we interviewed on December 13th, for a three year post. The successful candidate is Dr Gabriel Hemery, currently with the Northmoor Trust, near Oxford. Gabriel's academic background is in Forestry, but as Director of Land Operations he has been managing an interdisciplinary team of environmental researchers and field workers. He starts with us at the beginning of March 2005, and we look forward, very much, to working with him.

Scottish Officer

As I reported last time, Jim McIntosh is now in post. He only started in November, has already written a note to the Scottish Recorders and another for the forthcoming Recorders' Newsletter, and I excused him from a further repetition here! We wish him the very best for his really exciting role.

Terminology in alien plants

Gwynn Ellis has drawn my attention to a very interesting article which appeared in *Taxon* earlier this year. I confess to some diffidence, since the paper refers so extensively to the *New Atlas* and to our acceptance of the Archaeophyte concept, but I thought it was topical and was persuaded by the Editors to include this short précis.

Alien plants in checklists and floras: towards better communication between taxonomists and ecologists. Pysek, P. *et al.*, *Taxon* **53** (1): 131-143, February 2004.

The authors, from the Czech republic, South Africa, USA & Britain, plead for the use of more precise and more consistent terminology on plant statuses. They point out that Floras and Checklists worldwide differ widely both in their treatment and coverage of alien plants and in the way they are defined. The paper gives many examples of different treatments and puts forward a suggested standard hierarchy, together with appropriate definitions and interpretations.

They suggest 4 main categories – Natives, Aliens, Casual aliens and Naturalised, the last with subsets of Invasive (plants that reproduce freely and thus have the potential to spread fast), Transformers (plants, not necessarily alien, that change the character, condition, etc., of ecosystems) and Weeds (plants, not necessarily alien, that grow in sites where they are not wanted).

This all seems satisfactory, though some of the subsets are not exclusive, but it does sort out the wheat from the chaff in the only category that might be of concern.

The paper attempts to meet the current concerns over invasive plants and links those to length of establishment. Archaeophytes are covered of course, with their definition only differing from ours adopted in the *New Atlas* by including ancient casuals (crop plants and the like) which we omitted because, although they have been known for centuries, they have to be constantly re-introduced.

There are still some grey areas, but their effort needs support, since consistent terminology is urgently needed. If their recommendations were accepted then it would lead to better understanding and more consistent data to allow for better analysis.

Invasive Natives?

Further to my note in April *News* and the brief note in Sept. *News*, the BBC Radio 4 programme was broadcast on Monday 25th October. This brought together botanists from various backgrounds (Andy Byfield from Plantlife, Jill Sutcliffe from English Nature, Kevin Walker from CEH, Ray Woods from CCW and myself; and a lady dealing with Bracken on Cannock Chase. My summary (which might be biased, though I don't think it is!) was that there was wide agreement that both native and alien plants caused problems and threats to native habitats and other native plants, and that the key to the survival of the habitats and plants we wanted to protect was management, management and management. Native plants could be just as big a threat as the oft-paraded gallery of aliens (though the latter could

make a bad situation worse) and that there was no point in managing a site by eliminating aliens if invasive natives were left.

This subject has now been aired by our Science and Research Committee, and they have posted a summary of their discussions on our website.

I suppose nothing is black and white, but the Society will endeavour to put a more balanced view to DEFRA and others. By chance, as I was writing this, the builder doing some work here asked me if I had watched Alan Titmarsh last night. He said he was talking about Japanese knotweed in Swansea, and he (the builder) said it was a right old scare. I fear there is a long way to go!

Environmental Information Regulations 2004

Behind this rather austere title lies a matter that has greatly taxed our colleagues in NBN and Local Record Centres. Very briefly this European initiative allows much greater access to Environmental data held by government bodies, or those connected (even if only by funding?) with government. The BSBI's position is ambivalent. We welcome access to our data – that is one of the main points in collecting it, and we wish more would use it – but we regret any interference into what is a voluntary activity, and indeed anything that makes people less likely to contribute records. Alex Lockton and I have prepared a fuller statement of our position, which is available from either of us.

Wheldon and Wesley

Many members will have had much to do with this august firm of Natural History booksellers, and though they have been fading for some years, it was with regret that I saw their archive stock and card indices being sold off last month.

Vice-County Census Catalogue

Thanks to work by Quentin Groom this is now accessible on the BSBI website, giving the facility to view and download taxon by county, groups of counties, one v.c. but not another, one region but not another, and to produce distribution maps based on counties and the like. Well worth looking at, and our thanks to him and of course to Clive Stace and his team for making it all possible.

Archaeophytes

My apologies for all those who did not obtain copies of this offprint. We could only obtain 100 copies, and those quickly went. The details, for anyone who can see a copy online, are *Bot. J. Linn. Soc.*, 2004, **145**: 257-294.

New Cyperaceae Handbook

This is now almost complete (hoped for publication late spring) but the senior editor, Clive Jermy, would much appreciate some computer assistance, as follows:

Some 50 scanned plates prepared for this enlarged edition are involved, and, using IBM compatible software (Coral Draw, or other similar), jpg files need to be produced and will be imported into WORD to fit page format. For a skilled person this should not be too time consuming. If any member who has desk-top publishing skills and could help with arranging, text labelling and adding scale bars to the line drawings to be used in Ed3 of the Sedge Handbook and can spare time to help Clive Jermy (working in Herefordshire) in January/February please contact me at my address below.

DAVID PEARMAN, Hon. General Secretary, Algiers, Feock, Truro, Cornwall TR3 6RA; Tel: 01872 863388; email: DPearman4@aol.com

BSBI PROJECTS

BSBI Local Change

The recording period for Local Change is now over. Many, many thanks to all of you who have taken part — I hope that you enjoyed doing so.

I also hope that many of us have improved our botanical skills by traipsing around the tetrads with our fellow botanists. I think that this type of informal 'mentoring' is an excellent way to learn and we hope to mention this aspect in the report. If you feel you have benefited from the project in this or in any other way, I'd be delighted to hear about it.

The use of the MapMate network to collect the data has been a great success. Data arrived steadily throughout the year and over 70% of the expected volume had been received by the beginning of December 2004. I hope that the remainder will be here shortly into the new year.

As I mentioned in an earlier article (was it really nine months ago?), for a number of reasons there have been many more garden escapes, planted trees, volunteer crops and so on recorded this time around. In order to gauge the relative recording effort between the two projects, I have looked at just the predominantly native and archaeophyte species, excluding critical taxa and hybrids. If we take the ratio of the numbers of these taxa recorded, so far there appears to have been a slightly greater recording effort for Local Change compared with the 1987/88 monitoring scheme, with a mean ratio of 1.12 and a median of 1.07.

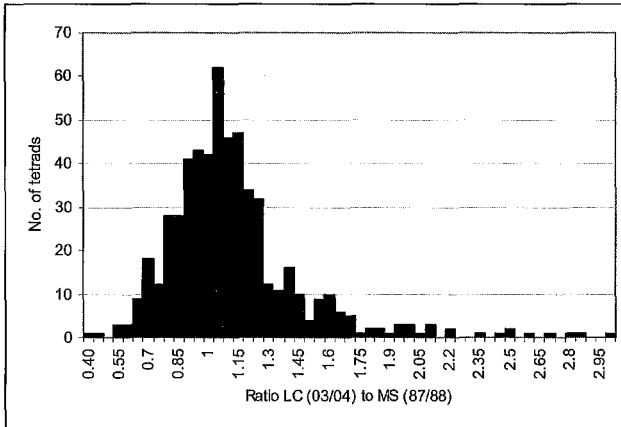


Fig. 1 Distribution of the ratios of the numbers of taxa recorded in 560 tetrads in the two projects, non-critical native and archaeophyte taxa only (data received by 1/12/04).

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Tel.: 01603 662260. Email: VolunteersOfficer@bsbi.org.uk

CO-ORDINATOR'S CORNER

Campanula patula

Spreading Bellflower (*Campanula patula*) is one of those plants that exposes the weaknesses in our conservation strategy in Britain – or lack thereof. It is primarily a roadside verge plant, growing on hedgerows along the sides of country lanes in the west of England. It is declining rapidly, and it is easy enough to imagine reasons why. The verges are getting narrower as roads are widened to take the largest trucks and tractors, and eutrophication from the other side of the hedge is eroding the species diversity. There is a temptation to leap to its defence, and create some nice little roadside verge reserves which are carefully mown and gardened, in order to protect the last few sites. But experience tells us that this approach won't work in the long run. After a while people will be growing it in pots and planting it out each year. Ultimately, such activity is completely pointless, especially when you consider that the species concerned is a common hay meadow plant throughout Europe and Asia.

What we need to do, as with so many of our rare species, is gain some understanding of its ecology and dispersal mechanisms. In Britain its native range is essentially the catchment of the River Severn. It does not grow in neighbouring parts of the continent, so it makes sense to assume that it arrived here by a chance event, possibly many thousands of years ago – the famous bird's foot hypothesis. Then what? It must have spread up and down the Severn and its tributaries, which implies a lost riverside habitat and possibly a water-borne dispersal mechanism. How it ended up on roadsides is anyone's

guess, but you can see where I am going with this. In *Scarce Plants* John Day hints that it is associated with ancient woodland, but I suspect that he is wrong. However, it is the only attempt I can find to understand the plant at all. My thoughts are that it has something to do with rivers, and unless we can work out what that is, then all attempts to conserve it are pointless. We should not rush in with the usual horticultural fix. Nor can we designate SSSIs. I don't think anyone knows what to do.

Viola kitaibeliana

I had a report recently from John O'Reilly and Clare Coleman on Dwarf Pansy (*Viola kitaibeliana*) in the Scilly Isles. It was such a good report that I thought it earned a mention in *News*, although I hope John & Clare will publish it formally soon. What they had done was very simple – they recorded fourteen quadrats where the plant occurred, including bryophytes and lichens, and analysed their results. The reason it stands out is that each quadrat was given in full, with an 8-figure grid reference, date and all the details. Their findings include revelations about the plant's vegetation communities, which makes it all the better, but the work would have been worth doing even if it had not come up with anything strikingly new.

What makes this so useful is that it is repeatable. Anyone can now go to these sites, or any others, and use the same methodology to collect comparable data. We can re-analyse John & Clare's data either on its own or in conjunction with any new data that is collected in future. I guarantee that people will still be using those quadrats in a hundred years' time. This, of course, is nothing new. Ronald Good pretty much proved that this is the best way – possibly the only truly scientifically valid way – to undertake botanical recording in his 1948 *Flora of Dorset*. And yet it is still an extremely rare event to come across some simple, useful data like this. Look through the last few issues of *Watsonia* and see if you can find a localised, dated quadrat that you could repeat. They are rarely there. People include quadrat analyses in their papers, but they nearly always fail to include the details, which means that 90% of the future potential of their work is lost.

I'm not quite sure why quadrat recording has never really caught on, or why authors so often fail to give their data in full. Some collect too much, of course, and it can't all be fitted in. But, in my opinion, three well-placed and thoroughly recorded relevés can be worth much more than fifty hasty ones. I would urge editors of journals always to think twice before publishing any phytosociological or ecological study that does not give repeatable data. If you want advice on format, take a peek at Gordon Graham's *Flora of Durham*. It does not have to take up all that much space.

New word competition

Geoff Toone emailed me within a few minutes of the last issue of *News* landing on his doorstep to point out mistakes in my Wild Gladiolus (*Gladiolus illyricus*) story. It wasn't William Bromfield who had championed the cause, but Charles Babington. The plant that Bromfield wanted so much to be native was Cut-grass (*Leersia oryzoides*). Geoff is, of course, right, and I am happy to admit my silly mistake; but unfortunately my humiliation doesn't end there. He goes on to point out that my assertion that Wild Gladiolus is an archaeophyte makes no sense – by my own argument it must be either a native or a neophyte. There is no good case for it being an archaeophyte. Again, I'm afraid he is right.

I suppose I was trying to avoid the inevitable barrage of criticism. Someone will probably write in and tell me that I must presume the plant to be innocent until proven guilty, the Agencies will strike it from the conservation lists, and the Forestry Commission will set out to eradicate it, if it turns out to be a neophyte. Or something like that. People seem to be very judgemental. Can't we just agree that, on the balance of evidence, it is most likely to be a garden escape? Just from the point of view of understanding its ecology and holding an honest scientific debate?

It occurs to me that what we need is a new word. A word that means 'conservation worthy'. There are plenty of plants that are really very good for ecosystems without necessarily being rare or native. They contribute towards a complex vegetation community, are indicators of healthy environmental factors such as low nutrient levels, and they are often food plants for beneficial invertebrates. I can think of dozens of plants that fit this category, from Snowdrops to Spanish Bluebells. What we need is a word that encapsulates the concept of 'ecologically beneficial', without relying on some extraneous and irrelevant property like nativity or rarity. Perhaps 'euoikophyte' – plant of good habitat. The opposite would be a cacoikophyte. They don't exactly trip off the tongue, though. Has

anyone got a better idea? If someone can come up with a good new word, complete with definition, they could find themselves in the OED one day. Please send in your suggestions and I'll publish the best in the next issue of *News*.

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

RECORDERS AND RECORDING

PANEL OF REFEREES AND SPECIALISTS

The following Referees are retiring, and are thanked for their help over the years:

John Edmondson from *Poa* (though he will continue with Maritime Drift Seeds), and Clive Stace from *Juncus* and *Vulpia*. Fortunately Tom Cope is already covering these three genera and is prepared to carry on, at least for now. We are sorry to hear that Tony Primavesi has regretfully decided to retire from *Rosa* on account of deteriorating eyesight. Roger Maskew will continue as Referee for the genus, and has been looking at the specimens submitted.

Mike Hardman, Referee for *Viola*, is in the process of building a site for botanical information on *Viola*, which will eventually cover other genera in Violaceae and will, he hopes, help in *Viola* identification. The address is www.violaceae.info (though he warns that it is still in the early stages of development).

There are several changes of address — please consult the 2005 *Year Book* for these. It is often a good idea to write to the Referee first to find out when is a good time to send specimens.

MARY CLARE SHEAHAN, 61 Westmoreland Road, Barnes, London SW13 9RZ
email: m.sheahan@rbgkew.org.uk

PANEL OF VICE-COUNTY RECORDERS

Although all these changes will be reflected in the 2005 *Year Book*, they are listed below for ease of reference.

V.c. 5. S. Somerset: Mr S.J. Parker to be joint recorder.

V.c. 9. Dorset: Mr B. Edwards to be joint recorder.

V.c. 17. Surrey: Mr B.A. Phillips to stand down. Mrs P.A. Sankey to be sole recorder.

V.c. 32. Northants: Mr R.J. Wilson to be joint recorder.

V.c. 66. Durham: Dr G. Hardy, 8 Soulby Court, Kingston Park, Newcastle upon Tyne, NE3 2TQ to be recorder.

V.c. 106. E. Ross: Ms R. Scott to stand down. Drs B.R. & C.B. Ballinger to continue as joint recorders.

Our thanks to Mr Phillips and to Ms Scott for their work over the years.

Changes of address.

V.c. 5. S. Somerset, H6. Co. Waterford & H12. Co Wexford: Mr P.A. Green. New address: Monk-silver, 72 Boxgrove Rd., Guildford, Surrey, GU1 1UD.

V.c. 92. S. Aberdeen: Dr R. Mitchell. New address: Greenburn Cottage, Tornaveen, Aberdeenshire, AB31 4LL.

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THE JNCC SPECIES STATUS ASSESSMENT PROJECT

In the last issue of *BSBI News*, reference was made to this project by Hodgson, Jones & Palmer (2004). We thought it may be helpful to give a little more detail about the workings of this group and the timetable we are following.

The Species Status Assessment Project (SSAP) was convened by the Joint Nature Conservation Committee and includes botanical expertise from a wide range of organisations: BSBI, Plantlife International, the Biological Records Centre, English Nature, the Countryside Council for Wales, Scottish Natural Heritage, the Department of the Environment in Northern Ireland, the Royal Botanic Garden Edinburgh and the Natural History Museum.

Our remit is to produce a new Red List of vascular plants. Earlier this year, JNCC produced new status lists for Great Britain (Cheffings, 2004). These *interim* lists included those species from the current Red Data Book (Wigginton, 1999) which have been assessed for rarity and given an International Union for the Conservation of Nature (IUCN) threat category (Extinct, Critically Endangered, Endangered, Vulnerable, Least Concern or Data Deficient), and then listed additional taxa that were found to be either Nationally Rare (less than 16 hectads) or Nationally Scarce (16-100 hectads) from the findings of the *New Atlas* (Preston *et al*, 2002). The result was a list that included not only taxa that had already been assessed for threat using IUCN criteria, but also many that had not (and which were simply regarded as Rare or Scarce based on the number of hectads they occupied).

The Species Status Assessment project is applying IUCN criteria to *all* taxa included in the *New Atlas*. These criteria are much more robust in that they take into account factors such as the rate of decline, fragmentation of populations, and the total area that a population occupies, rather than simply looking at the number of 10-km squares in which a species is found. This is the first time this has been done and it means that all taxa are now being assessed on an equal basis for 'threat' and 'decline', irrespective of the number of hectads they happen to occupy. Every taxon will be given an IUCN threat category (EX, CR, VU, etc.), and we are therefore moving away from the concept of 'rare' and 'scarce' as measures of threat.

Following much debate, we have excluded from the analysis any taxon mapped as a neophyte in the *New Atlas*. However, we have appreciated the fact that for some species their classification as neophytes needed revision, usually in light of new data or information being available. We have debated (at length, and sometimes rather heatedly!) the cases for a rather large suite of such species. Our decisions on these, and how we reached these decisions, will be included in our final report. For some taxa, we acknowledge that more work is needed and that their cases will need to be revisited in the future; no list is static and it must always be open to revision in the light of new information. Once the current project is over, we intend to establish a working group to periodically review status-assessments in the light of new research, and to initiate research where particular issues remain to be resolved.

For the current project, we have also kept up-to-date with taxonomic developments and are adopting new taxonomies where they have been published and are becoming widely accepted. We have updated the list of endemic and near endemic taxa, and have included hybrids in our analysis with their own set of criteria. We have also tried to include traditionally difficult groups such as *Rubus* and *Taraxacum*, and we are taking into account our responsibilities for certain taxa in a wider geographic context (for example where the UK holds a significant proportion of the European or world range of a taxon).

This project is generating much new and interesting work and the final lists will contain many changes to the familiar list of 'rarities'. Publication of the new Red List is due in March 2005, and will be used to draw up a suggested list of species for action under BAP. Our recommendations will be passed on to the Priority Species and Habitats Review Working Group, who will then assess the new list and, following further consultation, will produce a revised UK BAP Priority list. We will publish a more detailed paper (planned for 2005) to show all our workings to date, and also produce a more widely available summary document.

For more information, please contact either Lynne Farrell (SSAP Chairman, Scottish Natural Heritage, Battleby, Redgorton, Perth. PH1 3EW) or Chris Cheffings (SSAP Secretary, Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough, PE1 1JY).

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THE DAFOR ABUNDANCE SCALE AND ITS ELABORATION

It is pleasing to see a discussion on practical issues in *News*. The DAFOR debate in recent volumes of *BSBI News* should help to raise the standard of recording. As Christopher Lowe (*BSBI News* 96: 11-12) says, DAFOR with the addition of L is very easy to apply and adaptable to a variety of distributional situations. I confess to not always being so disciplined, often regretting it later.

Walker, Preston and Pearman in *BSBI News* 97: 12-15 introduce a scheme for combining abundances numerically using a 1-5 scale to derive an average for comparative purposes. A refinement I have used when wishing to convert the codes to numerical values is:

$$R = 1, O = 2, F = 4, A = 7, D = 9$$

The rationale is that this better reflects the ratio of abundances without going into double figures. Naturally, finer distinctions can be made if desired, by using decimal values, but the data rarely warrant it.

Without the raw data I can't re-plot Walker *et al.*'s graph of abundance and frequency using the revised codes. The effect would be to extend the abundance scale with minor changes in the rank order, but it is unlikely to change the topology. That shape is another manifestation of the 'J-curve' noticed by early ecologists. They found that in any area chosen, there are many more rare species than common species. The numbers declined in an exponential fashion with classes of increasing frequency except that there are usually more species in the highest frequency class than the one before it. This was elevated to a 'law of frequencies' by Raunkiaer (1934, *The life forms of plants and statistical plant geography*, OUP). Although the regression coefficient calculated by Walker *et al.* is significant, its value indicates that a linear model accounts for less than half of the variation. So a straight line is a poor fit, as we have come to expect from Raunkiaer's law.

I would like to caution against over elaboration of DAFOR. The beauty of the system is its simplicity and ease of use in the field, or whilst tidying up records at the end of a day. It would be tragic to lose its advantages and reinvent the awkward Domin score, a scheme that ought to have been dropped long ago. If the project warrants putting in more effort, it is far better to record % cover directly, thereby enabling statistical comparisons at a later date.

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GAINS AND LOSSES IN LOCAL CHANGE RECORDING

When a small area like a much-loved roadside bank is studied in detail over a period of years, we can be reasonably certain that recorded gains and losses of species really were true gains and losses. But when an area the size of a tetrad is visited just a few times, then we are sampling the vegetation rather than carrying out a census of it. We expect to find some species on the second visit that were missed on the first visit. Likewise, we expect to miss some species on the second visit that we found on the first visit. Unless we know how many of these apparent gains and losses are to be expected by chance alone, then

we shall not be in a position to say whether or not there has been any genuine change in the vegetation in the interval between samples.

To initiate a debate about the issue, I present the results of a simple simulation experiment. The key assumption concerns the probability of discovery of each species. This is affected by the plant's abundance, of course, and by its size and conspicuousness, but also by the time of sampling and by the recording effort (the number of people, their levels of expertise, weather conditions, and so on). Of course we don't have an accurate measure of the probability of discovery, so we need to find a surrogate. For the purposes of this article I have used the flora of a well-recorded 10km square in Berkshire (SU87). The assumption is that the probability of discovery of a species is proportional to the frequency of 1km squares in which the species is found. The shape of the distribution for the 812 species recorded from SU87 is shown in Fig. 1 (below). The extreme L-shape of this distribution is typical of many ecological patterns: there are a few ubiquitous species, a few intermediate species and many local or rare species. The simulation experiment consists of a lottery. Each of the 812 species is allocated a number of tickets in proportion to its frequency. Thus, *Trifolium repens* (White Clover) gets 100 tickets because it appears in all 100 of the 1km squares, while *Euphrasia micrantha* (Eyebright) gets just 1 ticket because it is confined to a single 1km square in SU87. The total number of lottery tickets in this particular example is 13,840 (the sum of the frequencies of all 812 species; the number would be 81,200 if all species occurred in all 100 squares).

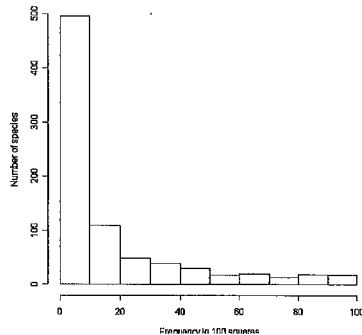


Fig. 1. The abundance profile of 812 species in a 10km square in Berkshire (SU87). A few species are ubiquitous, but most species are scarce or rare.

The computer experiment works as follows. A recording visit to a site is simulated by drawing tickets at random from this lottery. Sampling effort (the number of people per visit, the length of time spent per visit, etc.) is simulated by varying the number of tickets allocated to a trip, ranging from 100 (a cursory visit) up to 10,000 (a very intensive sample, bearing in mind that there are just 13,840 tickets in total in this simulated community). We are interested in the overlap of species lists for two samples collected with similar intensity on different occasions. The hypothesis is that nothing has happened between the two visits: no new species have arrived and none have been lost. The average results from 10,000 simulations of each recording effort are shown in Fig. 2 (p. 13). The interesting thing about this relationship is that the number of species apparently lost (or gained) between the two sampling occasions has a hump. This is because when sample size is low, only the few most abundant species are detected on the first sample and hence there are few uncommon species to be lost on the second sample. When sampling effort is very high, most species are found in both surveys, and so the number of apparent losses is low, but for a different reason. It is at intermediate sampling intensities that the number of apparent losses is greatest: many rare species are found in survey 1 but sampling intensity is too low to find these particular rarities again, and a different (but quite large) set of rarities is found in survey 2.

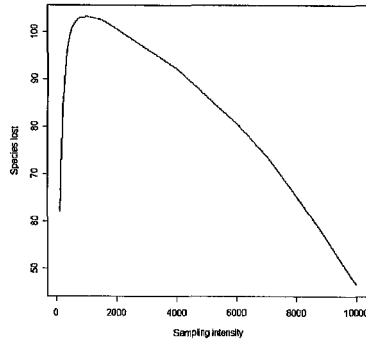


Fig. 2. Apparent losses of species as a function of sampling effort in a community of 812 species with an abundance profile as shown in Fig. 1. Losses peak at intermediate sampling intensities.

This all assumes, of course, that the sampling intensity was exactly the same in both surveys. If the sampling was greater on the second occasion, then we shall overestimate apparent gains. In contrast, if the second survey was more cursory than the first, then we shall overestimate apparent losses. One ray of light is that we should be able to use the ratio of gains and losses as an index of recording effort. The model (with its assumed equal recording effort) predicts equal numbers of apparent gains and losses when there has been no real change in the flora. For native species, therefore, disproportionate gain probably reflects increased sampling effort. Disproportionate loss may mean either real species loss or reduced sampling effort, and it is important that we devise a means of teasing apart these two contrasting explanations. Recording of alien species is much better since publication of Clive Stace's *New Flora of the British Isles* in 1991, so it is going to be difficult to distinguish between genuine increases and better recording in the case of alien plants. It is the ratio of gains to losses that is the important criterion. In the simulations, the average ratio of gains to losses was 1.0, but the range was from 0.39 to 2.60. We can now turn to some real data from BSBI Local Change. In a well-recorded tetrad like SU86J the ratio of gains to losses so far has been $198/67 = 2.96$, whereas in an under-recorded tetrad like SU59J the ratio was $39/269 = 0.14$. It is plain, therefore, that SU59J is dramatically under-recorded compared to 1987-88 (actual ratio = 0.14 vs. 0.39 as the minimum from the simulations). The 39 'gains' are probably species that were present, but missed, in the earlier survey. Although SU86J is apparently much better recorded than in 1987-88 with nearly 200 'gains', the ratio of gains to losses is not much greater than might be expected by chance if there had been equal recording effort and no real change in species richness (2.96 vs. 2.60 as the maximum from the simulations).

The model has two major shortcomings: we don't know enough about the abundance profile for real plant communities, and people out botanizing don't encounter species at random as assumed here (e.g. there might be a temptation to keep increasing the sampling effort until the new total exceeds the old total). While modelling the non-random searching behaviour of botanists in the field is a genuine challenge, I don't expect substantial progress in the near future. Getting better data on the abundance profiles of plant communities in different parts of the British Isles is a worthy aim, but I'm certain this won't happen before we begin to interpret the Local Change data. What is clear is that we should expect to see at least 50 and possibly as many as 100 apparent gains and losses even when there has been no real change in botanical composition. Evidently we shall need to be circumspect in our interpretation of change as implied by the repeat survey under Local Change.

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NO NEED FOR FLOWERS? — AN INTRODUCTION TO VEGETATIVE IDENTIFICATION

The use of vegetative characters has been somewhat neglected in the identification of plants. However, as for most of the year leaves provide the only visible indication of a species presence it is often essential to be able to identify them. Three relatively common species whose radical leaves (i.e. basal leaf rosettes) often cause confusion with beginners and experts alike are:

Digitalis purpurea (Foxglove)

Verbascum nigrum (Dark Mullein)

Inula conyzae (Ploughman's Spikenard)

All three species are biennial or occasionally perennial (therefore leaf rosettes are abundant throughout the year) and all have pubescent unlobed oval to elliptic leaves. Many botanists may be able to distinguish the species on general appearance or 'jizz' characteristics. However there is no way to know if one is right or wrong!

Fortunately, these three species can be identified solely and reliably on a cross section midway along the leaf petiole by examination of the **vascular bundles**. Vascular bundles are tightly packed strands of xylem and phloem visible to the naked eye. The number, shape and arrangement of the vascular bundles within the petiole can often provide clues to the identity of many species. Although cross-sections are best done using a razor blade, a pen knife, scissors or even a clean break will usually suffice for rapid field identification. It is important to take the cross-section in the mid-section of the petiole, as structure may vary at the proximal and distal ends.

The simplified cross-sections of the three species are illustrated. My rather crude drawings are diagrammatic only to depict the central vascular bundle (ignore the lateral bundles).



Digitalis purpurea



Verbascum nigrum



Inula conyzae

The central vascular bundle of *Digitalis purpurea* is best described as a flat arc. In *Verbascum nigrum*, the large central bundle is involute in cross-section, a feature common to most species in this genus. In contrast, *Inula conyzae* has a roughly circular central vascular bundle.

Vascular bundles are not the only vegetative character on which to base the identification. *Inula conyzae* also has prominent purple black **hydathodes** on the leaf margin. Hydathodes, or tip-glands, are specialised pores or stomata found along the leaf margins used in the removal of excess water in a process called guttation. Although hydathodes are probably present on virtually all plants they are often obscure and invisible even to a strong hand lens. The shape, position and pigmentation of hydathodes are all useful characters in vegetative identification (see forthcoming issues of *BSBI News!*).

Additionally, the **indumentum**, or hairs, of the leaf surface can also be used for identification. The hairs of *Inula conyzae* and *Digitalis purpurea* are septate (i.e. multi-cellular), a feature best observed with a 20× hand lens. The hairs are longer in *Inula conyzae* and curl and crisp noticeably when dry. *Verbascum nigrum*, similar to most other *Verbascum* species, has dendritic hairs (i.e. hairs branched like a tree).

Below is a modular key to the separation of the three species should the field botanist be faced with a leafy conundrum. In vegetative identification it is often essential to consider all the options through the simultaneous examination of characters. The traditional use of couplets may thus be unsatisfactory and therefore a 'polychotomous' key, as shown below, may have to be used (again, see forthcoming articles!).

VEGETATIVE KEY

Radical leaves simple, unlobed, pubescent, oval to elliptic:

- **central vascular bundle flat arc**; hydathodes visible, yellow green; hairs septate . . . *Digitalis purpurea*
- **central vascular bundle involute**; hydathodes obscure; hairs dendritic *Verbascum nigrum*
- **central vascular bundle ±circular**; hydathodes prominent, purple black; hairs septate . . *Imula conyzae*

I hope this article will provide some novel, yet practical, information and will encourage others to contribute information which they have found useful in the vegetative identification of other species.

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UPDATING THE VCCC

On reading the article by Stace and Ellis in *BSBI News* 97: 15-19, I checked my own vice-county (100, Clyde Isles), and found it had only 891 taxa mentioned in the VCCC. When I took over the recordership in 2002 I inherited a database of 1001 taxa, and this now stands close to 1100. Even allowing for some duplication of aggregates/segregates, this represents a large discrepancy, and on checking all the entries I found 166 species with reliable records in my MapMate database but with no corresponding entry in the VCCC.

If the VCCC is to be as useful and definitive as it deserves to be, it has to be accurate and up to date. I therefore urge other recorders to check that the number of taxa in their VCCC entry corresponds to that in their files. We are told that prospective additions to the VCCC must be entered as first v.c. records in *Watsonia*, even if they are quite old, or for frequently recorded taxa. If one issue of *Watsonia* must be cluttered up with such records, so be it. It is a small price to pay for a more complete and accurate VCCC, a work whose usefulness is severely compromised without these qualities. Hopefully, a 2nd edition can be produced fairly quickly, in which such omissions are made good, and which will restore confidence in this valuable reference tool.

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[While I fully agree with Angus’s comments and hope that all v.c. recorders will follow his advice, I feel it only fair to point out that the VCCC could only include records supplied to the compilers by v.c. recorders and others, and ALL recorders were given many chances to check the data for their v.c. before publication. RGE]

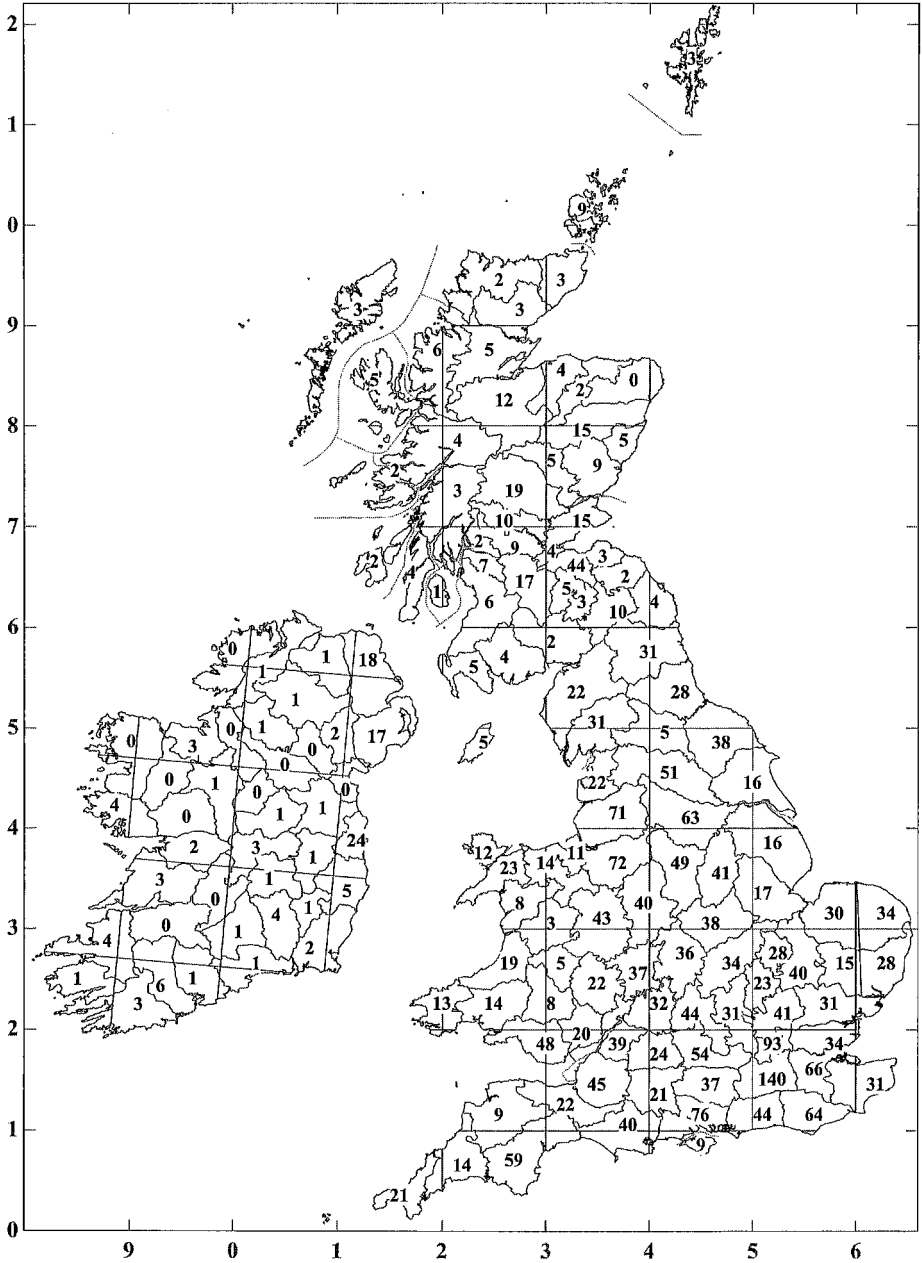
BSBI MEMBERSHIP BY VICE-COUNTY

Off and on for the past few years I have been trying to allocate members to vice-counties by using the post code. It sounds straightforward in theory but is anything but in practice. Administrative and post code boundaries rarely coincide exactly and vice-county boundaries don’t exist on modern maps so had to be roughly drawn in by hand. About 30% of the post code districts (the 1st part of the post code) overlap 2 or more vice-counties and had to tracked down using mapping software on computer and, more recently, on the NBN website. I finally finished this autumn and vice-counties are now given after the address of every member in the *BSBI Year Book 2005*; after the membership number on the address label of all mailings; and on the following map.

NB: It is not always possible to allocate a vice-county with certainty, some will be wrong, and I would be grateful for details of these so that the membership database can be kept up to date.

It may be of interest to members to know the make up of our overseas members which is as set out in the following table.

Australia 4	Cyprus 1	Holland 2	Netherlands 3	Sweden 8
Austria 1	Czech Republic 2	Iceland 1	New Zealand 1	Switzerland 5
Belgium 4	Denmark 1	Italy 1	Norway 1	UAE 1
Canada 5	France 9	Luxemburg 1	Russia 2	USA 6
China 1	Germany 24	Malawi 1	Spain 3	Zimbabwe 1



Map showing the number of members in each vice-county of the British Isles

NOTES AND ARTICLES

SURVEY OF *VACCINIUM* × *INTERMEDIUM* (HYBRID BILBERRY) IN GREAT BRITAIN

Results of a survey for the British Ecological Society (SEPG No. 1281) with the remit: 'To survey all recorded and reputed locations of the Hybrid Bilberry' (parents – Bilberry ♀; Cowberry ♂)

Methodology: Procedures and referrals: 1) Photo record of site: a) habitat, with distinctive feature; b) close-up of sample *in situ*. 2) Record of associated species and dominance. 3) Soil pH – from rhizome level, 15-20cm down; samples processed in Keele labs. 4) Altitude metre values from 1:10,000 OS, or conversion from 6 inch to 1-mile maps. GPS confirmed map Grid Refs. but map altitudes preferred to GPS variability. 5) Exsiccates on acid-free paper, with annotation of characteristics and habitat details for County herbariums, databases and Wildlife Trusts. 6) Finally, but primarily, a possibility of inaccuracies in six-figure recordings led to adopting thorough combing of a 'tetrad' centred on the target hectare. In the following location-lists at least one hectare site is extant; in-bracket-figures = > one; a minus-sign (-) = an earlier record absent; those in **bold** denote new sites in the location. Within a hectare more than one colony (community = colony); 'site' refers to a hectare within a location. **Habitat:** P or W and a number show hybrid/hectare(s) in a plantation or mixed woodland, as distinct from heath/moor with birch/conifer. **Major colonies: over 100m² ... ● ... over 300m² ... ■** Bilberry the usual host; cowberry nearby, but environmental changes since hybridisation may have brought new hosts; ***Bold Italic*** shows this, and = indicates shared hosts, with botanical abbreviations.

V.c. 39 – STAFFORDSHIRE

Cannock Chase: Brindley Heath SSSI: 420 acres of **mixed heath & woodland:** scattered Forest Enterprise (FE) mixed conifer plantations, with oak, rowan, willow, etc., invasive birch & pine. From 2001 many plantation areas were clear-felled as a requisite of heathland regeneration grants; bracken and heather co-dominants within under-storey and heath. **As at January 2000, the greatest concentration of hybrid communities in GB, about 4 hectares, lay within the 25-hectare Toc H Trail for Disabled people.** Significant in that and other areas is the noticeably increased hybrid vigour* in association with peripheral pine/birch, while isolated birches are oases for clusters of hybrid.

Alt. 260-325m pH 3.4-3.7 Tet.SJ91X (47h) ■ •x2 ● x5 *Host: pt.aq = v.m.* 1995-2000

Cannock Forest (FE): Contains one of the sites of high red inflorescence with virtually negative fruiting; staked out for conservation at the request of FE.

Alt. 200-210m pH 3.5 Tet.SJ91X (2:7h) P = 3 1995-99

Cannock Chase Country Park (N. Chase): Sizeable colonies competing well in moderate heath canopy. The 2nd largest population amounts here to 2½ hectares (of 20), incl. a 1½-acre site (now only 900m²) likely to be that referred to by Gourlay, 1919. *Host: pt.aq = v.m. (1)*

Alt. 195-205m pH 3.4-3.5 Tet.SJ91T & SJ91Y (21h) ■ •x2 ● •x8 P=3 1995-99

Prior to this research, only 7 recordings of Staffs hybrid sites were in the database. **All Chase recordings in this survey, back to 1995, were checked as valid between September and December, 1999, and negatives deleted – from 1990s clear-fell in the SW of Brindley Heath.**

Castle-Ring, ancient hill fort, Gentleshaw: just one colony beneath **vallum** with parents; crowberry, rush, *Erica tetralix* in damper areas.

Alt. 230m pH 3.5 SK042.128 July 1998

Caverswall, nr. Longton: Cresswell's Piece (private land): 26-acre old birchwood, oak, hazel, holly to 4/5 metres; exceptional habitat in mid- to heavy canopy, gaining vigour within birches. see '**Vigour**'.

Alt. 245m pH 3.4-3.6 Tet.SJ94N (-2:1 :5h) SJ94M W = 6 ● June-Sept. 2000

Hanchurch Hills: FE plantation.

Alt. 215m pH 3.7 SJ837.400 P Dec.1998

Hednesford Hills: 300-acre outlier of Cannock Chase: heath/woodland mix; 1920 plantations, invasive birch, heather/bilberry co-dominant, some crowberry. **Spurious site** in a scrape close to a bilberry stand, at SK0127.1279, cowberry and hybrid cuttings regularly and naively spaced.

Alt. 170-200m pH 3.4 Tet. SJ01B (9h) P = 1 1996-2000

Ipstones Edge: Swineholes Nature Reserve, Staffs W.T: small colony surrounding Scots pine; canopy light, outside plantation. Alt. 380m pH 3.76 SJ046.504 May 1996

Maer Hills, nr. Baldwins Gate: pine plantation; under-storey scrub, bramble, etc. Recorded by Eedes, Flora of Staffs, 1971. Alt. 180m pH 3.7 SJ770.400 P April 2000

This location is the only one which appears extant within the Maer Hills, including War, Berth, and Red Hills; and Camp Hill, where the hybrid was discovered in 1870.

Shoal Hill Common, Huntington, Cannock: 180-acre outlier of Cannock Chase, mixed plantation and broadleaved, invasive birch, heath, bracken under-storey. Communities flourish in semi-open track verges and a thin canopy of birches. The largest, 800m², up to 20cm, thinly scattered, survives in bracken. *Host: pt.aq. (1) SJ972.114.*

Alt. 175-190m pH 3.95 SJ968.114 to 913.116 (9h) Tet. SJ91Q W=2 1998-99

V.c. 40 – SHROPSHIRE

Stiperstones: 3 widespread small colonies, not previously recorded, now by K. Thorne:

Alt. 500m SO366.982 Alt. 420m SJ381.011 Aug. 2002

Alt. 435m SO356.968 Oct. 2002

V.c. 46 – CARDIGANSHIRE

Tregaron Bog, Aberystwyth. J.P. Savidge, 1980. A.O. Chater conf. Alt. 165m SN686.634 2000

V.c. 57 – DERBYSHIRE: The Wildlife Trust is a great ally, having supplied the nucleus of recorded sites, including those on either side of the Derbys/Yorks. border.

Big Moor: Original 1955 recording negative – habitat completely waterlogged. Another site found a kilometre to S. Rec. P. Ardron. Alt. 260m SK274/5.759 1999-2000

Blackamoor, SW of Sheffield: 40 acres of moorland, fringed at roadside by a 100m belt of woodland, dominated by rhododendron. Pine/birch crown falls to a 70m shelf of heath, with scattered attenuated hybrid, to a narrow 25m strip with a woody mosaic of hybrid & cowberry.

Alt. 340m pH 3.5 SK283.805 *Host: V.v.i* Apr. 1999

Cromford Moor, (Black Rock) above Barreledge Quarry: small, vigorous colony between plantation & quarry edge. Alt. 310m pH 3.7 SK294.555 Tet. SK28X August 1999

Derwent Moors, Cutthroat Bridge: above A57 Sheffield: 400m from bridge on moorland track SW to Ladybower Inn, in heather canopy. Alt. 300m SK210.871 Feb. 2002

Eyam Moor: closed canopy, to which an earlier site has succumbed. One new, vigorous colony lines track/ditch. Alt. 360m pH 4.0 SK224.780/1 (1:-1:1h) Tet. SK27J June/July 1999

Farley Quarry, Matlock: S. of Farley Moor plantation, on Farley road out of Matlock.

Alt. 290m pH 3.8 SK295.627 April 1999

Highoredish Quarry, Butterley, Matlock: One-km millstone grit ridge, heavily quarried, providing a variety of habitats – rock-face, boulders, trackside. *Host: V.m = pt.aq. (1)*

Alt. 285m pH 3.5 SK351.596; 352.596/7; 353.596; 354.596 Tet. SK35H 1995-98

Houndkirk Moor, Ringinglow: 500-acre heather moor; 2 streams NE of H'kirk Hill enclose ±30 acres, marshy grazing to well-drained banks; the colony Ritchie^s illustrates in Ritchie 1955a, p. 52, & monitored for rate of radial growth, is on the westerly stream.

Alt. 320-350m pH 3.4 SK285.820/1/2; 287.819/20/21; 288.822 Tet. SK28Z (-1:4:4h) 1996-2002

Matlock Moors, off Slack Hill: complex of FE conifer plantations, with felling and re-planting.

Bottom Moor: the main population, a series of vigorous colonies, some major, lies on a 300m track R. from the FE barrier parallel with road, others on adjacent rides. *Host: mel.p = v.m. (2)*

Alt 300-310m pH 3.4 SK318.634 ● SK319.631 ● Tet. SK36B (10h) P=8 1997 2001

Upper Moor (2km further) Alt. 310m pH 3.4 Tet. SK36D (4h) P = 1 1997-2001

Shooterslea Moor: opposite Upper Moor, above Amber valley, 2 small colonies Dec. 1999

Host: pt.aq = v.m., Host: v.v.i. Alt. 300-310m pH 3.7 SK310/311.648 Tet. SK36C (2h)

Whitesprings: (off Flash Lane) former plantation with abandoned nurseries, invasive pine/birch garden escapes, rhododendrons marching down rides; FE felling/planting; colony in R. verge under wall.

Host: V.v.i. (1) Alt. 310m pH 3.5 SK294.652; 297.648 Tet. SK26X (-2:2h) Jan. 1999

Farley Moor: (W of Bottom/Upper Moors); access opposite Sydnope Stand. Colony at foot of wall on ride leading S to Middle Moor. Alt. 285m pH 3.5 SK304.635 Dec.1999

Priddock Wood: recorded SK20.86 by A. Wilmot. 1989. See below – abandoned locations.

Ringinglow Quarry & Plantation: the Peak Ranger ensured its conservation during quarry infill in 1995 – a colony of $\pm 400\text{m}^2$ at periphery; substantial scattered mounds within heather, crowberry, etc. R of the parking area, beyond ditch, sheltered by wall, an 8m attenuated but vigorous colony.

Alt. 355-370m pH 3.6 SK287.829 ● 289.834 Tet.SK28W (-1:1:1h) 1995-99

Slagmill/Arkwright Plantation: In 1995 what seemed to be a conserved moorland strip adjacent to the plantation proved to be the scene of a re-planting of 400 conifers by Chatsworth Forester which had been hijacked one pre-Xmas season! However, the large population survived to represent the largest – $\frac{1}{4}$ hectare (in 3) in Derbyshire and outside Cannock Chase; spilling into road verges; conifer stumps nucleus for unusual mounded forms *. Alt. 320-350m pH 3.1-3.4 SK394.681/2; 305.682 ■; 306.682 ■;

307.684 ●; 308.685 ● Tet.SK36E (-1:7h) P = 4 1995-96

Tansley, Matlock: Millstone grit quarry, Foxholes Farm: knoll, pit rim; small colony at Scots pine, bilberry host; cowberry dominant around pit walls. Alt. 240m pH 3.5 SK319.608 Dec. 1998

Toad's Mouth, Hathersage Moor: Intensive search of moor (earlier km recordings) revealed a colony in low canopy, usual associates. Alt. 305m pH 3.5 SK260.806 Dec. 1995

V.c. 58 – CHESHIRE:

Congleton, Cloud (NT) plantation, inside County boundary wall; small colony in cowberry mosaic. Earlier recording near trig. point negative. Alt. 325m SJ904.633 (-1:1) P, 2000

V.c. 63 – S.W. YORKSHIRE:

Reddick Clough, Rivelin: deep heather/bilberry canopy; centred on boulder and Scots pine; sizeable colony to $\pm 50\text{m}^2$, attenuated. Alt. 290m pH 3.4 SK263.871 Feb. 2000

Loxley Common, Sheffield: adjacent to heavy heather canopy, with clumps of attenuated cowberry; birches, scattered oaks. Alt. 250m SK306/7.909 2000-02

Rishworth, nr. Halifax: small colony atop 5ft wall, narrow farm lane, NW aspect, bank above & field fence, in bilberry roots, sparse 6m strip. Alt. 245m SE039.177 Feb. 2002

V.c. 64 – MID-WEST YORKSHIRE:

Morton Moor, Ilkley: small colony in swarm of juvenile plants, all 3 vaccinia; hybrid leaves obovate, not unusual in immature state and in presence of cowberry. Rec. J. Tregale

Alt. 315m SE086.445 Tet.SE04X Oct. 1996

V.c. 65 – NW YORKSHIRE:

Agra Moor: Slipstone Crags. First rec. G. Shaw, 1970 (no Grid. Ref.). Rec. Waterton

Alt. 300m SE139.819 Tet.SE18F July/Aug. 2003

LOCATIONS RESEARCHED, but found NEGATIVE (3 visits): sites: ‡ reputed: † to re-visit.

V.c. 39: STAFFORDSHIRE: Barlaston Common, Rough Close, 2000 ‡; Bridestones 2000; Camp Hill, 1996-2001; Downs Banks (NT) ‡2000-01.

V.c. 40 – SHROPSHIRE: Telford Park (mining spoil heap), 1996.

V.c. 57 – DERBYSHIRE: Beeley Moor ‡ 1996; Birchen Edge 1996; Blackbrook Wood 1999; Blakeslow Hill ‡ 1996, 1999; Bumper Castle Farm 1996; nr. Fox House 1996-2000; Gardom's Edge 1996; Hucklow Moor ‡ 1999; Oaken Bank 2000/1; Poorlots Quarry † 1996-2002; Rod Moor 1999-2002; Slippery Stones, R. Derwent 1999, 2001; Span Moor 2000, 2002; Stone Edge Quarry ‡ 2000; Strawberry Lea 2000, 2002; Totley Moss 1999, 2001.

V.c. 63 – S.W. YORKSHIRE: Agden Dike & Bog 2002 ‡; Agden Moor (Emlin Dike) 2002; Deepcar Tyre Depot † 2001; Greetland Moor 2001, 2002; Heptonstall Eaves † 2001, 2002; Jumble Hole Clough † 2001, 2002; Norland Edge 2001, 2002; North Dean Wood † 2001, 2002; Porter Clough ‡ 1996-2000; Stubbings Common, Loxley 1996, 2002; Wadsley Common 1999, 2002; Warley Moor 2001, 2002.

BES, with 1998 & 2000 interim reports, requested a closing report in February, 2002. By April the remaining Yorkshire locations had been thoroughly investigated, but a rationale was needed regarding the following locations a) from 1 to 6 km², impossible except with a team; b) access difficult: see above; Priddock Wood. c) with a), recorded \pm 50 years ago: V.c. 62 – Lonsdale; High Horcum; V.c. 63 – Whitwell Moor; V.c. 64 – Brimham Rocks; Burnsall & Thorpe Fell. By autumn 2001, the revised list had presented over 60 recorded and reputed locations.

At February, 2003, 27 recorded and 10 reputed locations had shown negative (incl. those abandoned), and Yorkshire V.c. 63 locations having results disparate with other V.c.'s, allowing for losses to sheep and an invasive farmer. **I will be happy to accede to positive identification at any of these sites**, and welcome live specimens along with full habitat details from any new locations. **Seven NEW locations, however, have been established, and on balance 50 new hectare sites**, mainly of woodland habitat; losses are significantly greater in heath/moorland.

CONCLUSIONS on HABITAT, DISTRIBUTION and VIGOUR, with suggestions on fieldwork search: **Habitats:** a) heath/moorland; b) woodland/plantation; c) heath/woodland mix. d) open and low canopy heath. e) worked out quarries. **Distribution:** uneven – Cannock Chase has the greatest concentrations; **n.b.** the 2001 clear-fell on Brindley Heath has made inroads (as checked two years later) into many of the colonies recorded by 2000; Derbyshire has more locations, less populous but widely-scattered. The limited and apparently random nature of hybridisation, considering the widespread sympatry of the parents, raises questions about possible key factors: 1) cowberry is of the three plants least tolerant of shade: it is often found on the periphery of bilberry stands; in discrete clusters in patches of open heath; or in plantation fringes. With milder 20th Century winters and perhaps early bilberry flowering reducing the normal parental overlap, the flowering period of cowberry becomes more critical. 2) pollination: entomophily (agent – bee, insect) – noted by Ritchie (1955b) – appears the main factor; with 3) fallen berries, and bird dispersal of potentially viable hybrid seeds. Presence of other 'hosts' serves to modify the generally-held view that the hybrid will be contiguous with the parents, but the effects of fire, flood, invasive species, and phenological conditions active since the original habitat at hybridisation, have to be considered. 4) germination: research would be valuable into factors such as the inhibiting effect of bilberry canopy on seedlings, and, e.g. humidity in afforestation habitats – the vast majority of locations in N. Europe and Scandinavia – now being undertaken by Ponikierska (Poland).

Vigour* a) From 1994 an association of vigour with the root system of birches in particular has been observed and photographed. The presence of unusual hybrid mound forms at Slagmill/Arkwright, and the existence of conifer stumps within them led in 1997 to correspondence with Professor David Read of Sheffield, and his suggestion that investigation of a birch/conifer mycorrhizal factor, similar to that of the Ericoid Mycorrhizal Root³², marshalling nutrients N and P, would be worth undertaking. b) A Trust 'Survey' in 2003 using, without reference to this project, its Cannock Chase data (in the public domain from 20000, made, independently, two significant contributions – 1) loss of sites following clear-fell; 2) confirmation of the birch 'oasis' effect – as had been a noteworthy observation throughout this Survey.

Fieldwork search: The presence of cowberry is an incentive (though with reservations noted earlier) in the search for the hybrid in new locations within heath/moor, but in areas with invasive birch, it is worth investigating their surrounds as well as larch/pines, while the eastern fringes of plantations may bring success. Other areas worth searching are trackside – canopy more open – and major sheep-tracks off them.

Conservation: a) monitoring of potentially invasive concomitant species; b) regular burn on heath and moor to advantage the earlier recovery of *vaccinia* as compared with *Calluna*, and especially within 'stands' of degenerate heather; c) prevention of winter over-grazing in moorland where the hybrid is more palatable than cowberry, etc. – by compounding. Frequent associates: *Calluna*; *Empetrum nigrum*; *Deschampsia flexuosa*; *Molinia caerulea*; *Ulex gallii*; *Erica tetralix*; *Epilobium angustifolium*. Host references: pt.aq. – *Pteridium aquilinum* (bracken); v.m. – *Vaccinium myrtillus* (bilberry); v.v.i. – *Vaccinium vitis-idaea* (cowberry); mel.p. – *Melampyrum pratense* (common cow-wheat).

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GLADIOLUS ILLYRICUS IN HAMPSHIRE

Alex Lockton's contributions to *BSBI News* are always stimulating, and his piece on Wild Gladiolus (*BSBI News* **97**: 10) is no exception. But this is a topic where one must be careful of being led too far by assumptions.

The date of first record in the New Forest (1856) is remarkable, but no more so than that of many other New Forest species. It is hard to avoid the conclusion that the area remained patchily worked, or at least patchily documented, until well into the nineteenth century. There are notable New Forest plants, such as *Rhynchospora fusca* (Brown Beak-sedge), that were found at quite an early date (1713). But many others seem to have escaped notice until well into the nineteenth century; they include *Carex limosa* (Bog-sedge), *C. montana* (Soft-leaved Sedge), *Gentiana pneumonanthe* (Marsh Gentian) and *Lycopodiella inundata* (Marsh Clubmoss). Many species were recorded elsewhere in the county long before getting mention in the New Forest, among them *Baldellia ranunculoides* (Lesser Water-plantain), *Ludwigia palustris* (Hampshire-purslane) (admittedly a 'problem plant' when it comes to status) and *Hammarbya paludosa* (Bog Orchid). This last had attracted few but widely spread records in Hampshire since 1667, but no localized Forest records until 1879. *Galium constrictum* (Slender Marsh-bedstraw) had to wait until 1924.

The sources of many early plant records are Gough's edition of *Camden's Britannia* (1789) and the 1799 *Hampshire Repository*, where many are unlocalised; however the impression, where localities are given, is that these are mostly by major thoroughfares. Gilpin (1791) may have started the promotion of the picturesque qualities of the area, but the first edition of Wise's *New Forest*, a more factual work with specific details of interest to botanists and other naturalists, did not come until 1863. The railway across the Forest opened in 1847, facilitating travel to many of the Forest's richest areas.

Opinions over the status of *Gladiolus illyricus* were certainly divided at the time of its discovery; but Borrer, Syme and Babington believed it was native. Babington (1863) was forceful on the matter, commenting pointedly: 'Nevertheless, it is so suspected [as a non-native] by persons who have not seen it, and who, therefore, only judge from what they consider probable.' Watson's comments were guarded and came not from personal observation but from a report that in one of the sites it had been found in close proximity to *Rhododendron*. Townsend (1883) is rather non-committal, and it is not clear to me whether his remarks on a possible importation from the Landais region of France, which appear only as a footnote on *Erica vagans* at Bournemouth, were meant to apply to Hampshire populations in general.

The observations of Dyer and Trimen (1864) on sites at Oakley and Rhinefield are amongst the most detailed early accounts of the plant's habitat, leading one to an impression (reinforced by Townsend) that the plant was most characteristically found in plantations. However they were careful to state that barring one instance it was **not** growing amongst planted conifers, and that in general it was not to be thought of as a woodland plant. In fact their descriptions accord well with habitats

outside, or at margins of, woodland today. Where ride-side disturbance is not too great, even nowadays forestry enclosures furnish several species more characteristic of the open Forest, including *Serratula tinctoria* (Saw-wort) and *Sanguisorba officinalis* (Great Burnet). Indeed they may be more noticeable there because of reduced grazing pressure.

The number of recorded sites remained at a handful, with remarkably few later additions, until after 1950. Now we know it occurs, or has occurred, at sites in more than 60 1km squares in the Forest. Given the showiness of the flowering plant, this may seem extraordinary and to argue for a recent spread. However field workers looking for old or new colonies can attest to the difficulty of finding plants at flowering time. This is down to several factors: the overwhelming predominance of small vegetative offsets in the population (a flowering rate of 3% can be considered good); the concealment provided by the bracken; and the often scattered nature of populations. In fact all recent census work is done not at flowering time, in late June or early July, but in late April or early May when the inconspicuousness of the plants is more than compensated by the lack of bracken cover. The rise in the number of recorded sites is related directly to the efforts of dedicated workers searching in a systematic and painstaking way; notably Bowman from the 1950s onwards, Hamilton in the 1960s, and Everett in the 1980s. *Gladiolus* is not a unique case in this respect. For instance, *Convallaria majalis* (Lily-of-the-valley) was recorded from very few Forest sites before 1950, and its true extent was revealed only after then.

Rare plants with a disjunct distribution in Southern England certainly present a problem of provenance, since they don't, like their Northern cousins, come furnished with a convenient theory that can explain their presence as relics of a colder age. However they are sufficiently numerous and diverse in their ecology that they cannot all be pigeon-holed in some other way. *Gladiolus illyricus* in Britain is not a 'garrigue' plant relying on either arid or totally artificial conditions. Although formal studies have been limited, it seems to occupy an ecotone that runs from W10 oak woodland through W25 bracken underscrub (though often with little *Rubus*) to U20 bracken heaths. It is characteristic of areas with a relatively diverse mosaic of bracken and grass heath, extending even into *Calluna* heathland where this is not too uniform. Although often growing with a rather rich flora that includes *Carex montana*, *Platanthera bifolia* (Lesser Butterfly-orchid) and a number of woodland species such as *Hyacinthoides non-scripta* (Bluebell) and *Anemone nemorosa* (Wood Anemone), enabling experienced observers to pick out promising areas, it is rarely intimately mixed with these, and an associated species list taken from a small quadrat may be relatively poor.

I am not familiar with *Gladiolus* sites in central and western France, but many of the districts in which it has been recorded are not notable as major outposts of Mediterranean species. They include Brittany, the Limousin, and acid rocks in the Loire basin. I would be particularly interested to hear from anyone who has knowledge of Loire sites. It has been noted there in the Sologne, which is predominantly heathland and wetland with some Mediterranean-Atlantic species such as *Erica scoparia*. I have seen photographs (unfortunately no description) from the Vendee, where it was growing in broken grassland over sloping rock; among the visible associates were *Holcus* and *Anthoxanthum*.

The fact that the British population seems to be genetically distinct from most continental material is certainly of great interest. However the now destroyed Brittany population is said to have the same chromosome count as British material (Stokes 1999). I am ignorant of what cytological work has been done on the other French populations; any pointers would be gratefully received.

Even though I am not convinced by arguments for a recent introduction of *Gladiolus*, or recent derivation from garden plants, the archaeophyte theory is less easy to dismiss; at least a degree of dependency on human activities is possible. On one hand, it does not seem to be a plant of ungrazed woodlands. On the other, it appears to depend on a canopy of bracken to shield it from grazing. Yet it clearly fares badly on sites where bracken litter accumulates. Tubbs (1986) suggested that decline of *Gladiolus* might be linked to decline in the autumn cutting of bracken. This practice yielded a resource (animal bedding) and also maintained a cover that shielded grass-heath species through the summer months, providing late season grazing.

The Forestry Commission is now attempting to simulate earlier management by autumn cutting of bracken on a number of sites, at intervals of a few years. But there is no programme for quantitative assessment of the effects on *Gladiolus*, or comparisons with control sites. All that can be said, from informal observation, is that the cutting seems to be doing no harm and is probably benefiting flowering performance. The New Forest Study Group do an excellent job with a rolling census across all known sites, but their resources are limited and each site can only be visited once every few years.

Stokes (1987) notes one site where *Gladiolus* was deliberately planted, and a few sites have without question been subject to large-scale disturbance in the past. One lies on a field system that it has been suggested to me originated in the Napoleonic wars, although there are also Bronze Age settlement remains in the neighbourhood. Here the *Gladiolus* is fairly frequent **within** the boundary bank of the field system, but very rare outside – although there is little observable difference in the present vegetation.

And this brings us to the many unanswered questions concerning *Gladiolus* perpetuation and dispersal. What parts do vegetative propagation and seed production play? What is the survival rate amongst the diminutive plants produced from offsets, often in their hundreds? What is a plausible mechanism for dispersal of either cormlets or seeds? (Would putting a cultivator through a declining site be a good idea?) How long are seeds viable? An excellent start was made on some of these and many other autecological topics by Stokes (1987), but the restricted scope and duration of the study limited his conclusions. Anyone looking for a research project on one of our most famous rarities need not be short of leads.

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ARCTIUM – HAS STACE GOT IT WRONG?

For many years I have ticked off Burdocks, *Arctium minus* agg., more or less unthinkingly on my Berwickshire recording cards and have passed on. Compilation of Master Cards for the *New Atlas* should have forced me to consider the significance of the old records in v.c. 81 for *Arctium minus* subsp. *minus* and *A. minus* subsp. *pubens* as rarities alongside the more widespread *A. minus* subsp. *memorosum*, but I ducked the issue by accepting only records of the rarer segregates that F.H. Perring had verified in his visit to the v.c. in 1960. This year I decided to set aside a day to have a proper look at *Arctium*, so I first checked the textbooks. I had forgotten that Stace had changed the goal posts in the second edition of his *Flora*! This I saw as an added incentive as I could try both the old treatment based on Perring and the new treatment based on H. Duistermaat as detailed in *Plant Crib 1998*.

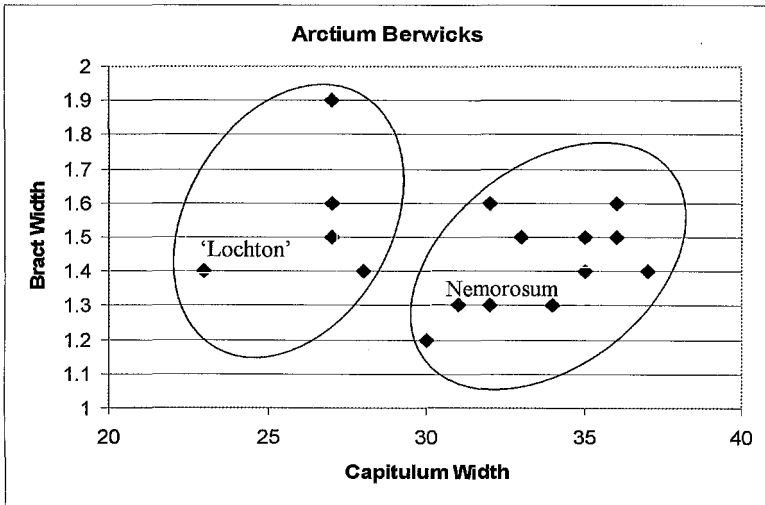
Perring believed that the taxonomy of *Arctium minus* agg. reflects the fact that *Arctium* plants normally self-fertilise, leading to a situation where any chance variation is perpetuated. The most likely

source of such variation is occasional out-breeding. Perring therefore recognised the existence of a host of local forms roughly separable into three groups which he treated as subspecies of *Arctium minus*: subsp. *minus*, subsp. *nemorosum* and subsp. *pubens*. Duistermaat in contrast uses different characters to separate two full species, *Arctium minus* and *Arctium nemorosum*, which he believes to be ecologically as well as physically distinct.

To test these treatments I measured *Arctium* plants from as widely scattered localities in my Berwickshire v.c. as I was able. Here are the results.

	GR - NT	Peduncle	Capitul. Height mm	Capitul. Width mm	Bract Width mm	Seed Length mm	Taxon sensu Perring
Measurements of a sample of 13 plants taken from as widely separated localities as practical							
18-Sep-04							
Gordon	647436	short	23	35	1.4	7.9	nemorosum
Greenlaw	714459	short	25	35	1.5	6.6	nemorosum
Cockburnspath	776716	short	23	34	1.3	6.9	nemorosum
Preston Plantation	795593	short	24	33	1.5	7.3	nemorosum
Pease Dean, nr	797704	short	20	31	1.3	6.3	nemorosum
Grantshouse, nr	810650	short	21	32	1.3	7.7	nemorosum
Dundock Wood, nr	818399	short	23	33	1.5	6.1	nemorosum
Greystonelees	957604	intermed	22	36	1.5	6.3	indet
Langton Mill, nr	777522	long	23	32	1.6	7.1	pubens
Brieryhill, nr	815540	long	26	36	1.6	6.8	pubens
Dundock Wood, nr	817400	long	21	30	1.2	6.9	pubens
Lamberton Shiel, nr	962599	long	25	37	1.4	6.3	pubens
Lochton	774383	short	17	27	1.9		'Lochton'
Measurements of a further sample of 4 plants taken from the group with the anomalous plant							
22-Sep-04							
Lochton	774383		23	27	1.6		'Lochton'
Lochton	774383		22	27	1.5		'Lochton'
Lochton	774383		20	28	1.4		'Lochton'
Lochton	774383		18	23	1.4		'Lochton'

The capitulum width and involucrel bract characters used by Duistermaat are presented graphically below



Results tested against the treatment by H. Duistermaat

The capitulum measurements fit *A. nemorosum*. The involucrel bract measurements fit *A. minus*. The anomalous plants at Lochton are not explained. The treatment is thus not consistent with the results.

Results tested against the treatment by F.H. Perring

I favour dropping the concept of subsp. *pubens* for Berwickshire plants as none of the plants show the typical pubescence and the character of peduncle length is variable in a small group of plants and even on a single plant. If this is done all the plants, other than those at Lochton, fit subsp. *nemorosum* on the basis of capitulum size. The Lochton plants are explained as a local variant originating in the manner described by Perring. Neither bract width nor seed length suggests any differential character and neither are characters used by Perring. The treatment is thus consistent with the results subject to the quibble about peduncle length which is itself explicable as further local variation.

Conclusion

The treatment of *Arctium* by Perring, as adopted by Stace in his first edition of his *New Flora of the British Isles* is supported. The treatment by Stace in his second edition, following Duistermaat, is not supported. The Berwickshire plants examined in this small study are considered to belong to *A. minus* subsp. *nemorosum*, *sensu* Perring except for one population of a local variant that is intermediate between subsp. *nemorosum* and subsp. *minus*.

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PHOTOGRAPHING PLANTS WITH A DIGITAL CAMERA

A single lens reflex (SLR) camera and a compact automatic camera are two very different instruments with different advantages. In general the reflex camera is much better for the careful focusing needed for plant photography and the compact automatic is much lighter for carrying in a pocket.

Good SLR film cameras can be bought for less than £300, much less, if you buy second hand. If you want digital images some processors will produce a set of images on a CD at the time of processing your film for about £5. One of the important things to do with an SLR camera when photographing flowers is to turn off the automatic focus because you want to decide which part of the flower is in the sharpest focus. Also with a film camera you can choose what speed film you are going to use, probably choosing a fast film for dull English autumns.

If you want an SLR digital camera you still have to pay around a thousand pounds and still have a bulky camera to carry.

Having carried a heavy SLR and various lenses up many hills I can see some of the advantages of a light compact automatic camera. Digital cameras are generally compact automatics but many come with excellent zoom lenses some of which can focus to within a couple of centimetres.

Digital cameras have a much smaller sensitive area ('film') than a 35mm camera so the lens can have a much shorter focal length and diameter to give the same picture. Typically a 10mm lens on a digital camera is approximately similar to the normal 50mm lens on a film camera. Obviously this is much lighter and it also has a larger depth of field than the 50mm lens. Generally digital cameras are fully automatic and on some you can override some of the automatic functions.

The big problem is focusing because the automatic focusing chooses what it wants to focus on. This is often the grass behind the flower! To overcome this I use the label out of a plant purchased at a garden centre, I start with it very near to the camera and slowly move it towards the flower I want in focus. The auto focus follows this and when I get to the flower I half press the shutter, which on my camera locks the focus. You can on some cameras lock the focus and move the camera backwards and forwards until the plant is in focus, this generally doesn't work because the image on the viewing screen is not fine enough to determine the focus accurately.

Another problem with compact digital cameras is that there is a very significant delay between pressing the shutter release and the camera taking the photo. This is particularly annoying taking any

sporting activity or children playing but it can also be a problem with flower photography if you want to catch the moment on a windy day when a flower is still.

A further problem is that you have a fixed sensitivity ('film speed') which is equivalent to about 100ASA. Again on some cameras you can electronically increase the sensitivity but this is at the loss of some quality.

Finally the production of the final print takes time and depends on the printer and paper used. The quality is not always dependent on the price but the cheapest printer and paper don't produce the best quality.

There is no substitute for an SLR camera, film or digital, when photographing plants but with a little patience a compact digital camera can take some very acceptable flower photographs under most conditions. Also a number of magazines and newspapers are now pleased to accept photos on disc as digital files.

The photo of a floret of *Ophrys omegaifera tyris* taken on a Nikon Coolpix 950 compact digital camera shows a satisfactory result (see colour section, plate 1).

Digital cameras continue to improve and come down in price. Cannon and Nikon have introduced digital single lens reflex cameras at around £700, the delays in taking the photo have been reduced on some cameras and the electronic methods of increasing digital 'film' speeds have also improved.

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STOP PICKING ON BLUEBELLS

In the last edition of *BSBI News* (No. 97), David Pearman reports his scepticism over the results of Plantlife International's Bluebells for Britain Survey (*Notes from the Acting Hon. General Secretary*, Pp 7-8). I was saddened both by this and by his dismissal of the work of 2000 volunteers. This is not the place for, and neither do I want to enter into, a point-by-point defence of the survey or the report. However, some comment is needed on David's observations.

The *New Atlas* mapped the distribution of *Hyacinthoides hispanica* × *H. non-scripta* in Britain and Ireland for the first time. Since this taxon was not widely recognised until 1987, it is still very unevenly recorded, and I suspect it is much more frequent than the map suggests. However, it is obviously very frequent in the wild, being found in almost every 10-km square in some areas (e.g. Norfolk and Somerset).

The question, however, is over what habitat do these hybrids grow in? David asserts that they *never* grow in broadleaved woodland. It would be good to see his survey of over 600 woods published, and it's unfortunate this data was not made available to the Bluebell Survey. However, I would be more than happy to show David woods in Caernarfonshire, Merionethshire, Denbighshire, Carmarthenshire, the Isle of Wight and Hampshire where I have seen hybrids growing happily, either with or without the native species. It is true that in the majority of these cases the hybrid is more frequent towards or near the edge of the woodland, but it is none-the-less present in that habitat, and there is nothing to preclude gene exchange with the native species. I know of several cases where introgression is clearly taking place, and a complete range of intermediates can be found easily. David claims that there is no evidence for the hybrid spreading by seed (or even if it is likely). Since the hybrid is fully fertile, arises naturally in the presence of its parents, and introgression is known to occur (Stace, 1997), it's obvious that it most certainly does spread by seed. Again, if David needs more evidence he is welcome to visit my own garden, where hybrid seedlings are abundant.

In the Bluebells for Britain Survey, our recorders reported finding either Spanish bluebell, hybrid bluebells, or a mixture of native and hybrids in 16% of broadleaved woodland they surveyed. Although a narrow majority (57%) of these sites are within or close to residential areas, this does not detract from the fact that sites that were once the sole domain of the native bluebell are now frequently home to Spanish and/or hybrid bluebells as well.

The main recommendation of the report is that more research is needed on the precise distribution of bluebell taxa (especially at a local, sub 10-km square scale), on the levels of gene exchange and introgression that are taking place, and on the relative competitive ability of the Spanish, hybrid and native bluebell. Deborah Kohn has just finished the first year of her PhD at Edinburgh, during which she'll be looking at precisely these issues. Funded by the Royal Botanic Garden, Edinburgh and the

Centre for Ecology and Hydrology, her initial findings indicate that the hybrid is as frequent in the wild, if not more so, than indicated by the Bluebells for Britain Survey, and that it is frequently found in broadleaved woodland. We await the results of her full research programme with interest. In the meantime, I suggest that the BSBI Science & Research Committee look into ways of getting BSBI members to examine their local 10-km squares, recording the presence of all three bluebell taxa in detail according to habitat. Individual colonies could even be monitored over several years to see how the proportion of native and alien plants change. Such a project could provide valuable data from across Britain and Ireland and would augment Deborah's work nicely.

David also observes that native bluebells are actually spreading in some areas. It would be nice if the survey of 350 Dorset hedgerows was published, or had been made available to us to draw on in the Bluebell Report. I would note, however, that we've never said that the native bluebell is declining, only that there is a potential threat from introgression with the Spanish or hybrid bluebell. I can only agree with David in that more work is needed on the spread of native bluebell (and the interesting suite of other species he mentions). Helpful data could perhaps again be drawn from a more detailed survey undertaken by the BSBI.

Apart from beginning to address gaps in our knowledge of bluebell taxa in Britain, the Bluebell Survey addressed another important issue that David failed to celebrate. Posters about the survey and an invitation to participate were sent to all 29,000 Primary and state Secondary schools in Britain. Over 100 schools took part, with pupils looking at their local areas (perhaps for the first time?) and recording the bluebells they found; some schools are now making the survey an annual event. Given the lack of botanical awareness and teaching in schools these days, the Bluebell survey proved an excellent catalyst for people to get involved. Over 2000 volunteers took part in the survey. Widespread media publicity attracted many helpers, many of whom had never recorded any plants before. Even my own parents took part of their own accord, and I couldn't even get them to record for the Atlas! I suspect many BSBI members also contributed. The fact that the hybrid is so common in Britain was widely raised, striking a particular chord with the gardening public, most of who were unaware that the 'English' bluebells they were planting were actually hybrids. While many participants probably cannot tell their grasses from their sedges, we cannot underestimate the importance of any project that connects the wider public with the plants that surround them. This connection is astonishingly tenuous these days.

Finally, it must be remembered that these surveys form part of the joint Plantlife International-BSBI Heritage Lottery Fund project *Making it count for People and Plants*. This grant funds the Local Change and County Rare Plant Register projects that are run by the BSBI, and the Single Species Surveys and Common Plants Survey that are run by Plantlife International. This partnership is an opportunity to bring together the expertise and resources of the only two national charities dedicated to the study and preservation of our flora, enabling both a greater understanding of our flora and to encourage a new generation of botanical enthusiasts. In the spirit of co-operation, full support (and not unnecessary criticism) of all the elements of the *Making it count for People and Plants* programme is warranted by both Plantlife International and the BSBI.

TREVOR DINES, Plantlife International (Wales Officer), c/o Countryside Council for Wales, Maes y Ffynnon, Ffordd Penrhos, Bangor, Gwynedd LL57 2LQ.

DAP answers:

Methinks he does protest too much!!

'I would note, however, that we've never said that the native bluebell is declining'

My memory is that that is what they have said endlessly! Specifically, *Bluebells for Britain – Plantlife report* (apparently undated, but published Summer 2004), p3: 'Our native Bluebell could be damaged by.... habitat loss, unsustainable collection, climate change, competition and hybridisation.' And also an earlier Plantlife report *'Death Knell for Bluebells?'*, where collection was the imminent Armageddon.

'It would be nice if the survey of 350 Dorset hedgerows was published, or had been made available to us.' *'It would be good to see his survey of over 600 woods published, and it's unfortunate this data was not made available to the Bluebell Survey'*.

As Trevor well knows the Bluebell survey, like all the other Plantlife surveys, requested information on a specific form, and I can recall no facility at all for bulk submission of data. If we had seen the report, that would have been the moment for that sort of input. The Hedgerow resurvey was a DEFRA project, number BD2107, and copyright rests with them.

As far as the recruitment from seed is concerned, the point, I think, is slightly different from that which Trevor comments on. If the garden hybrid grows anywhere in the wild, I suppose it could seed freely producing mixed populations of *H. non-scripta* and *H. non-scripta* × *H. hispanica*. But the crunch points are whether the garden hybrids introgress with natives (i.e. there is gene-flow), producing fertile intermediates. It can seed itself, but I took advice from a highly regarded academic member, who wrote – ‘I know of no evidence of recruitment of hybrids from seed in bluebell woods, and there is certainly no information to suggest that the hybrid out-competes the native for access to sites for recruitment. Again, I know of no data on gene flow from the hybrid (via pollen) into the bluebell (maternal) gene pool. Such work would be expensive and painstaking, and would be very prone to not finding anything (i.e. trying to prove a negative). The whole thing is a classic cock-up, producing a scare story where there is no story at all.’

‘In the spirit of co-operation, full support (and not unnecessary criticism) of all the elements of the Making it count for People and Plants programme is warranted by both Plantlife International and the BSBI.’

That is gratuitous! The note was in my notes as HGS, and was not the place for a paean for Plantlife, for which, as Trevor well knows, I have, like many other BSBI members, been involved from the start and am honoured to be one of their vice-presidents, and have spent much of the last 10 years trying to persuade both sides to interact better – something, in theory, knowing most of the participants so well, I should be uniquely placed so to do. My irritation at the time was partly that they had not troubled to consult us, their partners, in any way before publishing and briefing the Press. I am very glad they involved so many new people in recording.

SUBURBAN FERNS IN KINGSTON UPON HULL — EXPLOITATION OF A DECO-MURAL ENVIRONMENT

The City of Kingston upon Hull is built at the confluence of the River Hull with the Humber Estuary, largely on low-lying alluvial sediments. There are few local sources of suitable building stone, the material from the chalk Wolds to the west being too soft and porous. In consequence, with the exception of a few civic buildings and a handful of prestigious edifices, brick and tile are the dominant building materials. This fact, coupled with the dry atmosphere and low rainfall (around 700mm per year) suggests that the area would be unsuitable for most species of fern to flourish. This conception has been maintained for over a century, even by local botanists. Recent investigations have shown that several species of fern are actually thriving on brick walls in the city but, with some notable exceptions, this is largely in the older suburbs rather than the central district or the post-war developments.

The 1920s and 1930s saw a great expansion of the city boundaries. Acts of Parliament after the Great War sought to improve housing quality to provide ‘homes for heroes’ and the newly emerging middle class were seeking accommodation befitting their new status. The City Council and various Housing Trusts built new estates to house the working classes and private speculators sought to satisfy the demands of the middle classes. The latter developers strove to add distinctive cosmetic features that would differentiate their houses from the high quality accommodation now being provided by the Corporation. Wild (1990), in his description of the development of Hull, notes that the incorporation of bay windows was a common status-defining feature. From a botanical perspective, however, a more significant factor has been found to be a low (generally less than 1m high) front garden boundary wall built of engineering bricks and a soft (lime?) mortar. In Hull this is a very common feature of private housing of this period, the council houses, although often with similar sized gardens, were not generally so physically bounded.

Recent botanical examination of these walls has revealed the common presence of several species of fern – *Dryopteris filix-mas* (Male-fern), *Phyllitis scolopendrium* (Hart's-tongue), *Asplenium adiantum-nigrum* (Black Spleenwort), *A. ruta-muraria* (Wall-rue) and *A. trichomanes* (Maidenhair Spleenwort). One notable wall supports thriving colonies of *Ceterach officinarum* (Rustyback), probably the only station in the vice-county (see photos in Colour Section, plate 2).

John Fraser Robinson in his East Riding Flora of 1902 pays scant attention to any urban ferns, despite living in Hull as did many of his recorders. *Dryopteris filix-mas* was not considered to occur abundantly anywhere in the Riding, *Asplenium ruta-muraria* and *A. trichomanes* are described as frequent but all localities given are rural. *Asplenium adiantum-nigrum* is classified as very rare with a single known station over 30km to the east at Easington. Two historical locations are given for *Ceterach officinarum* but it was considered to be recently extinct. Somewhat surprisingly *Phyllitis scolopendrium*, probably the most frequently encountered urban fern, is considered to be 'not common, and apparently vanishing'. A slightly more positive picture is painted in Crackles' 1990 Flora where the distribution maps show records of *Dryopteris filix-mas* and *Phyllitis scolopendrium* within the city but none for *Asplenium ruta-muraria* or *A. trichomanes*. *Asplenium adiantum-nigrum* is not mapped but the taxon description makes no mention of any Hull records although it is described as 'possibly increasing'. *Ceterach officinarum* is still regarded as extinct, no new records in the 20th century.

The present abundance of fern taxa on certain suburban walls raises two major issues — what is so special about their habitat and have there been changes in broader environmental factors that have driven a change in the fern flora of the town?

Ferns are to be found on other local, brick-built structures but they usually only occur abundantly where some other feature contrives to add additional moisture — for example a leaking gutter or blocked down-pipe. In 1969 Walters coined the term 'ferroviatic' to describe the unusual environment provided by railway brickwork, particularly that found supporting the platforms of old stations. It was suggested that it was the higher humidity of the micro-climate that enabled ferns to flourish here, especially *Phyllitis scolopendrium* and *Asplenium ruta-muraria*. In many ways the suburban garden walls are similar to this ferroviatic habitat. The most obvious common features of these habitats would appear to be shelter and shading. The taller houses on either side of the road form a sheltered 'gorge' and the adjoining gardens ensure a higher humidity. Although ferns do occur on sunny, exposed walls, it is often found that a surreptitious examination will reveal that the shaded inside supports an even more lush growth. In extreme cases Hart's-tongue has been seen to escape downwards into the adjoining border where it grows to a much greater size. With *Dryopteris filix-mas* the reverse situation is more commonly observed, with small plants establishing on the wall from a parent growing (usually uninvited) in the garden. What may be more significant is the fact that the railway platforms and garden walls are both built of impervious engineering bricks and a soft mortar. This combination ensures that any available moisture is concentrated and stored in the mortar, making it available to the ferns, rather than soaking away into the bricks. In Hull's post-war developments, garden walls are invariably built with porous bricks and a hard, cement mortar. In no case has any fern growth been found on such walls.

The abundance and variety of these wall ferns is not sufficient in itself to demonstrate an environmental change since Robinson's 1902 Flora. The habitat on which they are now found was yet to be constructed. However, the observation that Hart's-tongue was declining is of note. This is now one of the most abundant ferns in the City and may be found quite commonly in a variety of other habitats, particularly on old, damp brick-work. The lack of records for the three *Asplenium* taxa in Crackles' 1990 flora may in part be due to recording bias but her observation that *Asplenium adiantum-nigrum* may be increasing is significant. It is generally acknowledged that atmospheric sulphur tends to suppress the growth of ferns (and lichens) but that oxides of nitrogen may actually stimulate their growth. Over the last three or four decades there has been a marked decline in the amount of sulphur in the atmosphere but increases in traffic have raised nitrogen levels. This may have contributed, at least in part, to an increase in fern growth and diversity. It is also possible that climatic changes may have occurred that promote fern growth. Warmer, wetter winters would be expected to favour many fern taxa and it may be significant that in 2004 the author found *Asplenium marinum* (Sea Spleenwort)

growing on the outer walls of the Hull marina, a new southernmost outpost on the east coast by almost 80km (see photo, Colour Section, plate 2). A single specimen of *Polypodium interjectum* (Intermediate Polypody) was also observed on old wet brickwork near to the River Hull. It will be interesting to see whether there is any expansion of this taxon, a common companion to *Phyllitis scolopendrium*, *Asplenium ruta-muraria* and *A. trichomanes* on the walls of more westerly regions.

This unusual habitat is very useful for monitoring environmental change in that it is extremely easy to survey and each wall has a unique, universally accepted, address. Changes in the composition of the fern flora and its abundance with time can be unequivocally determined. There are however conservation issues. There is a general and fortunate neglect of these garden walls but many are now in need of some pointing. When this is done with modern cement mortar there is little likelihood of recolonisation by ferns. Some residents perceive the uninvited pteridophyte growth as 'untidy' and regularly remove the fronds. In more extreme cases the walls are being demolished to provide off-street parking in a block-paved front garden. These suburban walls are a finite resource that is being slowly eroded. The concentration of ferns in these private, Art Deco period suburbs seems to be little recognised and it would be interesting to know whether it is to be found in other cities or whether, due to an unusual combination of socio-economic and climatic factors, it is unique to Hull.

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FROGS AND BUTTERCUPS

The correlation between the cyclic frequencies in buttercups and frogspawn (L. Williams, *BSBI News* 97: 20-21) is intriguing. Whilst I cannot think of a causal connection, there is one link between the taxa — their scientific name. I have always understood that the generic name for buttercups, *Ranunculus*, is derived from *Rana*, the Latin for frog and the genus to which our European species belong. Until now I have never heard a convincing reason for this choice of name. Is the recent observation a rediscovery of ancient knowledge?

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SCHOENOPLECTUS PUNGENS ON THE SEFTON COAST

Sharp Club-rush, *Schoenoplectus pungens*, is a nationally rare UK Species of Conservation Concern. It has only been recorded from two localities in Britain: St Ouens Pond in Jersey, where it has not been seen since the early 1970s, and wet dune-slacks in v.c. 59 South Lancashire (Savidge, Heywood & Gordon 1963; Stace 1997).

The plant was first collected on what are now the Sefton Coast sand-dunes by W.G. Travis in 1909, though he did not identify it correctly until 1928. It was 'found in a hollow among the dunes near the sea-coast in the vicinity of Formby', as a patch of about 25 square yards in area. Associated species included *Salix repens* (Creeping Willow), *Parnassia palustris* (Grass-of-Parnassus), *Pyrola rotundifolia* subsp. *maritima* (Round-leaved Wintergreen) and *Schoenoplectus tabernaemontani* (Grey Club-rush). As the Sharp Club-rush had obviously been there a long time and no aliens were present, Travis concluded that the colony was native (Atkinson & Houston 1993), though Clapham, Tutin & Moore (1987) record it as 'introduced in Lancashire.'

Whether or not the plant is native in v.c. 59 is an on-going debate. Certainly, its habitat in Massams Slack was only formed shortly before Travis's original discovery. In the late 19th century the Weld-

Blundell estate erected extensive brushwood fencing on the backshore, successfully creating a high dune ridge which isolated the slack. One possibility is that, early in the 20th century, a botanist collected *S. pungens* in Jersey and planted it in apparently suitable habitat in the young Massams Slack. 'A lot of this sort of thing went on amongst botanists... Charles Elton, the eminent animal ecologist, admitted to the Nature Conservancy that his botanist brother had planted Sundew and Butterwort down Fishermans Path' (N.A. Robinson in litt.).

Blanchard (1952) described the habitat in the northern part of Massams Slack in what later became Ainsdale Sand Dunes National Nature Reserve, as 'the damp *Salix repens* association', finding *S. pungens* co-dominant with *Eriophorum angustifolium* (Common Cottongrass). She also noted it further south in the same slack, growing in a peat-cut, from which it was spreading to surrounding, dryer areas.

The colony in Massams Slack, close to the well-used Fishermans Path, still existed in 1968 when N.A. Robinson (in litt.), Warden Naturalist for the reserve, was shown it. 'It was in the dry margin amongst sparse vegetation, but it looked depauperate, just short pale shoots.' In 1972, A.C. Aldridge, the Reserve Warden, counted 39 plants (12 in flower), covering an area of about 20×15ft (28 square metres). He noted that the plants were shorter than in the 1950s, were often chlorotic, subject to rabbit grazing and that the 'slack has dried out drastically in recent years'. Associates included *Hydrocotyle vulgaris* (Marsh Pennywort), *Mentha aquatica* (Water Mint), *Parnassia palustris*, *Pulicaria dysenterica* (Common Fleabane) and *Salix repens*.

By 1978, this colony was extinct, possibly due to the progressive drying out of the slack, competition from maturing vegetation and rabbit grazing. Sand-blow from pedestrian-damaged dunes at Fishermans Path may also have been a contributory factor.

Fortunately, in 1972, material from Massams Slack had been translocated by A.C. Aldridge to the edge of a newly excavated pond near the Reserve Office. Here, a small population (40 plants in 1972) survived to the early 1990s, though it had to be protected from rabbits by an enclosure. It gradually declined in vigour and eventually disappeared, perhaps due to overshadowing by scrub and dramatic fluctuations in the water-table (Simpson 1990; N.A. Robinson in litt.).

In 1990, material from Ainsdale stock which had been grown on at Liverpool University was transplanted by D.E. Simpson to four adjacent sites at Birkdale Sandhills Local Nature Reserve, about 4km to the north. They were chosen on the basis of a literature search which suggested that optimum conditions for *S. pungens* were 'on the edge of ponds in salt-marshes where freshwater is running out of the dunes' and 'at the margins of ponds near the sea' (Simpson 1990).

Subsequent monitoring revealed that, at two of these sites, Tagg's Island scrape and slack 39 scrape, the plant flourished, forming large, spreading patches (personal observations). Then, in 1999, D. Wrench came across a patch of Sharp Club-rush on a recently formed area of embryo dune, dune-slack and salt-marsh on the nearby foreshore, known as Birkdale Green Beach. The site was close to a drain outfall from Tagg's Island marsh so it was reasonable to conclude that the plant had spread naturally from the translocated population at Tagg's Island scrape. By 2003, this patch measured 11×8.5m (personal observations).

In June 2004, I conducted a detailed monitoring exercise at Birkdale for the North Merseyside Biodiversity Action Plan. Five discrete colonies of *S. pungens* were found, two on the edge of the scrape in slack 39, one at the southern end of Tagg's Island scrape (these being sites of the 1990 translocation), a new one on the western side of Tagg's Island marsh, and Wrench's patch on the Green Beach. Locations and quantitative data are given in Table 1. The total area occupied by the plant is about 173 square metres, the largest patch being that on the Green Beach (90 square metres).

A list of associated vascular plants is shown in Table 2. A total of 44 taxa was found, most being typical of dune-slacks on the Sefton Coast. Site 5 (the Green Beach) is the most maritime of the localities, supporting *Juncus maritimus* (Sea Rush) and *Aster tripolium* (Sea Aster), as well as freshwater species.

Although samples to determine National Vegetation Classification communities were not taken, it is clear that Sharp Club-rush favours the S21c *Bolboschoenus maritimus* swamp, *Agrostis stolonifera* sub-community and the SD16 *Salix repens* – *Holcus lanatus* dune-slack. In places, especially at sites 1

and 2, it was apparent that *S. pungens* was spreading upwards onto the dryer fringes of the scrape, about 0.5m above the current water-table. However, the most vigorous shoots were generally confined to seasonally-flooded areas. Although the plant seemed to be competing well with most vegetation at all sites, it is clearly restricted at sites 2 and 3 by *Salix cinerea* (Grey Willow) bushes, which could do with being removed. No effect of rabbit grazing was noticed.

Clearly, *S. pungens* is now well-established and thriving at Birkdale and consideration is being given to transplanting it back to Ainsdale NNR where it was originally found 95 years ago.

Site no.	Location	Grid Ref. (SD)	Approx. area (m ²)	Max. shoot ht (cm)
1	Scrape, slack 38	31482 15645	8	70
2	Scrape, slack 38	31473 15637	18	80
3	Tagg's Is. Scrape	31202 15430	50	90
4	Tagg's Is. Marsh	31257 15550	7	105
5	Green Beach	31315 15696	90	90

Table 1. Distribution and status of Sharp Club-rush at Birkdale on the Sefton Coast

Taxon	1	2	3	4	5
<i>Agrostis stolonifera</i>	+	+	+	+	+
<i>Alisma plantago-aquatica</i>					+
<i>Apium nodiflorum</i>		+	+		
<i>Aster tripolium</i>					+
<i>Blackstonia perfoliata</i>	+				
<i>Bolboschoenus maritimus</i>	+	+	+		+
<i>Carex arenaria</i>	+	+	+		
<i>Cirsium arvense</i>	+	+	+	+	
<i>Dactylorhiza incarnata</i>		+			
<i>Dactylorhiza praetermissa</i>			+		
<i>Eleocharis palustris</i>					+
<i>Epilobium hirsutum</i>					+
<i>Epilobium parviflorum</i>	+				
<i>Epipactis palustris</i>	+				
<i>Equisetum arvense</i>			+	+	
<i>Festuca rubra</i>		+	+	+	
<i>Galium aparine</i>				+	
<i>Galium palustre</i>					+
<i>Holcus lanatus</i>	+	+	+	+	
<i>Hydrocotyle vulgaris</i>			+		
<i>Juncus articulatus</i>					+
<i>Juncus maritimus</i>					+
<i>Leontodon saxatile</i>					+
<i>Lotus corniculatus</i>				+	
<i>Lycopus europaeus</i>	+				
<i>Mentha aquatica</i>	+	+	+		+
<i>Myosotis laxa</i>	+				
<i>Oenanthe crocata</i>				+	
<i>Ononis repens</i>					+
<i>Pastinaca sativa</i>				+	
<i>Phragmites australis</i>					+
<i>Plantago lanceolata</i>				+	
<i>Ranunculus ficaria</i>					+
<i>Ranunculus lingua</i>	+				
<i>Ranunculus repens</i>	+	+	+	+	
<i>Rhinanthus minor</i>				+	
<i>Rumex crispus</i>				+	
<i>Salix cinerea</i>			+	+	
<i>Salix repens</i>	+	+	+	+	
<i>Samolus valerandi</i>					+
<i>Taraxacum officinale</i>					+
<i>Trifolium repens</i>				+	+
<i>Tussilago farfara</i>				+	
<i>Typha latifolia</i>	+				+
Totals	44	15	14	23	11

Table 2. Vascular plants associated with Sharp Club-rush at five Birkdale sites

Acknowledgements: I am grateful to Alice Kimpton and Lynne Collins at English Nature, Ainsdale, for access to reserve files. Neil Robinson kindly provided information and ideas on the history of Sharp Club-rush at Ainsdale.

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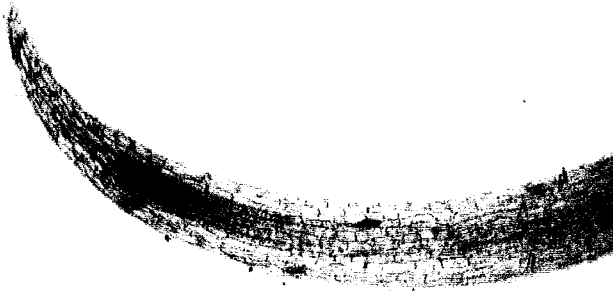
MAGIC VIOLAS

Regarding Steve Hawkins note on violet and white pansies in *News* 97: 29. I once grew a small, probable hybrid, pansy acquired under the name of 'Magic'. I was told it got its name from the way its flowers changed colour with the prevailing temperature during their development. In cool weather it produced blue flowers. In hot weather it produced white flowers. Blue flowers always seemed to stay blue and white flowers stayed white. I was so intrigued by this quite startling change of colour I thought I would start a collection of other plants which similarly responded to temperature. But I never found another and 'Magic' has long gone the way of most violas in mid Wales. I am not sure that temperature at time of flower development fully explains Steve's observations but he might like to experiment on his plants with the odd hot water bottle!

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LEMNA TRISULCA: ROOTS AND ROOT CAPS

In my article '*Lemna* mosaics and water snails' (*BSBI News* 96: 31, April '04) I alluded to a rootless colony of Ivy-leaved Duckweed from Swindon. After two years of making sure that there were no eggs or tiny specimens of Marsh Pond Snails (*Lymnaea palustris*) in containers, I induced roots to grow. These roots were shorter than the *L. minuta* roots, seldom reaching 2cm long. The root caps were 1-1½mm long and 0.15mm in width. All were curiously curved and pointed, quite unlike those of *L. minor* and *L. minuta* (see fig. below). Algae did invade into some of the root cap sheaths, but on the whole those of *L. trisulca* were less green than those of *L. minuta*. However, they became greener in mixed populations, as did the root shafts. The greenness of the root shafts appeared to be due both to invading green algae, and intracellular root chloroplasts.



Lemna trisulca root & root cap. Photo J.E. Oliver © 2004

Acknowledgements: My thanks to Joan Davies for developing the microphoto and to Richard Aisbitt for the original *Lemna trisulca* colony.

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LEMNA TRISULCA: APPARENT PROGRESSION OF ALGAL ENDOPHYTES INTO THE ROOT CENTRES

Ivy-leaved Duckweed (*Lemna trisulca*) roots appear to almost as susceptible to invasions by green algae as the roots of Least and Common Duckweeds (*L. minuta* & *L. minor*). See Oliver, J.E. 'Lemna minuta VI. Diverse algal endophytes within root tissues', *BSBI News* 97: 34-35, Sept. '04). This set of 6 microphotos (colour section plate 3) shows the progression of green endophytic algae towards the insides of the roots of *L. trisulca*.

Microphotos

1. This shows spherical algae fairly evenly spaced inside the root cap, but outside the main root tissues. The large rectangular cells are root cap cells. The algae are 4-8 μ (microns) in diameter.
2. Within this root cap, the algae are spherical or ovoid, tend to clump, with one dividing 4-cell packet. Their diameter was c.9 or 10 μ . At a slightly deeper focus, the faintly discernible green bodies of 2-3 μ diameter were characteristic of those in the ensuing four photos.
3. These are rectangular root cortex cells from 20-30 μ long. The green bodies, dimpled discs shaped like human red blood cells, measure 2-3 μ in diameter. They seem in places to be squeezing between cell walls; but some could be intracellular root chloroplasts.
4. Here the 'Green erythrocytes', (and 2 or 3 larger green endophytes) are concentrated around the stele (central vascular cylinder), rather than being mainly in the root cortex, as in photo 3.
5. This is an enlarged and even deeper photo than 4, but of another root centre. It is still hard to know if the central green bodies have migrated into the stelar vessels, or are mainly around and between endodermal cell walls.
6. All the endophytes which appear in this enlarged photo, and seeming to be streaming within the fluids in the vessels in the central depths of the living root central vascular cylinder, had been as green as in photo 5. The plant had been in sunlight for an hour, permitting photosynthesis. I then infiltrated an Iodine/Potassium iodide/Methanol solution under the coverslip. The 20 or so visible endophytes changed to the brown colour are therefore likely to be Chlorophyte algae, showing the positive starch-iodide reaction. However two other algae of a different type are just discernible, which remained green and unstained. These may well be algae from a different phylum, whose photochemistry does not produce starch but other carbohydrates.

Inside the root depths, even with maximum illumination, detail is hardly visible to the human eye. Microscope focussing and centring for photos 5 & 6 required guesswork, trial and errors, as play-backs on the camera monitor could be much clearer than direct vision through the eyepieces.

Inside the roots of *L. trisulca*, as in some other vascular aquatics, there appear to be algal endophyte invasions, new green worlds of botany in miniature: symbiotic associations seem possible.

Acknowledgement: My thanks again to Joan and Brian Davies for their help with all the photographic aspects.

JACK E. OLIVER, High View, Rhyls Lane, Lockeridge, Nr Marlborough, Wilts. SN8 4ED

GALL AND POPLARS

In reply to Christopher Lowe's letter in *BSBI News* 96, and in preparation for this year's poplar-hunting season.

We have in Wirral some natives (30 so far), many hybrids, and a number, at least 12 to date, of backcross hybrids between the hybrid and the native. Fiona Cooper visited in 2003 and sorted this out for us, as we were severely puzzled by the backcross hybrid trees, which are all very large, impressive specimens and, of course, intermediate in character. Of the 60+ trees I have so far examined, I have found the spiral gall on the ones that otherwise correlated with native characters, but NOT on the hybrid OR the backcross. So I am also hoping that the insect is clever enough to know the differences! The gall appears fairly early in summer, and can be seen quite easily with binoculars by looking up into the canopy. It favours shaded leaves so is often present on low branches and sprouts from the stem. In

the last 2 years, I have found it within a minute or so of looking at any native, but prolonged gazing at hybrids and backcrosses has failed to find any. A word of warning looking at fallen leaves – Lombardy poplar is a variety of the native and also harbours the spiral gall, so make sure there are none nearby.

I thought I had another likely character; in hybrids and backcrosses the unfolding leaves show red, whereas the native are green or barely tinged. However I have a tree to check this spring which looks like the backcross, but the owners say it comes out green . . . !

Any thoughts on the origin of the backcrosses (male and female occur)? Fiona Cooper reckoned a nursery must have let both native and hybrid grow old enough to flower and so cross. Certainly we have mixed roadside plantings of native, hybrid, backcross and Lombardy, which suggests a nursery somewhere had them all mixed up. Does the backcross occur elsewhere in Britain?

HILARY J. ASH, 5 Dearnford Avenue, Bromborough, Wirral, CH62 6DX. Cheshire Black Poplar BAP group.

CARDAMINE BULBIFERA (CORALROOT) IN HARROGATE

I have been recording a similar plant in The Nidd Gorge Conservation Area that takes in the River Nidd and oak Beck, for a number of years. All of the plants that I have come across have been identified as the neophyte *Cardamine ptarmicifolia*, as has the original colony at Harlow Carr Gardens (RHS). These identifications have been verified by other botanists and checked using the *Plant Crib 1998*. On Oak Beck it grows together with other neophytes that are known to have originated at the RHS gardens.

The plants grow on sandy alluvial banks and sandy bays along the waterways usually in association with *Allium ursinum* (Ramsons). Specimens have been found as far down the river Nidd to a point where the nature of the banks changes to steep cut-off slopes, the bulbils appear to be unable to find a suitable habitat to land on (SE33902.57660). There have not been any records of plants being found lower downstream within the conservation area. A recent survey upstream from Knaresborough (SE29163. 56965) in the Conyngham Hall area did not produce any records. Many suitable sites were occupied by the invasive neophyte *Impatiens glandulifera* (Indian Balsam) that has formed dense stands making it very difficult for other plants to colonise.

On the River Nidd many of the stands of *C. ptarmicifolia* are transient. During periods of heavy rain in upper Nidderdale the water levels rise as does the rate of flow and the soft alluvial banks are scoured removing any vegetation that has been established during calmer periods. *C. ptarmicifolia* is a 'here today, gone tomorrow' plant on the River Nidd and as such it is very difficult to record. The waters of Oak Beck are less susceptible to scouring and the stands are stable.

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ROSEBAY WILLOWHERB: AN UNUSUAL POPULATION

Further checked

North of West Woods in Wiltshire, there are colonies of Rosebay Willowherb (*Chamerion angustifolium*) whose plants differ in three ways from the descriptions and pictures in British Floras. The third difference is highly distinctive.

1. Height: Seven of the first ten British Floras checked (including CTW & CTM) give 120cm as the maximum height. Three (including Stace) permitted 150cm. Many maxima for many genera of farmland weeds in these parts are grossly inadequate (e.g. Nettles, Cleavers, Oraches, Goosefoots, Willowherbs, Bracken, Thistles (especially Welteed, Spear and Marsh)). Putting aside the unworthy thought that contributors to British Floras have avoided agricultural areas of Wessex and Central England for the past 50 years, Nitrate/Phosphate enrichment and warmer climate may account for bigger plants. Even so, it was hard to find any of the smallest Rosebay Willowherb plants in these

colonies shorter than the above maxima (unless run over by a tractor). The two shown in the photo (p. 37) (not the tallest) were over 250cm and 200cm.

2. Branching: The larger Rosebay Willowherb on the right can be seen to be putting out extra racemes from the bushy middle and base. Other plants, perhaps 40%, had branched inflorescences, panicles rather than racemes. As one of Britain's most beautiful wild plants, from July to September these ones were even more spectacular.

3. Renewing of growing points above the inflorescences: The two main September racemes in the photo show dehisced fruits, above which are unopened fruit capsules. Above these are developing fruits, topped in turn by a new set of the spirally arranged green leaves. Most plants in most of the colonies showed this renewal of the spirally leafing stems above the infructescences.

Acknowledgement: My thanks to Joan Davies for developing the digital photos and selecting for publication.

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BOTANY IN LITERATURE – 35

The eighteenth and nineteenth centuries were a time of exploration and discovery for those interested in the natural sciences. Inspired by the travels and writings of Alexander von Humboldt, Darwin made his famous voyage (1831-1836) on HMS *Beagle* and subsequently wrote *Voyage of the Beagle* (1837) and *On the Origin of Species by means of Natural Selection* (1859).

George Eliot (Mary Ann Evans) (1819-1880) did not hesitate to include the resulting scientific facts in her novels and other writing. The following brief extract is from a contribution entitled 'Silly Novels by Lady Novelists' to the *Westminster Review* in October 1856 and is taken from her *Selected Essays, Poems and Other Writings* (p. 147):

Writers of the mind-and-millinery school are remarkably unanimous in their choice of diction. In their novels, there is usually a lady or gentleman who is more or less of a upas tree.¹

Note

1. *upas tree*: *Antiaris toxicaria** (Pers.) Lesch. of the family Moraceae (Mabberley, 1987) or Urticaceae (*Index Kewensis*), both members of Order 6. Urticales in *The Cronquist System* (1981). Found in tropical Asia, i.e. southern parts of India, Sri Lanka, Burma, southern China, Indonesia (especially Java), it grows to a height of 60 to 80 metres (197 to 262 feet). Flowers are male and female catkins borne at the tips of branches, leaves leathery, the upper surface glossy, on short petioles and ovate with a symmetrical cordate base, but softly spiky at the apex. The margin is repand and undulate. Fruit is an elongate berry covered with fleshy scales and containing a hard pit. The trunk is straight and cylindrical with a smooth, whitish bark and is the source of a poisonous latex used to make arrow poison ('ipo', c.f. *ūpas*, the Malay word for poison) which is stored in calabash containers (Stáry, 1983).

Fable has it that the tree poisons its surroundings and is fatal to approach. Poisoning is due to the presence of the cardiac glycosides antiarin and antiiosidin, and the prognosis grave, death usually occurring due to cardiac arrest (preceded by the symptoms of vomiting, diarrhoea, and weakening of the pulse).

Alexander von Humboldt (1769-1859) mentions it in *Personal Narrative* (Wilson, 1995: 253) (an abridgement and translation of his monumental 1814-1825 *Relation Historique du Voyage aux Régions Équinoxiales du Nouveau Continent* (volumes 28-30)) thus: 'The poison of the Amazonian Tikuna, the *Upas-tieuté* of Java and the Guianan curare are the most poisonous substances known'. (c.f. the batrachotoxins found in the skin secretions of the kokoi or arrow-poison frog, *Phylllobates latinasus*, of north-west Colombia, 0000004 oz being enough to kill a man). Dryden (1631-1700) also wrote of it in his 1687 political-poem-cum-beast-fable *The Hind and the Panther* (1.231): 'As only Indian shades of sight deprive,...', alluding to the myth that even just being within the shade of the tree caused blindness. (No doubt Eliot was aware of Dryden's line).



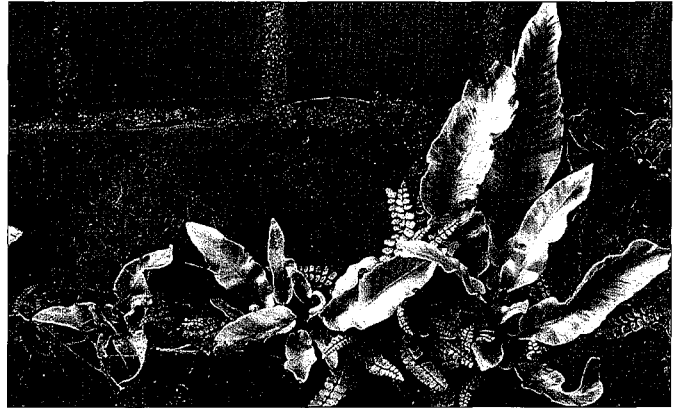
Ophrys omegaifera dyris taken on a Nikon Coolpix 950 compact digital camera by R.M. Henson
© 2004



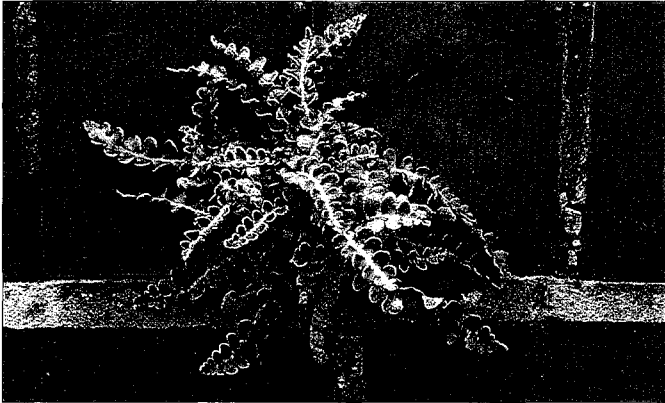
Leucanthemum paludosum on Swansea Marina, Glamorgan.
Photo Tony Lewis © 2004



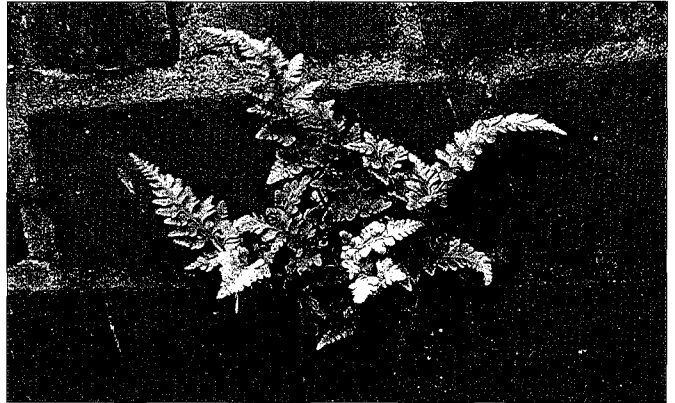
Asplenium marinum



Phyllitis scolopendrium and *Asplenium trichomanes*

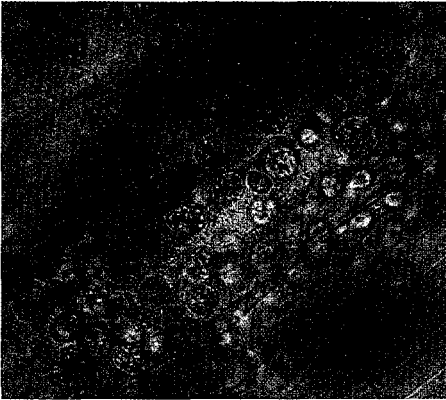


Ceterach officinarum

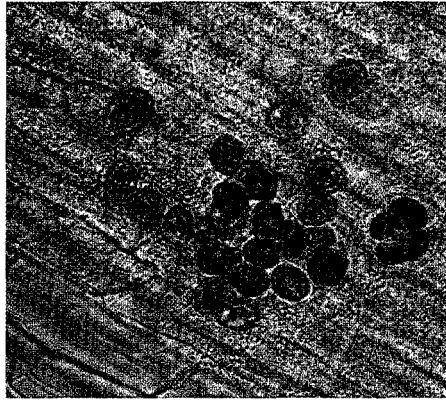


Asplenium adiantum-nigrum

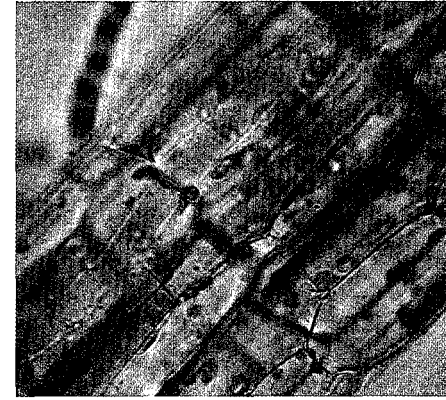
All photos taken in Kingston upon Hull by R. Middleton © 2004



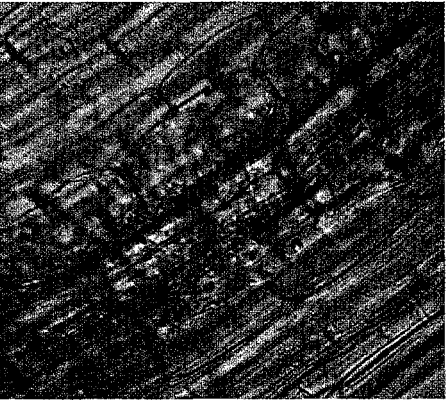
1. Algae inside the upper third of root cap sheath



2. Algae inside the middle third of root cap sheath



3. Algal endophytes within the root cortex. Possibly also intracellular chloroplasts



4. Algal endophytes around Central Vascular Cylinder

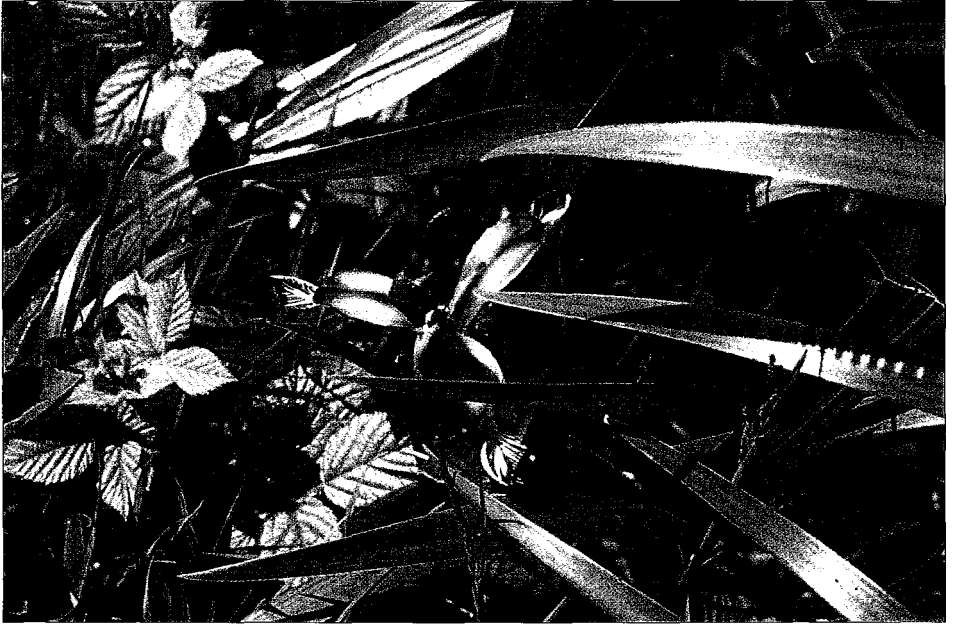


5. Green bodies apparently migrating inside the root centre

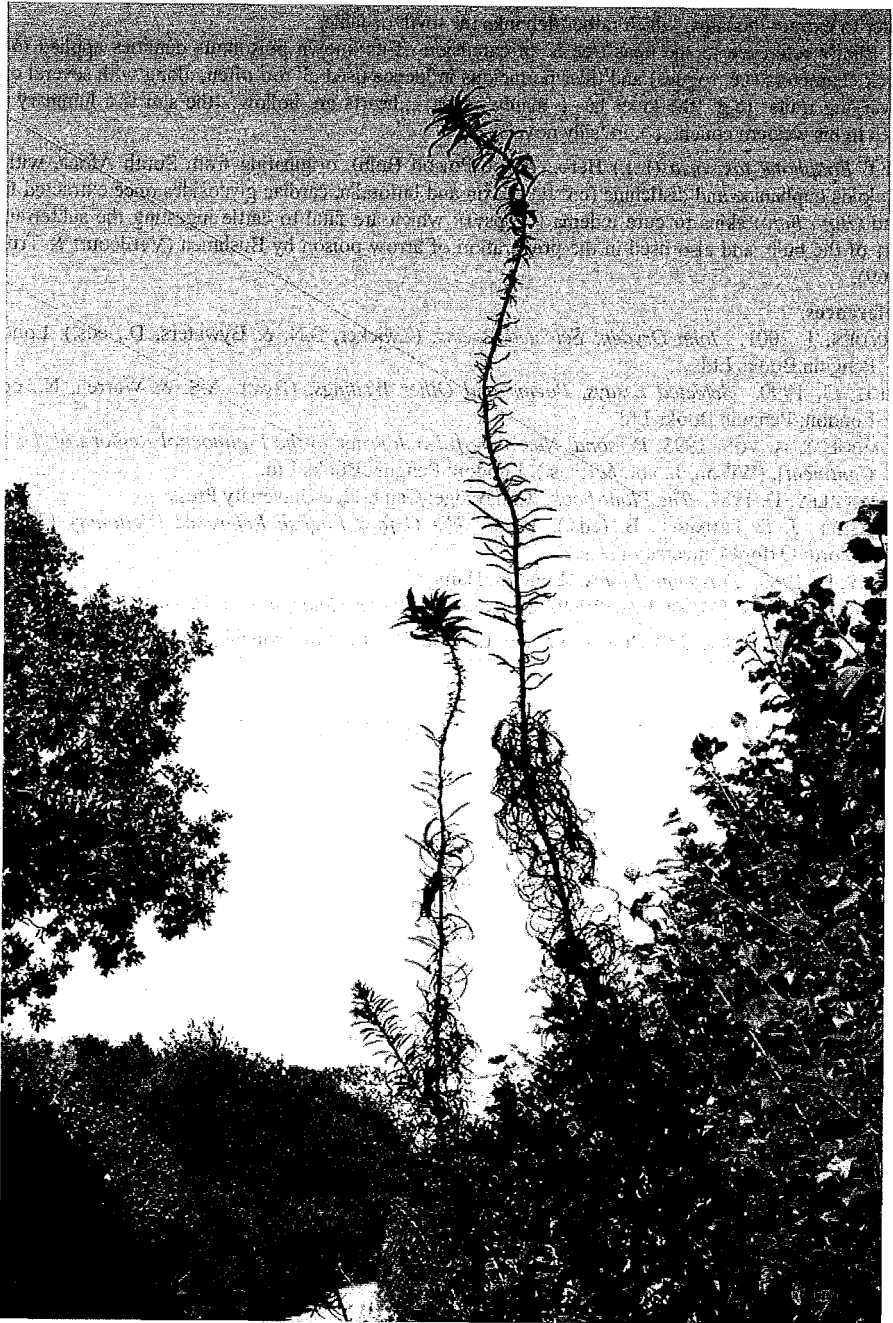


6. Many green endophytic algae (iodine stained) & 2 non-staining green algae

Lemna trisulca. Apparent progression of green endophytes in the root centre. Photos J. Oliver © 2004



Iris graminea var. *pseudocyperus* at Dunraven, Glamorgan. The upper photo taken *in situ* showing leaves of *I. foetidissima*. Both photos Tony Lewis © 2004.



Rosebay Willowherb, photo by Jack Oliver, © 2004

However, if arrow poison can be made from it, obviously one has to get near enough to the trunk in order to extract the latex, which rather debunks the myth or fable.

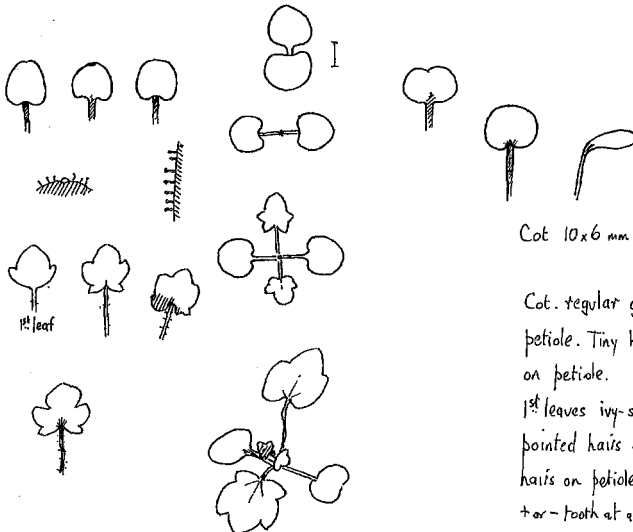
Eliot's reference to the upas tree is an extension of its known poisonous qualities applied to the stock characters (i.e. rogues) and their pernicious influence used all too often, along with several other unvarying traits (e.g. 'the lover has a manly breast; ...hearts are hollow;...the sun is a luminary that goes to his western couch...;'), in 'silly novels'.

* c.f. *Boöphonë toxicaria* (L.f.) Herb., (Cape Poison Bulb), originating from South Africa, with its alkaloids buphanine and distichine (c.f. bufotoxin and bufotalin, cardiac glycosides once extracted from toad (*Bufo bufo*) skins to cure oedema (dropsy)), which are fatal to cattle ingesting the subterranean part of the bulb, and also used in the preparation of arrow poison by Bushmen (Verdcourt & Trump, 1969).

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- MARGOT É. SOUCHIER, 26A Dryden Avenue, London, W7 1ES; m.e.souchier@amsolve.net.

DRAWING OF CYMBALARIA MURALIS SEEDLINGS



Cot. 10 x 6 mm. petiole = lamina

Cot. regular glandular hairs on lamina and petiole. Tiny knob at tip. Some long hairs on petiole.

1st leaves ivy-shaped, shiny; ± short, mainly pointed hairs on lamina; longer pointed hairs on petiole. (Under-surface may be purplish) + or - tooth at apex of each lobe.

Cymbalaria muralis seedlings (scale bar equals 1 cm) del. S. Evans © 2005
(see *BSBI News* 83: 68 & 90: 60 for a more detailed explanation of these drawings)

ALIENS

A SECOND SPECIES OF THE FERN GENUS *CYRTOMIUM* NATURALLY ESTABLISHED IN WEST CORNWALL

In early September 2004, a single specimen of the alien fern genus *Cyrtomium* (Aspidiaceae), but taxonomically different from the naturalised *C. falcatum* previously recorded in Cornwall (French, Murphy & Atkinson 1999), was found naturally established in old wall mortar in inland west Cornwall, v.c. 1. This thus brings to two the number of species of this genus now naturally established in the county.

The habitat of the plant was in the mortar of a shady corner of an old brick-built Estate wall, at Trevice Estate, Gwennap, Cornwall, c.90m altitude, first seen on 9th September 2004, where the plant had been recently exposed to view by removal of adjacent shrubbery. The wall was a tall (over 3m high) old brick-built one which forms the NNE-facing side of a moderate-sized walled garden, and the plant had established at just over 1m from the ground on the shady north side of this wall. Its site was near to where an inner corner of what had been an old boiler house wall adjoined the main wall, forming clearly a locally moist, sheltered, shaded and humid enclave.

The plant had clearly been well-rooted into the soft and crumbly old wall mortar. But when first found, it remained clinging to the old mortar by only a couple of its fine roots which remained firmly embedded, though the rhizome was hanging, having been already largely disturbed from the wall by the process of removal of the shrubbery which had formerly sheltered it, and which removal had revealed it. The fern could still be seen to have been well-established, probably for several years, with five quite elongate fronds of surprisingly narrowly-pinnate outline. The fronds varied in length from under 15cm to the two largest of 24cm and 36cm length respectively (see illustrations p. 41), and both of the largest of which were already fully sporangium-bearing (with most spores already shed by September) through almost the whole of their blades. Thus the plant had not only established, but also completed its life-cycle successfully in this old-wall mortar habitat.

Had the rhizome remained firmly anchored, the plant would have been left *in-situ* and its onward progress followed-up, but with both minimal attachment remaining and the formerly-protecting shrubbery already removed, it looked unlikely to survive at all if now left in this condition. It was thus reluctantly decided that the plant would have a more assured future, and could be grown for better taxonomic determination, if carefully removed and potted-on to grow further under care. This has therefore been done, with the two largest fronds and one of the smallest (already withering) fronds removed to help its onward re-establishment, and these were pressed to form voucher specimens (illustrated). The plant itself will now therefore continue to be grown in a similar but safer environment to that in which it was found, to ensure its future and for further species determination.

The plant is, however, very clearly not the same as *Cyrtomium falcatum*, which has previously been reported as established both on the Isles of Scilly in now five separate widely-spaced rocky coastal habitats in Cornwall (French, Murphy & Atkinson 1999, Murphy, *pers. com.* 2004), since *C. falcatum* has large and quite broad dorsally glossy bright-green fronds with ultimately large coarsely-serrate margined highly rhombic pinnae, while the present plant differs in having a much narrower blade outline with smaller, narrower, less-serrate ovate-lunulate pinnae throughout the blade, and which is also dull pale green in colour dorsally.

Across eastern Asia, where the whole fern genus *Cyrtomium* originates, there are in fact approaching a dozen specific and infraspecific taxa, which range widely from Japan and Korea through China, eastward to India and south to Vietnam and the Philippines (Nakaike, 1975). Only a very few seem normally available in cultivation in the trade in the UK, of which *C. falcatum* especially, and then *C. fortunei* (but often sold as the former or incorrectly labelled as something else altogether) appear to be the species most usually available. Although the exact identity of this naturally-established specimen now awaits to be totally confirmed following further experimental cultivation, I have, myself, for several years, already grown now well-established specimens of *C. falcatum* (L.f.) Pr., *C. fortunei* J. Sm. and *C. caryotidium* (Wall. ex. Hook & Grev.) Pr. in successful outdoor cultivation in my own

garden in Cornwall, which provides a useful experimental hardiness and reference collection. On the basis of comparison with these, grown some 4 miles away from the site of this plant but in a very similar environment, my provisional identification is that this new *Cyrtomium* is thus most likely to be a rather narrow-fronded individual of *C. fortunei*. For with this species, the general pinna-arrangement, texture and colour of its fronds most closely match. However, the pinnae of the naturalised plant are throughout each frond much less attenuate towards the tips than they are in my cultivated specimens of *C. fortunei*, and the pinnae are very much less quadrangular than are those of *C. caryotidium*. Indeed, the narrowness of the fronds of this naturally-established plant remain enigmatic. These might be due to its damp but highly shaded site of original growth, or its Spartan edaphic conditions, but on all other characters I have provisionally identified it as nearest to *C. fortunei*. For this species is certainly fairly-freely sporing in cultivation, which seems to be the most likely source of the spores, although neither this species nor any other species of *Cyrtomium* is known to have been cultivated anywhere on the estate where this plant was found. The spore must thus have come some distance. Of what I am currently certain, however, is that this is a second species of the genus *Cyrtomium* to become naturally established in west Cornwall in recent years.

Although it is *C. falcatum* which is previously recorded as naturalised in Cornwall, my experiments in cultivation suggest that, ironically, *C. falcatum* is actually less hardy in inland Cornwall than are either *C. fortunei* or *C. caryotidium* (Page 2004), and I suspect that it is for this reason that the naturalised sites of *C. falcatum* in Cornwall occur mainly near to coasts. These sites also correspond with my own observations on the habitats of *C. falcatum* in the wild on Yakushima Island off Kyushu in southernmost Japan, where *C. falcatum* occurs mainly on rocky cliffs near to the sea, which its naturalised sites in Cornwall thus surprisingly-closely mimic. Indeed, the number of Cornish sites for *C. falcatum* might be explained by its greatest frequency in the trade and thus presumably as specimens in cultivation as available spore sources (although, of course, we unfortunately do not know their original provenance). The probable match of this present naturalised specimen of *Cyrtomium* to *C. fortunei* and certainly not to *C. falcatum*, in an inland Cornish site, may, on the grounds of its apparent greater hardiness locally, hence not be surprising.

I am grateful for the benefit of comments from Rose Murphy, Ian Benallick and Dr Colin French.

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- CHRIS PAGE, Gillywood Cottage, Trebost Lane, Stithians, Truro, Cornwall TR3 7DW

EUONYMUS JAPONICUS – SEEDLINGS ARE FREQUENT, ETC.

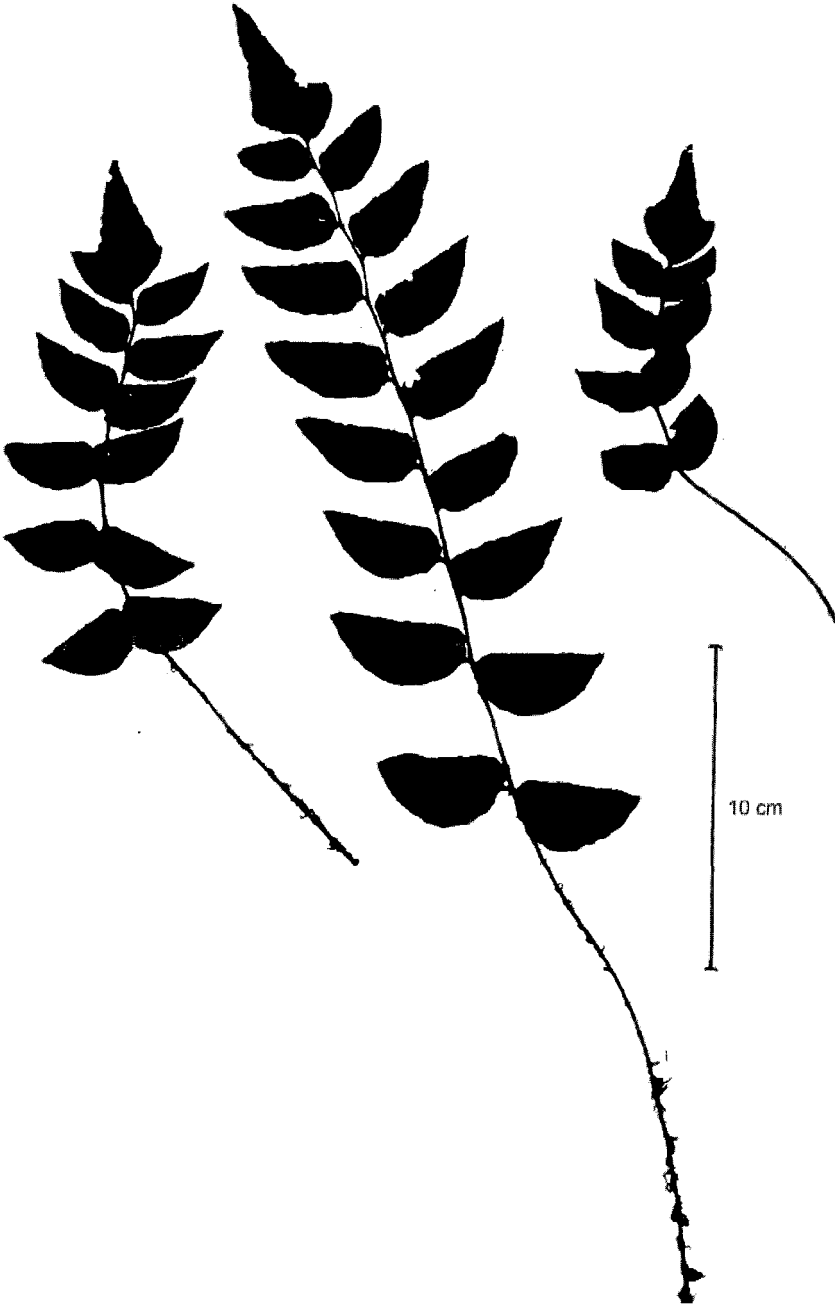
E. J. Clement was kind enough to quote some rather old records of mine in *BSBI News* 95: 49.

E. japonicus fruits abundantly in NW Kent (the hottest part of the UK as recent records have shown!) and my experience since those early records indicates that wild specimens of good status are to be looked for primarily in woodland.

For example, exploring dense natural woods for 30 minutes near Barnehurst, W. Kent on 5/10/2004 I saw half a dozen bird-sown seedlings all more or less of knee height. There were no larger bushes near any of them.

Interestingly, a copse on the nearby golf course provided me some years ago with my second record of the black-fruited *Cotoneaster obtusus* (following the first for UK found on Bowmans Heath, W. Kent).

JOHN R. PALMER, 19 Watermill Way, South Darenth, Dartford, Kent DA4 9BB



Fronds from the specimen of the established alien fern *Cyrtomium fortunei* J. Sm., reported here. The two largest fronds are fully fertile, the plant having thus completed its life-cycle in the habitat in which it was found (C.N. Page, September 2004)

BRINGING ALIEN *CRATAEGUS* SPP. UP-TO-DATE

The account of *Crataegus* in Clement & Foster's *Alien Plants of the British Isles* (1994, pp. 157-159) needs amending in order to correct errors and to bring it into line with current opinion, to wit:

Nunhead cemetery (pp. 157 & 158) is in the vice-county of Surrey, not Middlesex.

We (wrongly) followed W.W. Eggleston in misspelling *C. pedicellata* as '*C. pedicillata*'. Add the reference: 1289*, for a good line-drawing of this plant. Much more seriously, we must now (very reluctantly!) follow *Taxon* 52:337-338 (2003) and drag up from the past the most confusing name of *C. coccinea* L. (e.g. rejected twice on p.396 of Stace's *New Flora*, 2nd ed. (1997)). A formal lectotypification has equated this name to *C. pedicellata* Sarg. 'which it can now safely displace'. The *RHS Plant Finder 2004-2005* has **already** done just that! I notice that Phipps (2003, p.69) uses the English name of Scarlet Hawthorn, and he provides a fine coloured plate of it. The fruits are 'orbicular, scarlet' (p.69) – Stace's name of Pear-fruited Cockspurthorn seems very inappropriate to me.

C. persimilis Sarg. 'Macleod' (Clement & Foster, p. 158) was demonstrated to be illegitimate in *Bot. J. Linn. Soc.* 100: 97 (1989), where the cultivar name was corrected by J.B. Phipps to 'Prunifolia', a reference we overlooked. But, Phipps (2003, p.103) has further amended the situation and deemed (by default) that none of the cultivars are worthy of recognition. All equate to the wild species in Canada. M.L. Grant (*pers. comm.* 28 Sept. 2004) has expressed similar thoughts to me, wondering whether 'Prunifolia' and 'Prunifolia Splendens' can really be distinguished from each other. The wild plant has always been separated as possessing a glabrous inflorescence (*cf.* pubescent in 'Prunifolia'), but inspection of the type reveals that it is thinly pilose. I have always been unhappy about adding the cultivar status! Self-sown plants in Britain invariably seem to be identical to the parent – currently, C.G. Hanson (Ware) is growing 12 such saplings (after waiting 15 months for them to germinate!). Our cover drawing by Ruth Freeman (RF) beautifully portrays the parent tree which grew as a planted, street tree in Brickenden Lane, Hertford (Herts.). No seedlings were present on site.

Note that *C. persimilis* possesses 15 stamens in the half-flower drawn by RF. Compare this with the 10-15 quoted in Stace (*l.c.*), 10-20 in Fernald (1950) and 15-25 in Phipps (*l.c.*). Like in USA elections, it needs a recount! I prefer the English name of Plumleaf Hawthorn (i.e. translation of *prunifolia*) chosen by Phipps, but it does not agree with Stace's awkward Broad-leaved Cockspurthorn. I am, however, much less eager to follow Phipps (2003) and stigmatize it as a hybrid, *C. ×persimilis*, primarily since 'it can be raised true from seed' (p.103). It now behaves like a 'good' species, even if its probable origins lie in a *C. crus-galli* s.l. × *C. succulenta* s.l. combination.

The cover of *BSBI News* 61 (Sept. 1992) illustrates three of the close allies of *C. persimilis*, and the fine, in-depth article therein (pp. 42-45) by Brian Wurzell is well worthy of several re-reads!

I will end by mentioning the enigmatic *C. heterophylla* that Wurzell calls Albanian Hawthorn; Stace says is Caucasian; Russian floras say is Spanish; and about which Phipps says NOTHING (no entry for this name!). Even the fruit colour is in dispute – *Bot. Reg.* t. 1161 (1828) says it is black (this was an error, corrected in *Bot. Reg.* t. 1847 (1836) to 'rich crimson'. [MLG, 15/11/2004]), and suggests an origin in 'the East' after refuting 'N. America' as claimed by de Candolle's *Prodromus*. Help!

More positively, Phipps's 2003 monograph is well-worthy of purchase. There are 139 pages to read, 75 coloured plates to admire, some splendid line drawings, a tabular key to taxa (pp. 119-123) and even an Appendix 1 on 'Preparation of herbarium specimens' (pp. 109-112); all for £17.99.

My thanks are due to Professor James B. Phipps (Univ. Western Ontario) and to Mike L. Grant (RHS Gardens, Wisley) for assistance with this article.

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AN ARGYLL ASTILBE – A CORRECTION

In a recent edition of *BSBI News* (Macpherson & Clement 2004) we reported on the *Astilbe* established at Inveraray, Argyll. It had previously been identified as *A. rivularis*, but we considered this to be have been an error. We could not find a definite match in the literature and hesitatingly suggested that *A. rubra* × *A. chinensis* was the most likely combination.

Henry Noblett saw our article and kindly wrote to us enclosing detailed information about *A. chinensis* var. *dauidii* Franchet, often referred to as *A. dauidii* (Franchet) Henry, and that he considered this to be the correct identification.

Henry holds a NCCPG National Plant Collection of *Astilbe* and grows a wealth of taxa – 14 species and 150 cultivars are quoted in NCCPG (1996). We are happy to accept this new determination. A full description appears in Ohwi (1965), to which Henry adds:

A very tall species (175cm), flowering late (c.4 August). The panicle is long trullate, c.40×8cm, with the lowest branch at an angle of c.12°, the reddish-purple petals (as ‘stamens’ in our article) being c.6×0.2mm, very thin and occasionally crinkled. Filaments and carpels both deep purple. First introduced to Britain in 1902 by Veitch and Son (Chelsea) from seed collected in northern China. It is now a parent of many garden hybrids.

Further information on the genus *Astilbe* may be obtained by consulting Noblett (2001).

References:

- National Council for the Conservation of Plants and Gardens. 1996. *The National Plant Collections Dictionary* 1996. The Pines, Wisley Garden, Woking, Surrey.
- OHWI, J. 1965. *Flora of Japan*. Washington, D. C.
- MACPHERSON, P. & CLEMENT, E.J. 2004. An Argyll *Astilbe* revisited and renamed. *BSBI News* 96: 48.
- NOBLETT, H. 2001. *Astilbe. A guide to the Identification of Cultivars and Common Species*. Henry Noblett, Cumbria.
- PETER MACPHERSON, 15 Lubnaig Road, Glasgow G43 2RY
- ERIC J. CLEMENT, 54 Anglesey Road, Gosport, Hants PO 12 2EQ

FILIPENDULA ×PURPUREA MAXIM. ESTABLISHED IN BRITAIN

Five years ago Mike Wilcox sent me a garden-escape *Filipendula* for identification. I somewhat hesitatingly now determine it as *F. ×purpurea*, primarily in the hope that another member will begin a study of this small genus (there are only 10-15 species in the world).

Schanzer (1994) considers *F. ×purpurea* to be ‘most probably a horticultural hybrid. *F. camtschatica* [sic], *F. multijuga* and *F. glaberrima* are its putative parents.’ This plant has widely been known (wrongly) as *F. palmata* Miq., non (Pall.) Maxim. in the past – e.g. in Curtis’s *Bot. Mag.* t.5726 (1868), a plate that doubtless has misled gardeners for a century or more. See Barnes (1998) for a coloured reproduction of this plate, plus a very learned clarification of misapplied names within the genus, but, alas, he apparently overlooked Schanzer’s all-important paper that I follow herein.

Stace’s *New Flora* (2nd ed. 1997, p.329) provides an excellent key but uses the spelling ‘kamtschatica’ that Barnes (p.148) argues is wrong, on advice from Susyn Andrews (Kew). I rechecked at source for myself: the plant was originally described by Pallas as *Spiraea camtschatica*, but his artist misspelt it on the well-known accompanying plate. I firmly believe that spelling within the text should always be given preference over plates – e.g. Stace’s first edition used *Melilotus altissimus* (p. 492) but the figure (p.493) changed it (wrongly!) to *M. altissima*. Currently 300,000 RHS members ignore Stace’s spelling when they follow the very worthy *RHS Plant Finder 2004-2005* manual.

Mike Wilcox found *F. ×purpurea* on a streamside at Hebden Bridge, Calderdale (S.W. Yorks, v.c. 63), SD987.290, when in leaf only, in May 2000. He later returned to provide a flowering voucher for Herb. EJC and a rhizome fragment to grow in my garden. In 2003 Delf Smith (DPJS) enthusiastically gathered a piece of it and produced the stunning plate (see p. 45). Already an oddity, as being of forma *albiflora* (Makino) Ohwi ex Liou & C.Y. Li, this spray had become semi-double – ‘Plena’ is

currently sold, but the name is not valid! The petals appear white at a distance, but are really faintly pink-tinged. Pure *F. camtschatica* is 'always white' (Shimizu, 1961, p. 2).

Our plate shows:

- | | | | |
|---|-----------------------|---|-------------------------------|
| A | Part of inflorescence | F | Flower (view from above) |
| B | Basal stem leaf | G | Flower (side view) |
| b | Detail of leaf margin | H | Petal shapes from same flower |
| C | Calyx (plan view) | I | Fruit (not fertilised) |
| D | Calyx in bud | J | Achene (or follicle?) |
| E | Calyx at anthesis | | |

F. ×purpurea is only known as a cultivated plant – even in its original home of Japan – from whence it has escaped (Schanzer, p. 317); all western literature has traditionally omitted the hybrid sign, perhaps because it is apparently fertile (if it meets another clone!). Cross-pollination is essential for seed in (at least) its N. American ally, *F. rubra*, as observed in Botkin fen in Missouri – see *Amer. J. Bot.* **79**(5): 488-494 (1992).

DPJS noted that 'the pollen is good' on our plant, in spite of the largely *flore pleno* flowers with their petals of different shapes and sizes within one flower.

I strongly suspect that virtually all plants of '*F. camtschatica*' in and out of gardens in Britain will prove to be this hybrid (or another one!). Stace's key can easily be amended to incorporate my views by adding a terminal couplet:

- | | | |
|---|---|-----------------------------|
| 3 | Fls pure white; leaves densely pubescent on lowerside | – 3. <i>F. camtschatica</i> |
| 3 | Fls pale pink to red; leaves glabrous on lowerside (apart from some pubescence on larger veins) | – 4. <i>F. ×purpurea</i> |

At least six cultivars of *F. ×purpurea* are available in British nurseries, 'Elegans' being the one best known.

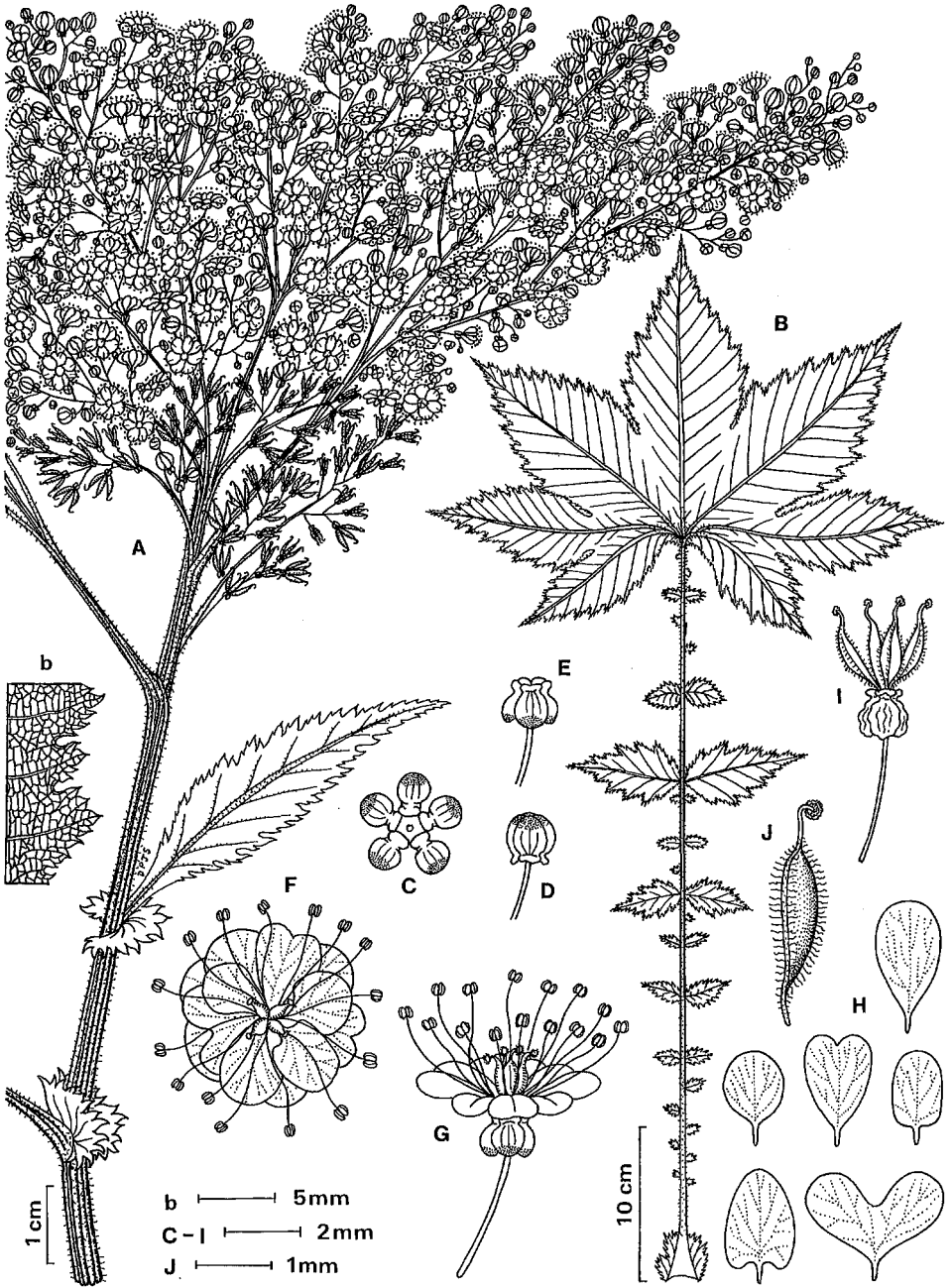
As a matter of technical interest, the ripened carpel in this genus sometimes lies exactly between an achene and a follicle (as defined by Stace's *Glossary*), since the organ is indehiscent, 2-ovuled, one often aborting, but sometimes forming 2 good seeds (e.g. see Stella Ross-Craig's *Drawings of British Plants*, part 8, plate 6 showing *F. ulmaria*).

The shape, size and distribution of hairs on the ripe achenes offer the most reliable means of species ID within the genus. Shimizu (*l.c.*, p.2) demands that the inflorescence of *F. purpurea* [sic] should be 'glabrous', but I believe this is only one possible option. Confidence is regained by viewing his Fig. 5 (p.11) depicting this taxon – all details are remarkably like Delf's illustration, even the oddly notched petal is shown (and this notch is absent from the remaining 14 figures showing the other species).

I am, once again, deeply indebted to Mike L. Grant (Senior Botanist, RHS Gardens, Wisley) for help with much of the above account, but all opinions stated are solely my own.

References:

- BARNES, P.G. 1998. Confusion in cultivated meadowsweets (*Filipendula* Miller). *The New Plantsman* **5**(3): 145-153.
- SCHANZER, I.A. 1994. Taxonomic revision of the genus *Filipendula* Mill. (Rosaceae). *J. Jpn. Bot.* **69**: 290-319.
- SHIMIZU, T. 1961. Taxonomic notes on the genus *Filipendula* Adans. (Rosaceae). *J. Fac. Text. Sci. Techn.*, Shinshu Univ., no.26, series A, Biology, no. 10: 1-31.
- ERIC J. CLEMENT, 54 Anglesey Road, Gosport, Hants. PO12 2EQ



Filipendula x purpurea del. D.P.J. Smith © 2005

IRIS GRAMINEA VAR. PSEUDOCYPERUS – AN ESTABLISHED ALIEN NEW TO BRITAIN

In 1998, during a visit to Dunraven on the Glamorgan Heritage Coast, an unusual-looking *Iris* was noticed growing in rough cliff grassland among the native *I. foetidissima*. The most obvious differences were a small lobe at the tip of the outer segments and no characteristic ‘roast beef’ smell to the crushed leaves (see photos in Colour Section, plate 4).

There was no mention of such a plant in Stace (1997) nor in Clement & Foster (1994). However, in Stebbings (1997) there was a nice photograph of an *Iris* which looked right, the caption reading: ‘*Iris graminea* (the Plum-tart *Iris*) has small flowers and large leaves, but a wonderful scent’. The accompanying text stated that *I. graminea* belongs to the Spuria group but is untypical. ‘Grown for its scent, native of central Europe, hardy and thriving in light shade or full sun’. An ideal companion then for *I. foetidissima*.

The only snag was, the Dunraven *Iris* had no scent whatever! Fortunately, the answer was provided by the RHS Wisley Handbook ‘*Iris*es’, one of an excellent series of monographs where, following the description of *I. graminea*, there was the brief but revealing statement that ‘var. *pseudocyperus* is somewhat larger and lacks the scent’. Its presence at Dunraven is puzzling although there is some evidence that it was cultivated at the nearby castle, now a ruin. There are only three suppliers listed in the Plant Finder 2003/4 and it seems odd that the scentless variety should be grown at all. Its rarity in the wild therefore is perhaps not surprising, given also that it is easily overlooked as it clearly has been at Dunraven, until now.

References:

- CLEMENT, E.J. & FOSTER, M.C. 1994. *Alien Plants of the British Isles*. BSBI, London
 STACE, C.A. 1997. *New Flora of the British Isles*, 2nd edn. Cambridge University Press
 STEBBINGS, G. 1997. *The Gardener’s Guide to Growing Irises*. David & Charles, Newton Abbot.
 TONY LEWIS, 12 Cannisland Park, Parkmill, Swansea SA3 2ED

ALIEN GRASSES ON OUR STREETS

Asking anyone only ten years ago which grass dominates any road in Britain would almost invariably come up with the answer of native *Poa annua*. This is no longer true in the current century, especially so in late summer. Alien annual grasses from warmer climes have proliferated; they thrive in pavement cracks and at the bases of heat-retaining walls. Most colonies have probably originated from just 1(-few) seeds, since it is noteworthy that mixed populations in one road are still unusual.

My observations have mostly been made in Gosport (S. Hants., v.c. 11). Bevis Road and Testcombe Road are both dominated by *Digitaria sanguinalis*; *Polypogon viridis* prefers the next one, Beechcroft Road; and *Setaria verticillata* is a surprising ascendant with 160 plants in, or close to, Chantry Road in July 2004 — *Comm.* Debbie Allan. All these are quiet residential roads. *Echinochloa crus-galli* is becoming frequent in many spots, but the central reservation of the M27 motorway towards Southampton is where it forms a continuous band of vegetation, often vying with *Bassia scoparia* (a non-grass) — yet neither are even mentioned in *The Flora of Hampshire* (1966).

Rostaria cristata still occurs (2004) at the southern end of Munby Road, but council cleaning operations severely check its spread. See *BSBI News* 34: 43-46 (April 2000) for a full account of this plant. Since then, no-one has informed me of the other localities but I did find a voucher preserved in RNG from cracks in paving and in garage drive in Coniston Avenue, Upminster (S. Essex, v.c. 18), 19 July 1984. It was collected as ‘*Phleum arenarium*’ — the nearest picture match in facies with any annual grass in C. E. Hubbard’s *Grasses*, 3rd edn. (1984) — but now *redet.* R.W. Rutherford, 2001.

To find established colonies of *Setaria pumila* we must currently move a few km to Lee-on-Solent or Portsmouth, but both are on off-street paved areas. *Setaria viridis* occupies at least one quiet road in Fareham, another adjacent borough. *Phalaris canariensis* is a regular casual on our town streets,

but seems nowhere to be permanent. And I have yet to find a single *Eragrostis* sp. on the highways of S. Hants. Global warming is undoubtedly the reason for this explosion of aliens. Mr President, please note!

There must be similar infestations in many other areas of Britain, but precise documentation is difficult to find: what is in your road? Mediterranean grasses like *Rostaria cristata* mostly germinate in the autumn so they can flower in the spring. But subtropical grasses like *Digitalis sanguinalis* (and its most confusingly similar congener *D. ciliaris*) will not germinate until June/July. It is a year-long lookout that is required, and a rush to identify finds before the council staff devegetate the thoroughfares.

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LEUCANTHEMUM PALUDOSUM – THE FIRST ESTABLISHED COLONY IN BRITAIN

This little composite with its disproportionately large flowers first made its debut in Swansea in 1998. It appeared among the brick pavings of the marina and was clearly self-sown from nearby containers. Although the plantings varied from year to year, *Leucanthemum paludosum* persisted. In this hostile environment the plants were scarcely 10cm high, but in cultivation reached several times that (see photo, Colour Section, plate 1)

Eric Clement has expertly described the taxonomy of this species in *BSBI News* 88: 58-61. It is a complicated story but Delf Smith's accompanying illustration is admirably clear. It was Eric who kindly determined the Swansea plants as the first established colony for Britain, and who suggested that I should write this (very short) note.

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JUNCUS ENSIFOLIUS WIKSTRÖM: A 2ND BRITISH RECORD

On the 7th August 2004, whilst searching for *Anagallis arvensis* subsp. *foemina* (Blue Pimpernel) at a site in Fair Oak, Eastleigh, Hants (SU4835.1821, v.c. 11), I noticed an unusual plant at the margin of a small balancing pond. From a distance, the terminal inflorescence suggested a diminutive *Allium vineale* (Wild Onion) – a most unusual location. Closer inspection of the compact inflorescence indicated the plant was in fact a *Juncus* but the laterally flattened leaves were atypical of the genus and resembled *Nartheceum ossifragum* (Bog Asphodel)! The specimen (now in **Herb. EJC**) was promptly determined by Eric Clement as *Juncus ensifolius* Wikström (sword-leaved rush), a native to western North America and Japan but long established in northern Europe (Finland).

Juncus ensifolius, a rhizomatous perennial, is distinctive in both vegetative and flowering characters. The leaves are equitant, i.e. folded laterally along the midrib with the faces joined together, with broad scarious margins. The leaves also have distinct cross partitions or septa. The combination of equitant leaves with prominent cross partitions is seemingly unique in the European flora and thus *Juncus ensifolius* can be readily identified in its vegetative state on these characters alone. The flowering spike had a singular compact, almost hemispherical, terminal inflorescence. Flowers were not observed as the plant had already begun to set fruit (apparently setting good seed). The fruit capsules, more or less equal to the dark brown acutely pointed perianth segments, were oblong and rounded at the apex to a short beak.

There exists a likelihood that the specimen was deliberately planted as the species is readily available from nurseries (see *RHS Plant Finder* 2004-5) and the pond was artificially created to receive runoff from a new housing estate. Associates such as *Butomus umbellatus* (Flowering-rush), *Ranunculus lingua* (Greater Spearwort) and *Ceratophyllum submersum* (Soft Hornwort) were almost certainly imported in a landscaping scheme as part of the pond creation. However, I can find no evidence that *Juncus ensifolius* is used in such schemes and it seems unusual that only a single plant should be present. A more likely explanation is that the species was accidentally imported with other aquatic and

marginal plants from an aquatic plant nursery. One fact supporting its recent appearance is that the site was visited by several botanists in 2003 resulting in the discovery of *Ceratophyllum submersum*. I would be surprised if multiple visitors should overlook such an unusual plant.

It will be of interest if the plant continues to survive, or spread, in its current location. There is one other British record — a casual on a canal bank at Christleton, near Chester (Clement & Foster 1994). A short description and colour illustration can be found in Fitter, Fitter & Farrer (1984). However only a single leaf is shown, minus the cross partitions!

I wish to thank Eric Clement for the determination of the species.

CLEMENT, E.J. & FOSTER, M.C. (1994) *Alien plants of the British Isles*. BSBI, London.

FITTER, F., FITTER, A. & FARRER, A. (1984) *Collins guide to the grasses, sedges, rushes and ferns of Britain and northern Europe*. Collins, London.

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OXALIS DILLENII NOT EXTINCT

Oxalis dillenii (Sussex Yellow-sorrel) is a North American invader noted in Floras only from a single site near Pulborough in West Sussex. It lasted there until 1984. Fitter, Fitter and Blamey, in their 2003 *Wild Flowers*, list it as extinct in Britain. Recently, I looked again at an *Oxalis* which has been a rampant weed in my garden for at least 15 years. In 1990, I identified it tentatively as *O. stricta*, but this year I made it *O. dillenii*, and this has been confirmed by Eric Clement. So it is not extinct after all. I have no idea how it arrived in my garden, except that it was not deliberately planted.

There has been some confusion over the naming of this species. In the 1987 edition of Clapham, Tutin and Warburg's *Flora*, it is called *O. stricta*, with *O. dillenii* as a synonym. However, *O. europaea* (Upright Yellow-sorrel) also had *O. stricta* as a synonym. In Stace's 1993 *Flora*, *O. europaea* has become *O. stricta*, while the former *O. stricta* has become *O. dillenii*. These changes may make some past records difficult to interpret. It may well be worth the while of anyone knowing of *Oxalis* plants as garden weeds having a close look at them. I see no reason why this species should be restricted to my garden. Its distinctive characteristics are: stems erect to decumbent, not rooting at nodes; inflorescence a 1-4-flowered umbel; fruit stalks reflexed or horizontal; seeds with white patches on the ridges visible through a $\times 10$ lens.

JOHN PRESLAND, 175c Ashley Lane, Winsley, Bradford-on-Avon, Wiltshire BA15 2HR

NOTICES (BSBI)

EXCURSION TO THE CATALAN PYRENEES – JUNE 2005

There are still a few places remaining on the BSBI excursion to the Catalan Pyrenees, from 18-25 June 2005 (see *News* 97: 55). Those who are interested and would like more information should contact:

TERESA FARINO, Apartado de Correos 59, 39570 Potes, Cantabria, Spain; tel.: 00 34 942 735154;
teresa@iberianwildlife.com

NOTICES (NON-BSBI)

FRANKLYN'S FUND: COMMEMORATING THE LIFE OF DR FRANKLYN PERRING 1927 – 2003

In 1989, Franklyn Perring founded Wildlife Travel and became its first Chairman. He was an enthusiastic leader of the company and of Wildlife Travel holidays around the world. He inspired travellers with his knowledge and inquiring mind and made many friends along the way. It is those travellers and friends that have encouraged us to establish this fund in his memory.

Franklyn was a skilled botanist, field naturalist and conservationist, who enthusiastically shared his immense knowledge of the natural world with others, believing passionately in the importance of an enthusiastic and well-informed public and the need for a new generation of well-trained field naturalist. It is therefore appropriate that the fund will benefit botanical and other ecological monitoring and training initiatives run by The Wildlife Trust for Bedfordshire Cambridgeshire, Northamptonshire and Peterborough, the Trust with which Franklyn was so closely linked throughout his life. Many of Franklyn's own botanical records are likely to be used as baseline information for some of the studies to be carried out. Volunteers in particular will gain the essential skills needed to carry out long-term studies both in their local patch or further afield.

It is hoped that the fund will be able, through the Trusts Ecology Groups, to support a number of key projects such as the production of training packs including species identification keys (work that Franklyn was particularly keen to see developed, training courses on specific habitat types, monitoring requirements and species identification), botanical and other ecological monitoring work days and specialist equipment. Perhaps most importantly, the Fund will generally support the many volunteers who will be encouraged to gain the knowledge and skills needed to become conscientious and effective field naturalists, following in his footsteps. The Ecology Groups initiative is ambitious and will need a high level of support over the next decade or so but Franklyn was delighted to see its launch, approaching it with his usual enthusiasm.

The Fund will be held by the Bedfordshire, Cambridgeshire, Northamptonshire and Peterborough Wildlife Trust (The Wildlife Trust, The Manor House, Broad Street, Great Cambourne, Cambridge CB3 6DH) under its charity registration (no. 1000412). The Directors of Wildlife Travel will make the final decisions on the allocation of funds. Those making a donation will receive an update on the Fund, the Ecology Groups newsletter and an invitation to annual events to commemorate Franklyn's work.

If you would like to make a donation or for further information you can contact:

Wildlife Travel at Manor House, Broad Street, Great Cambourne, Cambridge, CB3 6DH or wildlifetravel@wildlifeben.org

BARCODING OF LIFE: SCIENTIFIC CONFERENCE

Natural History Museum, London 7th, 8th and 9th February 2005

On behalf of the Consortium for the Barcoding of Life (CBOL) the Natural History Museum, London (NHM) is hosting the first International Conference for the Barcoding of Life on Monday 7th – Wednesday 9th February 2005 in NHM's Flett Theatre, South Kensington, London.

The meeting will be focused on advancing the theoretical and practical issues in DNA barcoding. The conference will review and advance the state-of-the-art, expand the worldwide community interested in 'barcoding', and harmonize research efforts. Participants from diverse academic fields will be invited (including systematics, molecular biology, genomics, bioinformatics, and genetics), as well as participants interested in taxonomy, biological databases and voucher collections (museums, herbaria, and tissue/culture collections), and applications of 'barcoding' (including ecology, education, agriculture, conservation/ environmental management, environmental genomics, fisheries, forestry, law enforcement and medicine/public health).

The Conference will bring together experts in plant and animal taxonomy, forensic sequencing, environmental genomics, miniaturization of the sequencing process, collateral information management, uses of biodiversity information, and related fields.

This Conference will have a very high profile in promoting barcoding and displaying early results within the scientific community, while also focusing attention from many disciplines on advancing the technical foundation for accelerating progress and on exposing its potential to the society-wide user community.

The registration fee is £100 for the whole event. If you wish to participate in the Conference please complete the online pre-registration form. (www.nhm.ac.uk/science/BOL?agenda/htm) NHM will email you with further Conference information on how to complete your registration within 10 working days. NHM will also provide information on local hotels and travel to NHM.

WILDFLOWER SUPPLIERS

The *Flora locale* website has recently undergone some changes to enhance the ease of access to the list of suppliers able to stock British Wild Origin seed and plants.

The list of self-certified suppliers that are registered with *Flora locale* is now accessible direct from the *Flora locale* homepage, www.floralocale.org. This service, is one of the most popular pages on the *Flora locale* website, closely followed by the extensive library, containing good practice information on habitat creation and restoration and the interactive map of local projects.

LIZ MANLEY, Conservation and Development Manager, *Flora locale*, Denford Manor, Hungerford, Berks. RG7 0UN; Tel: 01488 680 457; Fax: 01488 680 453; lizmanley@floralocale.org

BOTANICAL SOCIETY OF SCOTLAND: ATLANTIC OAKWOODS SYMPOSIUM

First announcement

A Symposium on Atlantic Oakwoods will be held in the Corran Halls, Oban on the 14-16th September 2005. There will be two days of talks and discussion followed by a field excursion to study some of the local examples of these woods.

The aims of the meeting are (1) to bring together research scientists, land managers, conservationists and all who share an interest in these woods; (2) to provide a forum in which to present current knowledge on the ecological diversity and past management of the woods; and (3) to identify needs for conservation and further research. The proceedings of the symposium will be published in a Symposium Special Issue of the *Botanical Journal of Scotland*.

The programme comprises 8 sessions, each with two or three speakers. These are:- Definition and Distribution; Genetic History; Cultural History; Present Structure and Composition (diversity and plant

species groups – 3 sessions); Faunal Relationships; Conservation and Management Policy. There will also be a poster session.

The Symposium will be organised by the Botanical Society of Scotland and sponsored by the Forestry Commission, Forest Research and the British Ecological Society. Booking forms and further information will be available from 28th February 2005 and can be obtained from:

SHIELA WILSON, Institute of Geography, University of Edinburgh, Drummond Street, Edinburgh EH8 9XP; shiela.wilson@ed.ac.uk or from the website: <http://www.geos.ed.ac.uk/abs/bss/>

IVTH INTERNATIONAL CONGRESS OF ETHNOBOTANY (ICEB-2005)

21-26 August 2005, Istanbul, Turkey

For more information on this Congress please contact:

DR FUSUN ERTUG, Congress Secretary, Yeditepe University, ICEB-2005-IFSSH Congress Centre, 26 Agustos Yerlesimi, Kayisdagi Caddesi, 34755 Kayisdagi/Istanbul, TURKEY; Tel.: +90-216-578 0727; Fax: +90-216-578 0899; fertug@iceb2005.com; www.iceb2005.com

REQUESTS

BOOK ANNOUNCEMENT: A VEGETATIVE KEY TO THE BRITISH FLORA

Together with Debbie Allan, Phil Budd, Eric Clement, Clare Coleman, John Norton, Delf Smith and Robin Walls (names arranged alphabetically), I am working on producing a vegetative key to the entire British flora. The book will enable the user to easily identify plants without flowers or fruit with nothing more than a basic hand lens. The first draft of the key should be complete by spring 2005, followed by at least two years rigorous field testing prior to any publication. I am keen that others will help by writing in *BSBI News*, or to me personally, with any vegetative characters that they may have found useful in identification. Any interest from artists willing to voluntarily contribute line drawings would also be most appreciated. Additionally, any assistance with obtaining fresh material is especially welcome (particularly from Scotland or Ireland!).

In this issue I offer the first contribution as an introduction to vegetative identification (see p. 15).

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BACK ISSUES OF WATSONIA AND BSBI PROCEEDINGS WANTED

I am anxious to purchase the following parts of *Watsonia* and *BSBI Proceedings* that are out of print:

Watsonia : vol. 1 - index only; vol. 2 - parts 3, 4, 5, 6; index; title page; vol. 3 - parts 5, 6; index, title page; vol. 4 - part 1; index; vol. 5 - part 4; index, title page; vol. 6 - index + title page only; vol. 7 - part 4.

Proceedings BSBI - vol. 6 plus index + title-page.

DAVID HOLYOAK, 8 Edward Street, Tuckingmill, Camborne, Cornwall TR14 8PA; tel. 01209 716405; e-mail david@holyoak9187.fsnet.co.uk)

SEED OF INVASIVE SPECIES NATIVE TO USA

I am a graduate student at the University of Virginia (USA) and work at the Blandy Experimental Farm, which houses the Virginia State Arboretum, with the curator Dr David E. Carr. In the hope of comparing native and non-native populations of plants in my thesis research, I am writing to ask for assistance in collecting seed from four species of plants that are non-native to the United Kingdom, but

are native to USA. I plan to explore the theory of evolved increased competitive ability of invasive plants by examining resource use efficiency and enemy release in an effort to link some of the major theories involving invasive species success.

I am searching for seed from the following species:

Impatiens capensis (jewelweed), *Hydrocotyle ranunculoides* (floating pennywort),

Sicyos angulatus (bur cucumber), and *Ambrosia artemisiifolia* (ragweed).

Ideally, I would like seed from multiple individuals (as many as possible) packaged in separate numbered envelopes which I can provide upon request.

I would greatly appreciate any assistance you can provide and please do not hesitate to contact me with any questions or concerns.

Jenica M. Ansanitis, University of Virginia, Department of Environmental Science, Clark Hall, 291 McCormick Road, PO Box 400123, Charlottesville, VA 22904-4123, USA; Tel.: (434) 924-0958; jma3c@virginia.edu

OFFERS

BOOKS FOR SALE

The Flora of the East Riding of Yorkshire; The Flora of Northumberland; The West Yorkshire Plant Atlas and Wild Flowers of the World (text Brian Morely, paintings Barbara Everard).

MYRA BURNIP, 1 Chelsea Court, Marlborough Drive, Darlington, Co. Durham DL1 5YE

GOFYNNE SEED LIST 2005

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

<i>Arabis scabra</i>	<i>Hieracium britanicum</i>	<i>Polycarpon tetraphyllum</i>
<i>Bromus interruptus</i>	<i>H. cillense</i>	<i>Ranunculus ophioglossifolius</i>
<i>Cardamine impatiens</i>	<i>H. umbellatum</i>	<i>Sorbus anglica</i>
<i>Carex depauperata</i>	<i>Juncus capitatus</i>	<i>S. devoniensis</i>
<i>C. muricata ssp. muricata</i>	<i>J. pygmaeus</i>	<i>S. eminens</i>
<i>C. ornithopoda</i>	<i>Lactuca saligna</i>	<i>S. lancastriensis</i>
<i>Centaurea solstitialis</i>	<i>Leonurus cardiaca</i>	<i>S. leptophylla</i>
<i>Chenopodium chenopodioides</i>	<i>Lychnis viscaria</i>	<i>S. subcuneata</i>
<i>C. vulvaria</i>	<i>Myosurus minimus</i>	<i>Trifolium incarnatum ssp.</i>
<i>Crepis foetida</i>	<i>Orchis anthropophorum</i>	<i>molinerii</i>
<i>Damasonium alisma</i>	<i>Orobanche hederæ</i>	<i>Trifolium strictum</i>
<i>Dianthus gratianopolitanus</i>	<i>Papaver argemone</i>	<i>Trinia glauca</i>
<i>Dipsacus pilosus</i>	<i>P. dubium</i>	<i>Verbascum lychnitis</i>
<i>Draba aizoides</i>	<i>P. hybridum</i>	<i>Vicia lutea</i>
<i>Gastroidium ventricosum</i>	<i>Petroselinum segetum</i>	
<i>Hieracium buplerium</i>	<i>Physospermum cornubiense</i>	

ANDREW SHAW, Gofynne, Llanynis, Builth Wells, Powys. LD2 3HN; andrewshaw@hotmail.com

SEEDS FROM WARE — 2005

If you would like to try growing any of the species listed below, just send small envelopes with the name of the required species and a SAE.

- Acanthus spinosus* (Cult.)
Actaea spicata (Cult.)
Aegilops umbellulata (Turkey)
Amaranthus cruentus (Spain)
A. deflexus (France)
A. dubius (Tobago)
A. hybridus (Wool alien)
Arabis glabra (Cult. ex Herts.)
Ballota glandulosissima (Turkey)
Bidens pilosa (Madeira)
Bidens frondosa f. *anomala* (Ex Worcs.)
Brachyheltrum japonicum (Cult.)
Bromus commutatus (USA)
B. hordeaceus (New Zealand)
B. interruptus (Cult.)
Carlina lanata (Turkey)
Carduus pycnocephalus ssp. *albidus* (Turkey)
Chenopodium botrys (Wool alien)
C. foliosum (Herts.)
Clematis mandshurica (E. Russia)
Conyza bonariensis (Cornwall)
Corydalis taliensis (Cult.)
Cucubalus baccifer (Cult.)
Cyperus fuscus (Cult. ex Surrey)
Dracunculus vulgaris (Ex Crete)
Erodium cicutarium (Wool alien)
E. cygnorum (Wool alien)
E. malacoides (Wool alien)
E. moschatum (Wool alien)
Emex spinosa (Spain)
Eryngium giganteum (Cult.)
Erysimum cheiri (Isle of Wight)
Euphorbia squamigera ssp. *margalidiana*
(Cult. ex Majorca)
Ferula communis (Cult.)
Galinsoga parviflora (Wool alien)
- Hieracium acuminatum*
H. grandidens (Derbys.)
H. umbellatum (Cult.)
H. sublepidostoides (Derbys.)
Legousia speculum-veneris (Turkey)
Lilium martagon (Herts.)
Malva tournefortii (Cult.)
Melilotus infestus (Cult.)
Mirabilis nyctaginea (USA)
Misopates orontium (Turkey)
Monsonia ovata (South Africa)
Nepeta cilicia (Turkey)
Nonea lutea (Cult.)
Ononis mitissima (Portugal)
Pavonia urens (Wool alien)
Peucedanum palimboides (Cult. ex Greece)
Phyllanthus tenellus (USA)
Physocaulis nodosa (Turkey)
Physospermum cornubiense (Cult. ex Bucks.)
Poa timoleonitis (Turkey)
Salvia pratensis (Italy)
Silene noctiflora (Cult.)
Sigesbeckia jorullensis (Wool alien)
Silybum marianum (Bird-seed)
Sisymbrium strictissimum (USA)
Solanum rigescens (South Africa)
S. sisymbriifolium (Wool alien)
Teucrium hircanicum (Cult.)
Thalictrum minus (E. Russia)
Trifolium angustifolium (Turkey)
Urtica pilulifera (Turkey)
Valantia hispida (Turkey)
Verbascum nigrum (Cult.)
V. thapsus (USA)
Vicia pisiformis (Cult.)

GORDON HANSON, 1 Coltsfoot Road, Ware, Herts. SG12 7NW; email: gordon27@tesco.net

BOOK NOTES

Those that will not be reviewed in *Watsonia* are marked with an asterisk (*). Unattributed comments in square brackets are mine.

**A Natural History of Nettles* K.G.R. Wheeler Pp 310 with over 1000 individual illustrations and photographs in colour on a CD-ROM (at the end of the book). 2004. Trafford on demand Publishing. £14.99. ISBN 1-4120-2694-6.

[The following comments are condensed from the author's 'blurb' — 'Articles on nettles have been published in newspapers, magazines and books through the ages & they often make the headlines. However, this is the first book ever published on them! There have been over a 100 major scientific papers written on the main nettle character of the book, the sub-cosmopolitan common stinging nettle (*Urtica dioica*) and at present it appears in some form or other in 80-100 journals per year. The main object of the book is to bring this information to the general public in a readable and profusely illustrated form. Over 50 pages of photos/line drawings comprising c.650 line figs and 550 photos appear in b/w in the book but in full colour on the accompanying CD-ROM (PC only). The technical parts are written in a semi-scientific manner, so the general public, naturalists, botanists, students and scientists will find a lot to interest them.

Few have ventured to look at the nettle in close-up for fear of being stung! The beauty of its minute structure is revealed. Three chapters are devoted to the stinging hair, its structure, its mechanism of discharge and its defence against vertebrate herbivores. Learn about the toxins and the stinging hair & their symptoms; the tropical tormentors and the nettle trees of the Indo-Malayan area. The utility of the common nettle, as a food and famine fodder, fibre use and ersatz material in peace and war is a fascinating story few know. The ecology of the nettle patch shows that this plant is of great importance to insects, larger animals fungi and other parasites. Learn about the growth requirements of this successful competitor plant, its sex life, breeding strategy & evolution. Literary people have not neglected the nettle and it has much folklore because of its relationship with man throughout history. Read about 'nettles' from other plant families with attractive flower, that have come up with a stinging hair almost identical to our common nettle: unique exploding stamens, nettle-eating competitions, genetic engineering, as a medical panacea, capons, & much more!!!]

Britain's Orchids. D. Lang. Pp 182. EN/Wild Guides 2004. £15. ISBN 1 903657 06 7

High quality photo field guide to the 51 native species and their hybrids, with coloured distribution maps, latest information and keys.

Northumberland. (New Naturalist No 95) A. Lunn. Pp 304. HarperCollins £40 Hbk. ISBN 000 718484 0, £25 Pbk. ISBN 000 718483 2.

County Down - Scarce, Rare & Extinct Vascular Plant Register and Checklist of Species. G. Day & P. Hackney. Pp 193. National Museums and Galleries of Northern Ireland. 2004. Available free from Dr J.D. Nunn, Ulster Museum, Botanic Gardens, Belfast, BT9 5AB, Northern Ireland.

An Illustrated Guide to British upland vegetation. A. Averis et al. Pp 454. JNCC. 2004. £25 Pbk ISBN 1 86107 553 7.

A concise description of all currently recognised British upland vegetation types.

**First Records of British Flowering Plants*. W.A. Clarke. Pp xvi +194 +4 in appendix. Trollius Publications. 2004. £7.99 Pbk. ISBN 0 9539718 3 X.

[A facsimile reprint of the 2nd and last edition of the last comprehensive work on the subject, which gives the published date and reference of the first record in the wild of the native plants of Britain & Ireland, together with a very few aliens. This was published in 1900 (with a minor later addendum) and it is interesting that nobody has sought to update it since – indeed it was ignored by Druce in his Comital Flora - despite the work done by Gunther, Raven and others.]

Collins Tree Guide. O. Johnson & D. More. Pp 464. Harper Collins. 2004. £40 Large format hbk (good for the illustrations) ISBN 0 00 719163 4, £25 field guide format (still hardback, with dust-wraper). ISBN 0 00 713954 3.

[The book is intended as successor to Mitchell's field guide. It is more comprehensive, the illustrations good, but the text less informative.]

**Britain's Wild Harvest*. H. Prendergast & H. Sanderson. Pp 88. Kew Publishing. 2004. £9.95 sbk. ISBN 1 84246 072 2 .

[An exploration of the people involved in making some living from this produce, together with notes on the size and sustainability of the businesses.]

**Rare plants in Great Britain – a site guide*. C. Twist. Pp 60. Publisher, price, ISBN and availability unknown.

[An idiosyncratic assemblage rare or quite rare plants from 127 sites, divided into 19 regions around Britain and Ireland. The information is often, I imagine, well known to many, but the booklet contains many 6 fig GRs and guides on how to approach the site. Some may find all this a bit open, but I have no problem at all with the locations so publicised – a reminder on how priorities have changed in the 13 years since John Fisher was hounded out of the BSBI for producing something not dissimilar. The best of luck in tracking it down for anybody interested!]

Plantatt. Attributes of British and Irish Plants: Status, Size, Life History, Geography and Habitats. M.O. Hill, C.D. Preston & D.B. Roy. Pp 73. CEH, Monks Wood. 2004. £6 pbk. ISBN 1 870393 74 0.

**Wild Flowers of Braunton Burrows*. M. Breeds. Privately published. Pp. 48 Col. Photos. Barnstaple. 2004. £4.50 Pbk. (No ISBN)

A simple record of the plants of Braunton and their habitats, with full check-list.

**Wild Flowers of Mann* A. Dubbeldam. Pp. 192. Lily Publications Ltd. 2004. Hbk. £11.99 ISBN 1 899602 37 2.

Fully illustrated with colour photos. Account of the more showy plants arranged by habitat, with intro to history and folklore.

**The Cultural History of Plants* ed. Sir Ghilleain Prance and M. Nesbitt. Pp. 452. Routledge. 2005. Hbk. £90.00. ISBN 0 415 92746 3

[Jon Atkins writes that this is a substantial and authoritative work on plants used by man. Chapters by various specialists on particular plant types – grains, roots, fruits, herbs, nuts, spices, hallucinatory and medicinal plants, etc.; in each case the species concerned are written up with care, giving description, history and value – and each chapter is completed with an excellent bibliography. Contributors include Hans T. Beck, David R. Given, Vernon Heywood, Nigel Maxted, Sue Minter, Georgina Pearman, Mark Nesbitt, Barbara Pickersgill].

**Stars in the Grass – the story of Cornish Naturalist Frederick William Davey, 1868 –1915*. S. Bates & K. Spurgin. Pp vi + 176. Dyllansow Truran. 2004. ISBN 1 850 220 9 72.

[About 10 years ago I received this little biography of Cornwall's foremost botanist, which not only covered Davey's life but the times he moved in and the other botanists in Cornwall active in that period. It was really interesting, but I could not find out how to obtain further copies. Since moving here I have refound Keith, and can report he has a few copies available at £10, plus £2 p+p, from Keith Spurgin, 4, Carclew Terrace, Truro, Cornwall, TR1 2EF.]

Timber Press of Oregon, through their English agents in Cambridge, have been long known for their top quality gardening books, especially monographs. They seem to have upped their activities this last year or so, and among their new books have a new series in conjunction with the RHS.

Three of the first four titles are *Blueberries, Cranberries and other Vacciniums, Hawthorns and Medlars* and *Crococsmia and Chasmanthe* – all useful for identification of plants in the wild!

Also promised for 2005 is an illustrated guide to Oaks.

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

ASHGATE'S 'VARIORUM' SERIES

In his kind words about my recent contribution to this series (*BSBI News* 97: 59) David Pearman understandably deplored the price as being 'far too steep'.

In fairness to the publisher I feel I should explain that the series is primarily targeted at a special, inevitably limited market – namely, academic libraries overseas, more particularly in North America. Quite some years ago now, Ashgate spotted that many of those are too recently-established or too ungenerously funded to possess extended runs of a high proportion of the journals in which research results appear, let alone copies of most of the multi-authored volumes that arise out of symposia or are put together as *festschriften*. In the humanities back-issues retain research value far longer than in the sciences, in which research tends to become obsolete much more rapidly. While established researchers can make up for library deficiencies to a considerable extent by exchanging offprints with their peers, those just starting out are much less well-placed. Ashgate accordingly took the laudably innovative step of commissioning what are in effect bundles of offprints on a diversity of topics (hence 'variorum' as the series title) chosen by the authors concerned as representative of their *oeuvre* to date. Authors are permitted to add one or two unpublished papers as well, if they so wish. The offprints are merely photocopied, with the original pagination retained, and the author supplies a semi-autobiographical preface (and a portrait!) plus an index to the whole. A hardback amounting to a handy, compact work of reference is thus produced at a minimal cost.

A large number of these ingenious 'books' have now been published over the years, in a wide range of disciplines. Would that the BSBI's field of interest had a sufficiently wide following overseas to enable it to enjoy a share of this very useful information medium.

DAVID ALLEN, Lesney Cottage, Middle Road, Winchester, Rants. SO22 5EJ

CATALOGUE OF CAMBRIDGESHIRE PLANT RECORDS SINCE 1538

Part 3: Common and Uncommon Species

G. Crompton in collaboration with G.M.S. Easy and A.C. Leslie

The final part of this Catalogue has been completed and has been added to the same website (www.MNLG.com/gc). Part 3 consists of about 790 species and it can again be freely downloaded as were Parts 1 and 2. There is also a list of additions and corrections which have been made to Parts 1 and 2.

A printed-out version of Part 3 (in three volumes) will be deposited, as were Parts 1 and 2, in the libraries of the Natural History Museum at South Kensington and at Cambridge at the University Library, the Department of Plant Sciences, the University Botanic Garden and the Cambridge Collection section of the County Council Library at the Lion Yard, Cambridge.

I am greatly indebted to Graham Easy and Alan Leslie for their invaluable additions and corrections.

Lastly I would like to take this opportunity to thank again for the continuing generous and invaluable expert help given by Bill Walston of Systems Support and Martin Hodge of MNL Consultants. Their splendid help has resulted in the website becoming noted for its clarity and ease of use.

GIGI CROMPTON, 103 Commercial end, Swaffham Bulbeck, Cambridge, CB5 0ND

PRUSSIAN WOUNDWORT?

Want to read a lurid description of how a spotty youth carried out an unspeakable act on the Prussian Woundwort? Or find out how to join CAT-P (Conservationists Against Tree Planting)? The solution is at hand in a new book of compiled countryside musings by BSBI member Peter Marren, aided and abetted by cartoonist colleague David Carstairs (and, moreover, heavily subsidised by fellow BSBI member Sue Everett).

Twitcher (aka Peter Marren) is the 'Private Eye' of the nature conservation world, who for over 14 years has provided an alternative and satirical perspective of British wildlife and of the antics of nature conservationists.

Twitching Through the Swamp is the first collection of Peter Marren's dribblings on nature, originally published in *British Wildlife* magazine. The book includes over 80 cartoons, as well as previously unpublished musings and cartoons from the former Nature Conservancy Council's staff magazine *Natural Selection*.

Why not have a laugh – buy the book for yourself, and buy lots more copies to give as presents to all your friends and relatives. Copies are £12.50 each and are available from Sue Everett at the address below. Warning: profits will be used to fund the author and publisher's future twitching habits. (Please make cheques out to Sue.)

SUE EVERETT, 122 Derwent Road, Thatcham RG19 3UP

IS IT A BIRD? IS IT A PLANT? NO! IT'S *THE LITTLE BOOK OF GARDEN HEROES*

A handy, pocket-sized (128p) guide to the living heroes that make our gardens bloom, by Allan Shepherd.

Following the bestselling *The Little Book of Slugs*, this new title from CAT (Centre for Alternative Technology) explains the key to successful organic gardening: *design that starts from the soil up rather than the decking down*. The book shows how to attract beneficial wildlife and choose useful plants that will completely rule out the need for chemicals in the garden, ensuring desirable results. Allan Shepherd takes the four basic ingredients that make a successful garden and selects the 'heroes' (and some of their sidekicks) that best represent them – the earthworm soil improver, the honey-bee pollinator, comfrey the beneficial plant and the predatory ladybird. He explains the work these heroes do and gives tips on how to cater for their needs and habits when designing a garden. *The Little Book of Garden Heroes* restores the UK's flora and fauna to the position of most beneficial garden features and encourages readers to get rid of the chemicals in the garden shed, go organic and help keep garden heroes off the 'Red Data Book' list of endangered species.

It also includes: Composters, pollinators, plants and predators – a rundown of all the elements of a successful organic garden plus the products that can help attract and accommodate them; 'Top Trump' style fact pages on each garden hero full of scientific, historical, cultural, literary and 'wacky' points of interest; Wildlife and plant illustrations and photographs; Directory of mail order companies for organic gardeners; Comprehensive list of Internet resources for the organic gardener; b&w photographs and diagrams.

The Little Book of Garden Heroes (ISBN 1-90217-521-2) costs £4.99 plus p&p and is available from: HELE OAKLEY, Mail Order, CAT, Machynlleth, Powys, SY20 9AZ; 01654 705959; mail.order@cat.org.uk

PLANT DIVERSITY AND EVOLUTION: GENOTYPIC AND PHENOTYPIC VARIATION IN HIGHER PLANTS

Edited by R J Henry, Centre for Plant Conservation Genetics, Southern Cross University, Australia

CABI Publishing December 2004 352 pages HBk ISBN: 0 85199 904 2

An understanding of plant diversity at both the genome and phenome level is important for both biodiversity conservation and plant breeding. Recent advances in genomics have also resulted in a growth of the subject of plant functional genomics. This book brings these areas together, by reviewing aspects of plant evolution as it relates to variation in plant genomes and associated variations in plant phenomes. Topics covered include chloroplast and mitochondrial genomes, reticulate evolution, polyploidy, population genetics within a species, the evolution of the flower, diversity in plant cell walls and in secondary metabolism, and the importance of plant diversity in ecology and agriculture.

As a special offer to members of the Botany Society of the British Isles, CABI Publishing are offering a 20% discount on this title. Special discount price £44.00 (US\$80.00) (Normal price £65.00 / US\$120.00). Simply quote reference **JBR20** when placing your order by phone, fax, email or via our online bookshop: www.cabi-publishing.org/bookshop

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Fax: +44 1491 829292; orders@cabi.org

OBITUARY NOTES

We are very sorry to report the death, after a long illness, of Mr Allan McGregor Stirling, our recorder for Ayrshire and one of Scotland's pre-eminent botanists over the last 40 years.

Audrey Rose Franks – 1924-2004

I first met Audrey in 1986 on my first local field meeting; I was just a beginner. Our friendship grew and through her knowledge I soon became more familiar with plants.

She was a long standing member of the Ramblers Association and the Manchester Field Club and had a great love of the countryside and through this became interested in wild flowers. She joined WFS and BSBI in 1970 and soon grew to be a knowledgeable botanist. Over the years she helped to record the plants for various County Floras including Shropshire and Cumbria and the *New Atlas of the British & Irish Flora*, latterly she has recorded for the soon to be published South Lancashire Flora. Her death is a very sad loss indeed to Manchester botany. Audrey will be remembered not only as a major contributor to our knowledge of Manchester Flora, but also for her key role of inspiring others to follow botany as an interest. She was a caring person and a good friend to many people. She will be sadly missed.

JULIE CLARKE

REPORTS OF FIELD MEETINGS – 2004

Reports of Field Meetings (with the exception of Reports of Irish Meetings written by Alan Hill) 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.

ISLE OF WIGHT (v.c. 10) 22nd-23rd May

More than thirty members attended a most enjoyable weekend on the Isle of Wight looking at some of the earlier flowering specialities and habitats of the vice county. We were joined by Bill Shepard, the previous recorder for Wight, and were blessed with warm, dry and sunny weather.

Saturday morning was spent looking at *Melampyrum arvense* (Field Cow-wheat), just coming into flower at the Hampshire & Isle of Wight Wildlife Trust reserve at St Lawrence Bank, and fumitories at Lake Allotments, near Sandown. Numbers necessitated splitting into two groups to visit these small sites. Rose Murphy and the other Cornish contingents were particularly keen to familiarise themselves with *Fumaria reuteri* (Martin's Ramping-fumitory) which was making a splendid show. Having inspected this species at close quarters, it is regrettable to report that they have been unable to re-find it at the other British station in Cornwall, Pulla Cross.

Both parties then reconvened for lunch on the beach at Sandown. Paul Green recorded *Fallopia ×bohemica*, the first Island record, on the car journey. Suitably refreshed, we then walked the cliff path to Redcliff and Culver. We explored a slumped sandy amphitheatre, examining clovers and other early species. *Silene nutans* (Nottingham Catchfly) made a splendid show at the top of the cliff and cascading down the slumped slopes. A high proportion of the flowers were affected by anther smut. When we reached the chalk, much interest was shown in the large population of *Valerianella eriocarpa* (Hairy-fruited Cornsalad), growing with *Poa bulbosa* (Bulbous Meadow-grass), *Ranunculus parviflorus* (Small-flowered Buttercup), *Torilis nodosa* (Knotted Hedge-parsley) and *Euphorbia portlandica* (Portland Spurge) close to the cliff edge.

At the end of the day, on our return to Newport we dropped in to pay our respects to *Pulmonaria longifolia* (Narrow-leaved Lungwort) and *Orobanche rapum-genistae* (Greater Broomrape).

On Sunday, we visited the species-rich neutral hay meadows belonging to the MoD at Porchfield. Here we were able to see *Ophioglossum vulgatum* (Adder's-tongue), *Oenanthe pimpinelloides* (Corky-fruited Water-dropwort), *Orchis morio* (Green-winged Orchid), *Cuscuta epithimum* (Dodder) and *Gaudinia fragilis* (French Oat-grass). The identity of a population of violets stimulated a debate and it was eventually concluded that these were *Viola ×intersita* (Common Dog-violet × Heath Dog-violet). Pure *Viola canina* does survive elsewhere on the meadows but was not seen on the visit. Nearby, we saw *Carex divisa* (Divided Sedge) and *Myosurus minimus* (Mousetail).

The remainder of the day was spent looking at chalk downland and cliff-top plants amongst the glorious West Wight scenery of Afton Down. We had to search hard to find any plants of *Gentianella anglica* (Early Gentian); 2004 was a poor year for this species. Not so for *Matthiola incana* (Hoary Stock). *Glaucium flavum* (Yellow Horned-poppy), *Brassica oleracea* var. *oleracea* (Wild Cabbage) and *Thesium humifusum* (Bastard Toadflax), all of which were present in quantity. *Lobularia maritima* (Sweet Alison), long established by the cliff-edge and looking genuinely wild, was also of interest. Alan Silverside gave a very helpful *in promptu* dissertation on the identification of the small number of *Euphrasia* (Eyebright) species and hybrids of the southern chalk. In addition to the flora, the abundance of butterflies, particularly Small Blues, Grizzled Skipper, Green Hairstreak and Adonis Blue, were a distraction. At the far end of the down we came across another population of *Valerianella eriocarpa*, before descending to Compton Marsh, a small base-enriched boggy flush where finds included *Glyceria notata* (Plicate Sweet-grass), *Dactylorhiza praetermissa* (Southern Marsh-orchid), *Carex disticha* (Brown Sedge), *Isolepis setacea* (Bristle Club-rush), *Anagallis tenella* (Bog Pimpernel) and *Juncus foliosus* (Leafy Rush). We gradually drifted back to our cars along the road, which had been closed for repairs, enabling us to fully appreciate the sea views westwards to the Purbeck coast in Dorset.

COLIN POPE

SALISBURY PLAIN, WILTSHIRE (v.c. 7 & 8) 12th - 13th June

This meeting was a rerun by popular demand (albeit this time earlier in the season) of one first held in 2002. Although again heavily over-subscribed, it was decided to keep the number of participants to fifteen in the interests of safety. This meant that once again many members who wanted to attend missed out, some for a second time, and our apologies go to them.

Salisbury Plain is one of the most important sites in north-west Europe for a range of calcareous habitats and species, many of which are now threatened elsewhere in lowland Britain. This protection has largely come about as a result of military training, which for over a century has protected much of the area from agricultural improvement, as well as creating a range of unique disturbance habitats. Inevitably, training has led to public access being restricted over much of the area. The purpose of this meeting was to visit some of the more inaccessible areas and see a selection of the habitats for which the Plain is rightly famous.

The group assembled near Everleigh on a bright Saturday morning, setting out on a circular walk across open *Bromopsis erecta* (Upright Brome) grassland, investigating track edges as we went. Relatively relaxed management over most of the Plain has led to an unusually long and extremely colourful sward, with the sheer extent of continuous chalk grassland impressing those visiting the Plain for the first time. A rich chalk assemblage included *Helianthemum nummularium* (Rockrose), *Filipendula vulgaris* (Dropwort), *Onobrychis viciifolia* (Sainfoin), *Centaurea scabiosa* and *C. nigra* (Greater and Common Knapweeds), *Hippocrepis comosa* (Horseshoe Vetch), *Anacamptis pyramidalis* (Pyramidal Orchid), *Serratula tinctoria* (Saw-wort) and some large patches of *Genista tinctoria* (Dyer's Greenweed). Shorter or more disturbed areas contained *Clinopodium acinos* (Basil Thyme), *Thesium humifusum* (Bastard Toadflax), and our first Salisbury Plain speciality *Erucastrum gallicum* (Hairy Rocket), which, having been apparently brought in on the tracks of a tank in the 1950s, is now near-ubiquitous along tracksides.

There was interest for butterfly enthusiasts too, with a single Marsh Frillfly located despite being at the end of its flight period in an early season. Areas of shorter turf held many Adonis and Small Blues. A stop was made for *Trifolium medium* (Zigzag Clover), and a Common Lizard also posed for

photographs here. *Geranium columbinum* (Long-stalked Crane's-bill) and a stunning group of fresh *Orobanche elatior* (Knapweed Broomrape) were also seen and duly photographed. A stop to look for *Minuartia hybrida* (Fine-leaved Sandwort) on some very disturbed ground close to Hound Plantation was successful, with a few specimens of this diminutive species still in flower.

Sadly, a roadside field which had, in previous years, held many uncommon arable weeds, had been 'tidied up', leaving just *Orobanche minor* (Common Broomrape) as the only interest. For the day's final stop we drove in convoy to pay our respects to *Adonis annua* (Pheasant's-eye), still present in recently disturbed ground at one of its long-known sites near Bulford. Growing with this much sought-after rarity were *Fumaria densiflora* and *F. officinalis* (Dense-flowered and Common Fumitories) allowing close comparison. Also present were a few plants of *Diploxys muralis* (Annual Wall Rocket), a rarity in this part of Wiltshire.

On Sunday the group moved to the western ranges, where the morning was spent examining the impressive combe of Cheverell Down. A stunning chalk flora was presided-over by plentiful *Adonis* Blues and the year's first Marbled Whites, and included *Orchis ustulata* (Burnt Orchid) and *Platanthera bifolia* (Lesser Butterfly-orchid) amongst abundant *Gymnadenia conopsea* (Fragrant Orchid). *Ophrys apifera* (Bee Orchid) and *Asperula cynanchica* (Squinancywort) were also located, although sadly both *Gentianella anglica* (Early Gentian) and *Ornithogalum angustifolium* (Common Star of Bethlehem) had finished flowering.

On a short walk on to the opposite, north-facing down Green Hairstreak and a male Ghost Moth were seen, and a search for *Ophrys apifera* var. *trollii* (Wasp Orchid) resulted only in some intermediates being found, probably ascribable to var. *pseudotrollii*. The down was awash with *Dactylorhiza fuchsii* (Common Spotted-orchid), with lesser numbers of *Gymnadenia conopsea*, *Anacamptis pyramidalis* and *Platanthera bifolia*. Neither *Coeloglossum viride* (Frog Orchid) nor its hybrid with *Gymnadenia conopsea* (*×Gymnaglossum jacksonii*) were located on this occasion; perhaps a slightly later visit would have proved more fruitful. A single *Listera ovata* (Twayblade) was located, although a few *Orchis morio* (Green-winged Orchid) and a single *Platanthera chlorantha* (Greater Butterfly-orchid) were well past flowering. Near the base of the slope a largish patch of *Ophioglossum vulgatum* (Adder's-tongue) was found, and *Crepis setosa* (Bristly Hawk's-beard) grew by the road close to the lunch stop.

After lunch, we walked south into the Warminster ranges in hot sunshine to the edge of the danger area. Some rich chalk grassland here again contained a bewildering range of odd-looking *Ophrys apifera* (Bee Orchid). Intermediate between the standard type and var. *trollii* (Wasp Orchid), none could be confidently ascribed to the latter taxon, although one or two came close. The hybrid between *Cirsium tuberosum* and *C. acaule* (*C. ×medium*) was located, though not in flower. On the edge of the danger area some water-filled tank ruts contained rare Fairy Shrimps (*Chirocephalus diaphanus*), which surfaced periodically for inspection. These strange, near-transparent crustaceans live only in the most ephemeral pools, and their eggs can survive long periods of complete desiccation. A little further on we stopped to admire a large clump of pure *Cirsium tuberosum* (Tuberous Thistle), which was tantalisingly close to flowering. Salisbury Plain is the undoubted stronghold of this species in Britain, with well over half the entire population (c.2000 plants), many of which are thankfully free from introgression with its commoner relative *C. acaule* (Dwarf Thistle).

Many thanks to Dominic Ash from Defence Estates for ensuring our safety and providing information on the sites visited, and to Nigel Cope for spontaneous expert guidance during Sunday's visit to Cheverell Down.

BILL MEEK & KEVIN WALKER

GALASHIELS, SELKIRKSHIRE (v.c. 79). 19th & 20th June

The object of the two day meeting was to record in two of the Local Change tetrads. The party of ten met in overcast conditions by the Tweed at Galafoot and drove to Caddonhead along the private track whose surface deteriorated markedly towards its upper limit at the remote cottage of Scroof. This upland tetrad NT34W has no land below 380m in altitude. On leaving the cars, the rain started and remained constant throughout the day although visibility was unaffected. The party split into two with

one group going up the Birehope Burn with the other ascending the Caddon Water above Scroof. On previous occasions *Listera cordata* (Lesser Twayblade) and *Myosotis stolonifera* (Pale Forget-me-not) had been found in Merlin's Cleuch by the Birehope Burn and they were both refound. In addition *Sedum villosum* (Hairy Stonecrop) occurred very locally in several flushes by the Birehope Burn itself where it had been 'missed' previously. Interestingly a few heads of *Eleocharis palustris* (Common Spike-rush) was seen on a hillside in rather dry conditions by the edge of a flush and was new.

The other party also recorded *M. stolonifera* and *L. cordata* with the addition of *Lycopodium clavatum* (Stag's-horn Clubmoss) in the tetrad to the east but *Sedum villosum* was not seen. Interestingly they found sterile *Cardamine amara* (Large Bitter-cress) to be frequent by the Caddon Water where it ascended to 400m. It was recognised by the stems rooting at the nodes, a feature not found in *C. pratensis* (Cuckooflower). Remarkably it was not found by the Birehope Burn.

By mid afternoon both parties were somewhat wet and 'called it a day' but not before two members had a quick look at a scree slope with *Juniperus communis* (Juniper) below Caddonhead. One clump of *Dryopteris oreades* (Mountain Male-fern) was seen but *Cryptogramma crispa* (Parsley fern), which is surprisingly local and rare in v.c. 79, was absent. The Juniper bushes seemed healthy with evidence of regeneration but as the whole estate is managed as grouse moor, it is important that any heather burning nearby is closely controlled. Populations of Juniper in v.c. 79 are very local and sparse. Some of the rocky ground nearby was basic as shown by the presence of *Helianthemum nummularium* (Common Rock-rose) and *Galium sterneri* (Limestone Bedstraw).

Of the 89 species on the original list for NT34W, 10 were not refound but 33 species were added making a total of 112. This low total shows the relative poverty of the flora in this part of the Moorfoots. There was no base-rich ground of note indicated by the absence of the moss *Palustriella (Cratoneuron) commutatum* in springs and flushes. It is worthy of note that *M. stolonifera*, which approaches its northern limit in these Moorfoot sites, was found to be much commoner than previously thought.

The following day dawned much brighter as the party of twelve drove up the Ettrick Valley and along the track to the shepherds cottage above the farm of Easter Deloraine to record in tetrad NT31J. Two members opted to record independently on the north side of the Ettrick in the north west corner of the tetrad in a variety of lowland habitats which included a farm, roadside verges and the river. The remainder of the party ascended the track by the Deloraine Burn noting *Listera cordata* on the steep bank of the Shorthope Sike. A good range of species was seen by the burn and after lunch taken in the sunshine, the party climbed the slope to the watershed of the Warleshope Burn encountering the first of several electric fences. *Festuca filiformis* (Fine-leaved Sheep's-fescue) previously overlooked occurred in the acid grassland, the yellowish tinge of the culms providing a contrast with the greyer culms of *F. ovina* (Sheep's-fescue). A surprise occurred in the form of a small basin mire tucked in a hollow bright with the white heads of *Eriophorum vaginatum* (Hare's-tail Cotton-grass) and carpeted with flowering *Vaccinium oxycoccos* (Cranberry), *Erica tetralix* (Cross-leaved Heath), *Drosera rotundifolia* (Round-leaved Sundew) and *Narthecium ossifragum* (Bog Asphodel), all new to the tetrad list. This site had been completely missed during the previous Monitoring Scheme survey. The plant of note however was the hybrid Deergrass, *Trichophorum caespitosum* nothosubsp. *foersteri*; a second v.c. record present in abundance as is so often the case in such a habitat. The examination of the banks and shingle of the Ettrick was brief as time was pressing and *Salix phylicifolia* (Tea-leaved Willow), *S. pentandra* (Bay Willow) and *Anthyllis vulneraria* (Kidney Vetch) were recorded together with the garden escapes *Meconopsis cambrica* (Welsh Poppy) and an immature *Aster* sp. (a Michaelmas-daisy) washed down from upstream. Another battle with electric fences ensued before the cars were safely reached.

The two members who recorded in the low ground added 34 species to the tetrad. This included the hybrid Hawthorn (*Crataegus ×macrocarpa*) in a hedge and new to the vice-county. 23 species of the 240 on the original list were not refound but the 67 additional species recorded gave an increased total of 284.

Thanks are due to the landowners and farmers for giving access, Sarah Eno of SNH for helpful information and to those who attended for making the meeting so successful.

TRAWSCOED FARM, LLANUWCHLLYN, MERIONETH (v.c. 48) 26th June (Leaders: P. Benoit, A. Graham)
 Under a lowering grey and windy-wet sky nine members gathered at the farmhouse and decided to change the programme, leaving the moorland walk until after lunch in the hope of better conditions. First we visited the lake, which was created 12 years ago by damming two streams just below their confluence. Here we saw *Myriophyllum alternifolia* (Alternate Water-milfoil), *Potamogeton natans* (Broad-leaved Pondweed) and *Sparganium angustifolium* (Floating Bur-reed) in a completely natural-looking setting. We noted that although *Crassula helmsii* (New Zealand Pigmyweed) had invaded the shoreline beyond hope of removal, it did not seem to be too invasive. Among the *Phragmites australis* (Common Reed), planted at the time the lake was created, we saw *Schoenoplectus lacustris* (Common Club-rush), *Carex vesicaria* (Bladder Sedge) and *C. rostrata* (Bottle Sedge), *Scutellaria galericulata* (Skullcap) and non-flowering *Epilobium palustre* (Marsh Willowherb).

At lunch, sitting on hay bales out of the rain in the barn, we watched in vain for a repeat of Andrew's sighting of a polecat taking a frog to its young. Then we set off for the rough moorland, most members of the party gratefully accepting a lift in the Graham's Landrover through the botanically less interesting conifer plantation below. A typical community of *Vaccinium myrtillus* (Bilberry), *Calluna vulgaris* (Heather), *Empetrum nigrum* (Crowberry) with *Carex binervis*, (Green-ribbed Sedge) and *C. echinata* (Star Sedge) intermingled with *Deschampsia flexuosa* (Wavy Hair-grass) and *Molinia caerulea* (Purple Moor-grass) marked our upward route. Eventually we found *Antennaria dioica* (Mountain Everlasting) on a rocky outcrop with *Solidago virgaurea* (Goldenrod) and an inaccessible *Hieracium* (Hawkweed). *Thymus polytrichus* (Wild Thyme) on the valley floor also indicated a richer environment and we were rewarded by some interesting flushes, with *Galium uliginosum* (Fen Bedstraw), *Pinguicula vulgaris* (Common Butterwort) and *Saxifraga hypnoides* (Mossy Saxifrage). Species of *Carex* included *C. flacca* (Glaucous Sedge), *C. pulicaris* (Flea Sedge), and best of all, *C. dioica* (Dioecious Sedge).

It was quite late when we arrived back at the farm but we had time to visit *Platanthera chlorantha* (Greater Butterfly-orchid) in the flower-rich meadow; this is now left ungrazed between May and September and the orchid has increased to almost 700 flowering spikes since it was first found in 1986. Four other species of orchids are recorded here, and we also saw *Meum athamanticum* (Spignel) in one of its few Welsh sites.

It had been a long but very satisfying day in the field and we are very grateful to Andrew Graham who was a wonderful host, making the day easy and pleasant for everyone by his thoughtful and practical hospitality, and by sharing his botanical treasures with us.

SARAH STILLE

LOCH KATRINE, WEST PERTH (v. c. 87) 26th June

The heavy and penetrating rain started as we parked the cars, and stopped as we left, but in between the party of four explored some interesting botanical country on the south side of Loch Katrine east of Royal Cottage as part of the Local Change project in Tetrad NN40J.

The loch is a water supply for Glasgow, and the catchment is owned by Scottish Water (who gave permission for access and use of cars along a private road). The loch also lies within Loch Lomond and the Trossachs National Park, Scotland's first. It would appear that livestock have been removed from the catchment; certainly there was absolutely no sign of grazing except for roe deer.

The group walked from near Royal Cottage along the track to the Eas Mor gorge. Ruderal and mire species were picked up on the way, but the gorge proved to be a rich hunting ground. Unusually *Listera cordata* (Lesser Twayblade) was frequent in the woodland, growing in moss mats and *Sphagnum* moss on steep banks under the trees — perhaps a result of the lack of sheep grazing. Elsewhere in the gorge the ground flora indicated surprising base-richness with *Polystichum aculeatum* (Hard Shield-fern), *Asplenium viride* (Green Spleenwort), *Festuca altissima* (Wood Fescue), *Viburnum opulus* (Guelder Rose), *Galium odoratum* (Woodruff), *Rubus saxatilis* (Stone Bramble) and *Saxifraga aizoides* (Yellow Saxifrage); one clump of *Orthilia secunda* (Serrated Wintergreen) was eventually

located on an inaccessible crag, and *Hymenophyllum wilsonii* (Wilson's Filmy-fern) was found hidden under a bank.

We made our way back across moorland, where *Listera cordata* was found growing commonly in its more normal habitat under heather clumps. The vegetation in rush pasture and grasslands was tall and dense, and it might explain why smaller species such as *Carex dioica* (Dioecious Sedge) and *Eleocharis quinqueflora* (Few-flowered Spike-rush) were not re-found. A very low grazing level can be a mixed blessing.

Without the requirements of Local Change we might not have been so diligent on such a wet day but in the end it was worth it.

NEALE TAYLOR

NICHOLASTON & OXWICH BURROWS, GLAMORGAN (v.c. 41) 3rd July

15 members and friends joined the two leaders for this meeting which, despite a gloomy forecast, enjoyed fine weather. Two people failed to turn up or let us know, which was unfortunate as numbers had been limited and we had a waiting list. The morning was spent on Nicholaston Dunes, owned and managed by the National Trust. *En route*, a sandy pasture held a huge population of *Convolvulus arvensis* (Field Bindweed); its pink flowers carpeting the ground caused us to stop and stare. Once in the dunes there was plenty of interest although *Hypochaeris glabra* (Smooth Cat's-ear) proved elusive, as ever. An overgrown hollow had recently been cleared revealing much *Cruciata laevipes* (Crosswort), *Viola hirsuta* (Hairy Violet) and *Sedum telephium* (Orpine). *Oenothera cambrica* (Small-flowered Evening-primrose) and *O. glazioviana* (Large-flowered Evening-primrose) were frequent but only one putative hybrid was seen. Where the dunes grade into salt-marsh *Centaurium* spp. abounded, unusually large plants of *C. pulchellum* (Lesser Centaury) raising false hopes of *C. littorale* (Seaside Centaury), not reliably recorded from Glamorgan. The very local *Juncus acutus* (Sharp Rush) occurs here, as does the more widespread *Carex viridula* subsp. *viridula* (Yellow-sedge) and *Oenanthe lachenalii* (Parsley Water-dropwort).

The two dune systems are surprisingly different botanically and are separated by Nicholaston Pill, a stream which has its origins on Cefn Bryn which forms the 'spine' of the Gower peninsula. We paused here for lunch amidst quite abundant *Mathiola sinuata* (Sea Stock) and *Eryngium maritimum* (Sea-holly). David Painter, Senior Area Warden for the Countryside Council for Wales, handed out literature, maps and species lists for Oxwich National Nature Reserve. Oxwich Burrows had clearly suffered from the prolonged hot, dry spell in June and the famous dune slacks were sadly affected. However, David was able to show us *Listera ovata* (Twayblade), *Epipactis palustris* (Marsh Helleborine), *E. helleborine* (Broad-leaved Helleborine) and *Pyrola rotundifolia* subsp. *maritima* (Round-leaved Wintergreen). A long-established clump of *Asparagus officinalis* subsp. *officinalis* (Garden Asparagus) on a dune ridge was clearly revelling in the conditions. Colourful spreads of *Geranium sanguineum* (Bloody Crane's-bill) were passed as the party moved to an area of slacks noted for *Gentianella uliginosa* (Dune Gentian) but we were out of luck and only *G. amarella* (Autumn Gentian) was showing. A comparatively new scrape held a large population of *Equisetum variegatum* (Variegated Horsetail) benefiting from a lack of competition surprising in view of its creation over 10 years ago.

Crossing the salt-marsh where *Aithaea officinalis* (Marsh-mallow) and *Sonchus arvensis* (Perennial Sow-thistle) were conspicuous, we reached the wooded limestone cliffs of Crawley Bluff. Here an interesting assemblage included *Sorbus torminalis* (Wild Service-tree), *S. porrigentiformis*, *S. rupicola*, *Juniperus communis* (Juniper) and *Tilia cordata* (Small-leaved Lime). Among the ground flora, *Helleborus foetidus* (Stinking Hellebore), *Galium odoratum* (Woodruff) and *Lithospermum purpureo-caeruleum* (Purple Gromwell) were noteworthy, while the many fine specimens of *Ruscus aculeatus* (Butcher's-broom) were received ecstatically by one member at least.

We thank Sian Musgrave of the National Trust and David Painter for their kind assistance with this event, and we are very grateful to Andrew Lewis (no relation) for allowing us to park in his field.

TONY & VIV LEWIS

ISLAY AND JURA, SOUTH EBUDES (v.c. 102) 3rd-5th July

Seven people assembled on Islay on the evening of 2nd July with the aim of carrying out BSBI Local Change monitoring in three tetrads. Two of these were on Jura and had not been surveyed before, one of them being fairly remote, while the third was on Islay and only one of its monads had been visited in 1987.

A prompt start the next morning saw three of the party catch the first ferry across to Jura and drive the 30km to the head of the long sea inlet, Loch Tarbert, where they met up with one of Scottish Natural Heritage's local area officers eager to improve her botanical skills. The local gamekeeper, Gordon Muir, then kindly ferried the group 8km along the loch, landing them within 100m of one edge of the tetrad, thus saving a minimum two-hour walk-in along a very poor track. The tetrad, which rises very steeply from sea-level to c.440m, was well covered during the day by the two pairs of surveyors, who found a total of 113 species, perhaps more than might have been expected on deer-grazed moorland with underlying acidic rock, which on the highest parts became relatively exposed rocky ridges. Included were *Hymenophyllum wilsonii* (Wilson's Filmy-fern) large patches of *Salix herbacea* (Dwarf Willow) and good quantities of *Pinguicula lusitanica* (Pale Butterwort).

Meanwhile, the other four participants spent the day covering a tetrad in the south of Islay, part of a newly-acquired RSPB reserve. It contained one end of a large freshwater loch, the outlet burn of which ran through moorland and then an attractive gorge, as well as undulating farmland, much of it subject to only low-intensity grazing for very many years. Some small areas of limestone intrude into the slates and phyllites making up this part of the island adding to species richness. Nearly 90% of the plants recorded in 1987 were re-found in the monad, while a total of 230 species for the day in the whole tetrad was deemed very satisfactory. Particularly memorable were the drifts (there's no other appropriate word) of *Dactylorhiza maculata* (Heath Spotted-orchid) covering parts of an old meadow.

Sunday was spent back on Jura where another tetrad, fortunately little more than a kilometre from Jura's only road, was visited. More moorland, again on acidic rock, was relieved by some interesting small outcrops and gorges, in one of which were growing 14 plants of *Saussurea alpina* (Alpine Sawwort), a new vice-county record. Another very good find *en route* to the highest point in the tetrad, near the summit of Glas Bheinn, was that of *Carex bigelowii* (Stiff Sedge), a second record for Jura. The total of just over 100 species was much as expected given the experience of the day before and the broad similarity in the habitat and underlying geology.

Malcolm and his wife, Carol, very kindly invited the entire group to their house for dinner on the Sunday evening. This turned out to be the culinary and social highlight of the entire weekend (the home-made pavlova was particularly delicious). Some members were persuaded, without too much difficulty, to sample the liquid for which Islay is famous.

On Monday, the whole group visited three different areas of Islay. At Loch Tallant, we undertook a thorough, but unsuccessful, search of some extensive *Salix* carr for *Thelypteris palustris* (Marsh Fern) reported there in 1975 but not since. Lynne Farrell was also unsuccessful in her search for *Potamogeton coloratus* (Fen Pondweed) for which there is a possible earlier record. The *Cephalanthera longifolia* (Narrow-leaved Helleborine) site near Bun-an-Uillt, only discovered in 1999, yielded fewer plants than usual, the area being noticeably wetter than in past years. The unusual habitat for this species, of waterlogged tussocky ground under scrubby *Salix* and *Quercus*, surprised everyone. A large (35mm long), black and yellow striped insect diverted our attention briefly. It was subsequently identified as a Lunar Hornet moth (*Sesia bembeciformis*), only the second record for Islay. Most of the party also had excellent close-up views of an immature Golden Eagle as it flew up from the ground less than 50m away. Finally, we spent a delightful afternoon wandering through dunes carpeted with *Thymus polytrichus* (Wild Thyme), *Euphrasia* (Eyebright), *Lotus corniculatus* (Common Bird's-foot-trefoil) and many more, interspersed with *Centaureum erythraea* (Common Centaury) and *Gentianella campestris* (Field Gentian) and literally hundreds of spikes of *Anacamptis pyramidalis* (Pyramidal Orchid) and *Coeloglossum viride* (Frog Orchid). The two nearby colonies of *Epipactis palustris* (Marsh Helleborine) were especially rewarding with over 60 flowering spikes at the larger one, more than have been recorded in any year since its discovery in 1995.

The meeting achieved its main aim of Local Change tetrad recording, with thorough coverage of the three outstanding squares, the weather was very kind — the daily forecast of heavy showers always

wrong — and there was even time before departure on the Tuesday for some members to make a tour of one of the establishments where Islay's famous liquid is produced, combined with some further sampling, of course.

MALCOLM OGILVIE & JIM MCINTOSH

RHOSGOCH COMMON AND LLANBWCHLLYN (v.c. 43) 10th July

Twelve members and friends assembled in Rhosgoch village to visit the nearby Rhosgoch Common NNR. The unusual activity attracted the interest of the locals and the leader was quickly recruited to lead a separate walk for local inhabitants in the near future — a clear opportunity to spread the botanical gospel to this remote part of Radnorshire. Blessed with the attendance of the *Utricularia* (bladderwort) referee, John Day, he was immediately put to work to try and rediscover the common bladderwort *U. vulgaris* agg. not seen in this, its only mid-Wales locality, for a number of years. Disappearing into the first pool the value of an expert was quickly realised. *U. vulgaris* s.l. (Greater Bladderwort) was immediately found. Mysteriously the normally widespread *U. minor* (Lesser Bladderwort) completely eluded the entire party. So there was still a bladderwort to be refund! (The latter species was relocated later in the season by CCW's warden for the site).

Carex vesicaria (Bladder-sedge) proved to be more abundant than previously noted and occurred mixed with *C. rostrata* (Bottle Sedge). The eclectic tastes of the party quickly emerged with the discovery of the rust fungus *Puccinia caricina* var. *urticae-vesicariae* on *Carex vesicaria*, new to Radnor, and Arthur Chater's keen eyes detecting the ergot *Claviceps nigricans* infecting the florets of *Eleocharis palustris* (Common Spike-rush), possibly a second modern Welsh record.

The soakaways areas at the west end of the mire were found to still support *Pilularia globulifera* (Pillwort), a particular speciality of Radnorshire with *Eleogiton fluitans* (Floating Club-rush) and *Apium inundatum* (Lesser Marshwort). Small patches of slightly higher ground supported flowering *Cirsium dissectum* (Meadow Thistle). It was here that a somewhat incredulous audience watched as Arthur Chater burrowed amongst the basal leaf sheaths of *Danthonia decumbens* (Heath-grass) to demonstrate its cleistogamous flowers complete with a caruncle. If a grass with near subterranean flowers spread by ants is a new and unlikely concept, you are in good company as this party of very experienced botanists were blissfully unaware of *Danthonia*'s little trick (also apparently shared by some species of *Melica*).

In the afternoon the party headed west to the large natural eutrophic lake of Llanbwchllyn. The usually easy access along a path on its west shore proved to be more challenging as a wreck of branches and fallen shrubs had to be negotiated following the exceptional easterly gales earlier in the week. The impact of exposure on lake flora was debated since this once exposed lake has become closed in by woody growth over the last 30 years. The main objective of the visit was to try to relocate *Carex* × *subgracilis* the hybrid between *C. acuta* and *C. acutiformis*, discovered by the outflow stream last year by Clive Jermy. Unsuccessful in this site, we pushed along the south shore and there Arthur Chater expressed satisfaction in the discovery of a fine clump of what appeared to be this scarce hybrid. A cordial meeting with two fishermen and an examination of the heaps of weed dragged out by them to facilitate fishing confirmed the presence of *Potamogeton praelongus* (Long-stalked Pondweed) and *Myriophyllum spicatum* (Spiked Water-milfoil).

RAY WOODS

KIRKCUDBRIGHTSHIRE (v.c. 73) 24th -25th July

Two tetrads were scheduled over what turned out to be variable weather braved by 7-9 people. The first tetrad (NX48A) covered a variety of habitats north of Loch Trool where in 1307 Robert the Bruce defeated an English army in the war of Scottish independence which culminated at Bannochburn. From the loch side to approximately 500m altitude, the ground is on acid rock, relieved at lower levels by ancient semi-natural woodland, *Molinia*-dominated marsh and some flushed grasslands. Both the public road and the Forestry Commission track from the car park had recently been resurfaced and

provided a good range of ruderal species, including *Leucanthemum vulgare* (Oxeye Daisy) growing in the middle of an adjoining *Narthecium ossifragum* (Bog Asphodel) flush. Indeed the track running through the eastern half of the tetrad produced a range of common species otherwise unlikely to be found in what is predominantly an upland area, namely *Hypericum humifusum* (Trailing St. John's-wort), *Gnaphalium uliginosum* (Marsh Cudweed) and *Juncus tenuis* (Slender Rush), unexpectedly up to 65cm tall. An introduction by Michael Braithwaite to the characteristics of the various subspecies and hybrids of *Trichophorum caespitosum* (Deergrass) gave us a good start with subsp. *germanicum* and the hybrid *foersteri* being found. The loch is oligotrophic and gave us good views of *Lobelia dortmanna* (Water Lobelia) in flower, but little else. The adjoining oak wood was spectacular and provided good displays of *Melampyrum pratense* (Common Cow-wheat) and a reasonable first tasting of the fruits of *Vaccinium myrtillus* (Bilberry). Upstream a deep shaded ravine held good colonies of *Hymenophyllum wilsonii* (Wilson's Filmy-fern) for those brave enough to venture near the vertical rock faces.

Lunch, in weak sunshine and increasing cloud, was interrupted by the inevitable midges. During the afternoon the heavens opened and continued to do so for the rest of the day, with hill fog at around 800m.

Two members of the party opted to cover the low ground and policy woodland around a shooting lodge, adding a number of exotic tree species and introductions – *Sambucus racemosa* (Red-berried Elder), *Acer platanoides* (Norwegian Maple), *Castanea sativa* (Sweet Chestnut), *Taxus baccata* (Yew), *Picea abies* (Norway Spruce) and *P. sitchensis* (Sitka Spruce).

The rest of the group covered the higher ground, dominated by *Molinia caerulea* (Purple Moor-grass), interspersed with acidic flushes which added *Carex pauciflora*, *C. dioica*, *C. pulicaris* (Few-flowered, Dioecious and Flea Sedges), *Eleocharis multicaulis* (Many-stalked Spike-rush), *Drosera rotundifolia* (Round-leaved Sundew), plentiful *Narthecium ossifragum* and *Hypericum elodes* (Marsh St John's-wort), a species very scattered in the vice county. Two shallow bog pools had *Menyanthes trifoliata* (Bog-bean) and *Carex rostrata* (Bottle Sedge); the upper reaches of the burn had only *Littorella uniflora* (Shoreweed), *Juncus bulbosus* (Bulbous Rush) and *Potamogeton polygonifolius* (Bog Pondweed). One of the few rock faces right on the edge of the tetrad provided the only specimen of *Huperzia selago* (Fir Clubmoss), while the shingle bank beside the Buchan Water turned up the only record of *Thymus polytrichus* (Wild Thyme). Then a long, wet and slippery trek back to the waiting cars, too late for a reviving cup of tea/coffee at the FC visitor centre — tea shops close about 4-5pm in this part of the world! So home, dry out and complete identification and record cards.

Sunday dawned wet, windy and with hill fog, but all this lifted before we met at Kirkcudbright to cover a very varied and complex lowland tetrad (NX78W) of farmland, lochans, woodland both broad-leaved and conifer, grassland and roadsides. The sun came out and stayed out, so that waterproofs and sweaters were quickly discarded. The party split into two in order to cover as much of the varied ground as possible. At the end of the day, both parties agreed that barbed wire fencing seemed to be the common problem which slowed down progress. This, plus part of it being a recently tree planted green burial site with one party meeting a couple with GPS apparently out to select their family site slowed down progress.

Although not the richest tetrad in the vice-county in 1987/8, this held 274 species; we failed to find 70 of them but added a further 79 including a number of exciting finds, several new to various members of the two groups. Extensive stands of *Scrophularia nodosa* (Common Figwort) were soon discovered in and around an excavated area with farm sheds, as was *Rubus polyanthus* (a bramble) and *Gnaphalium uliginosum* (Marsh Cudweed), so that the first hour saw one party move about 200m from the parked cars. The steep banks below a minor road held good populations of ferns, including *Phyllitis scolopendrium* (Hart's-tongue), and *Mercurialis perennis* (Dog's Mercury), various *Rubus* microspecies and *Hypericum androsaemum* (Tutsan). The fields adjoining this were horse-grazed, with the steep banks providing a variety of species: *Potentilla erecta* (Tormentil), *Danthonia decumbens* (Heath-grass), *Pimpinella saxifraga* (Burnet Saxifrage), *Lotus corniculatus* (Common Bird's-foot-trefoil), *Hypochaeris radicata* (Cat's-ear) and *Leontodon autumnalis* (Autumn Hawkbit) providing a splash of colour. We continued, adding the inevitable *Cotoneaster* escapes from the house grounds,

C. simonsii (Himalayan Cotoneaster) and *C. ×suecicus* (Swedish Cotoneaster), into a deciduous woodland strip where a 1m tall *Carex otrubae* (False Fox-sedge) caught our attention, along with *Circaea lutetiana* (Enchanter's-nightshade). After lunch we pushed on round a marsh with various *Epilobium* species, including *E. palustre*, *E. hirsutum*, *E. obscurum*, *E. montanum* and *E. parviflorum* (Marsh, Great, Short-fruited, Broad-leaved and Hoary Willowherbs) along with a mass of *Juncus* and *Cirsium vulgare* (Spear Thistle).

Marsh is a non-productive area for farming and there had been some attempt at drainage, followed by planting with *Picea sitchensis*, probably doomed to failure. Most of the afternoon was spent negotiating barbed wire fences to reach a lochan where *Cicuta virosa* (Cowbane) had previously been recorded. Eventually we got there to find that the farmer had in-filled about half with rubble which supported *Calystegia sepium* (Hedge Bindweed), *Fumaria bastardii* (Tall Ramping-fumitory) and *Senecio sylvaticus* (Heath Groundsel), and large heaps of manure leaking nutrients in a black stream into the remaining open water. Despite this we found >100 *Cicuta virosa*, a species new to several of the party, as well as good stands of *Bidens cernua* (Nodding Bur-marigold), *Ranunculus sceleratus* (Celery-leaved Buttercup), *Carex rostrata*, *Eleocharis palustris* (Common Spike-rush), *Potamogeton natans* (Broad-leaved Pond weed), *Sparganium erectum*, *S. emersum* (Branched and Unbranched Bur-reeds), *Alisma plantago-aquatica* (Water-plantain), *Potentilla palustris* (Marsh Cinquefoil) and *Nymphaea alba* (White Water-lily). Surprisingly the last had not been there in 1987. One of the party spotted a small patch of grass-like waterweed in the shallow water, which turned out to be *Zannichellia palustris* (Horned Pondweed) in flower. The walk back took us over a steep bank where a few plants of *Lepidium heterophyllum* (Smith's Pepperwort) were in seed and along the wooded roadside with *Galium odoratum* (Woodruff), *Asplenium adiantum-nigrum* (Black Spleenwort), *Polypodium vulgare* (Polypody), *Iris pseudacorus* (Yellow Iris) and 3 tall *Populus tremula* (Aspen).

The entrance to the car park provided 5 final species - *Cicerbita macrophylla* (Common Blue-sow-thistle), *Claytonia sibirica* (Pink Purslane), *Euphorbia peplus* (Petty Spurge), *Meconopsis cambrica* (Welsh Poppy) and *Atriplex patula* (Common Orache).

Meanwhile the second party had covered grassland, a small part of a conifer plantation water courses and a small lochan. The plantation proved difficult as a bog with *Carex paniculata* (Great Tussock-sedge) and *C. pendula* (Pendulous Sedge) impeded further progress. Notable finds included *Stachys arvensis* (Field Woundwort), *S. ×ambigua* (Hybrid Woundwort), *Viola arvensis* (Field Pansy), *Asplenium trichomanes* subsp. *quadrivalens* (Maidenhair Spleenwort), *Koeleria macrantha* (Crested Hair-grass), *Salix viminalis* (Osier) and *Scrophularia auriculata* (Water Figwort). Again barbed wire hindered the group, so some areas had to be left for the v.c. recorder at a later date. A suspect *Rumex* later proved to be *R. crispus* (Curled Dock).

My thanks are due to all who attended my first, but not my last, BSBI meeting, especially the other v.c. recorders for their guidance.

DAVID HAWKER

INVERPOLLY, LOCH EWE & LOCH DUICH (v.c. 105) 6th-8th August

The programme for this field meeting in north west Scotland was to survey Local Change tetrads, but was overly ambitious with two tetrads planned per day; in practice only one was achieved, except on the day when we split into two groups. However, over the three days it did not rain once and the midges were tolerable – remarkable for Wester Ross in August!

On the first day thirteen of us assembled in the Knockan Visitor Centre car park to survey a tetrad immediately south of Loch Veyatie, nothing special, just a typical piece of low altitude acid moorland with some lochside birch woodland. Ian and Pat Evans (v.c. Recorder for West Sutherland) joined us to look for *Mercurialis perennis* (Dog's Mercury) in the hope of finding a previously recorded site at the northern end of this species' range, but in this we were unsuccessful. However in the woodland were *Sanicula europaea* (Sanicle), characteristic of relict woodland in this part of the world, and *Trollius europaeus* (Globeflower) on ledges inaccessible to grazing. The moorland was nothing

special, although *Carex pauciflora* (Few-flowered Sedge) was present. 164 species in total were seen in this tetrad.

On the second day the party split into two groups, one group surveying Stac Pollaidh and its moorland environs, finding *Hymenophyllum wilsonii* (Wilson's Filmy-fern) and *Galium boreale* (Northern Bedstraw). 98 species in total were seen in this tetrad.

The other group proceeded further south to an unpromising piece of moorland west of Loch Ewe, but this turned out more interesting than expected. Most exciting was a good stand of flowering *Utricularia minor* (Lesser Bladderwort) in a floating bog, the first time I have ever seen this species in flower in this part of the world albeit being not uncommon in *Schoenus nigricans* (Black Bog-rush) flushes. Other wet peaty areas contained *Carex limosa* (Bog-sedge) and *C. lasiocarpa* (Slender Sedge), with *Saxifraga aizoides* (Yellow Saxifrage) present in one stony flush. A characteristic of the lochs in this area is for their islands to have stands of *Osmunda regalis* (Royal Fern) on their shores, and this was no exception. 138 species in total were seen in this tetrad.

The last day was spent further south surveying a tetrad at Balmacara, east of Kyle of Lochalsh, a more diverse area of richer soils with forestry plantations, moorland, lochs and native woodland. Most exciting was a stand of eighteen spikes of *Hammarbya paludosa* (Bog Orchid) – a new 10km square for this species. One loch was particularly rich in macrophytes, including *Schoenoplectus lacustris* (Common Club-rush) and *Subularia aquatica* (Awlwort), and Auchtertyre Hill, although relatively low at 452m, had a good range of montane species, including *Oxyria digyna* (Mountain Sorrel), *Saxifraga oppositifolia* (Purple Saxifrage), *Salix herbacea* (Dwarf Willow), as well as *Trollius europaeus* (Globeflower) and *Galium boreale* (Northern Bedstraw). 184 species in total were seen in this tetrad.

All-in-all this trip was good in showing what could be found by visiting run-of-the mill areas of this large vice-county, rather than homing-in on the exceptional!

JAMES FENTON

VALE OF GLAMORGAN (v.c. 41 (East)), 21st August

In the end about thirty four people joined this meeting that evolved into what I think is the first joint BSBI & Plantlife field meeting concentrating on those elusive and (certainly in this case) ephemeral group of vascular plants known as 'arable weeds'. As a joint BSBI/Plantlife field meeting I was lucky to be joined by Plantlife Wales Officer, Trevor Dines, and as such we were all treated to some informed discussion and in depth views on identification, history and general background to this group. We met near the village of Flemingston to look at part of a farm that is a recent entrant to the Welsh agri-environment scheme, Tir gofal. The hot and dry weather in May and June had advanced the season considerably here and some of the 'specials' had pretty much done their stuff and only a few stalks were left, plus the fields had all ready been harvested. The crop in the first field had been oilseed rape and this was harvested quite high with the combine set at about two foot if not more off the ground. Here *Euphorbia exigua* (Dwarf Spurge) and *Kickxia spuria* (Round-leaved Fluellen) were still in fine form around the headland of the field. Other associates included *Viola arvensis* (Field Pansy), *Sherardia arvensis* (Field Madder), *Fallopia convolvulus* (Black Bindweed) and *Persica lapathifolia* (Pale Persicaria), amongst others. Further on we managed to locate some shrivelled stems and the distinctive fruits of *Ranunculus arvensis* (Corn Buttercup) which the author was thrilled to stumble upon in a better state in early July this year. We then moved on to a wheat field crossing a brook that turned into a bit of an assault course. We looked on the edge of the cropped field adjacent to a tall, grassy, uncultivated headland where we struggled to find some withered stems with the distinctive 'needles' of *Scandix pecten-veneris* (Shepherd's-needle). Previously there had been a fine show along the edges and scattered throughout the wheat crop in this field.

After lunch Trevor suggested we decamp to the beach, not primarily for ice cream but to admire a coastal population of *Galeopsis angustifolia* (Red Hemp-nettle) at West Aberthaw often known as 'The Walls'. Here it can be found peeking out amongst the pebbles of a large and old pebble bar for about half a mile from the house known as Limpert. The landward side of the pebble bar gradually becomes more vegetated with a sparse and open calcareous grassland forming. Here we saw

Spiranthes spiralis (Autumn Lady's-tresses), *Carlina vulgaris* (Carline Thistle), and *Euphrasia tetraquetra* × *E. nemoralis*, (a hybrid eyebright). Further inland a small area of salt marsh has developed and on the edge of a path, through the upper salt marsh, *Parapholis strigosa*, (Hard-grass) was demonstrated. Whilst the main group were wandering on, an excited Tony Marshall recalled us to an area that he and Val Marshall had been observing. Sure enough they had discovered a patch of *Bupleurum tenuissimum* (Slender Hare's-ear) about fifty plants in a fairly open area between the salt marsh and pebble bar. This plant hasn't been seen in Glamorgan since 1956. Val & Tony follow in the footsteps of the great Eleanor Vachell who recorded the *Bupleurum* at West Aberthaw in 1930. A disturbed area near Limpert revealed a few more 'weeds' including *Euphorbia exigua*, *Sison amomum* (Stone Parsley) and *Fumaria capreolata* (White Ramping-fumitory) amongst others. My thanks to everybody on the day especially Trevor, I am glad we went to West Aberthaw!

JULIAN WOODMAN

YNYS-HIR RSPB RESERVE, EGLWYS FACH, CARDIGANSHIRE (v.c. 46) 11th September

Thanks to the hospitality of the RSPB, twenty two members met at their Ynys-hir Reserve, an old estate bought in 1969 and containing a great range of habitats. Our late member Bill Condry was its first warden. Following the recent buying out of the tenant farmer, grazing and drainage have both been reduced on the lower parts of the Reserve and we were able to see some of the early results of this more sympathetic management, although it was too soon for any obvious change in the species present.

Going westwards from the reception centre, SN682.963, through the estate woodlands we saw *Gaultheria shallon* (Shallon) and another ericaceous shrub *Leucothoe fontanesiana* (Switch Ivy). The latter is well naturalised in several places here, but apparently nowhere else in Britain and Ireland. *Lemna minuta* (Least Duckweed) and *L. minor* (Common Duckweed) were instructively growing together in a small pond. A plant of *Polystichum aculeatum* (Hard Shield-fern) was still growing at the site of an ancient copper mine where Bill Condry had planted it thirty years ago. In the birch and alder carr by the West Marsh we saw big clumps of *Osmunda regalis* (Royal Fern), and at the far end of this area, SN673.954, extensive colonies of *Calystegia sepium* subsp. *roseata* (Hedge Bindweed) which has greatly increased in abundance in recent years where the pathsides have been cut back.

Reaching the grazing marshes we spent a long time in the prolifically weedy strips sown by the RSPB to provide seed for finch-flocks and other birds. *Chenopodium quinoa* (Quinoa) was abundant, in a bewildering variety of forms varying in colour of inflorescences, branching, leafiness and fertility, but all apparently the one species. There was an equally wide variety of forms of *Persicaria lapathifolia* (Pale Persicaria) and *P. maculosa* (Redshank), and *Raphanus sativus* (Garden Radish) with and without swollen rootstocks as well as *R. raphanistrum* subsp. *raphanistrum* (Wild Radish). Strong winds and heavy rain reduced our numbers slightly as we went to the west tip of the Reserve, where we found a number of salt marsh species in an area of brackish incursion, SN658.951, including *Aster tripolium* (Sea Aster), *Juncus gerardii* (Saltmarsh Rush), *Samolus valerandi* (Brookweed) and *Rumex crispus* subsp. *littoreus* (Curled Dock). The ditches, although they had recently been re-profiled and had good, gently sloping peaty margins, had yet to acquire many aquatics, although we did find *Utricularia australis* (Bladderwort). *Rorippa palustris* (Marsh Yellow-cress) was in good fruit in one place. Returning alongside the railway we looked at the salt marsh *Cochlearia* (Scurvygrass) plants, now like most in these west coast estuaries believed by the experts to be *C. atlantica*. On an area of disturbed waste ground by Ynys Edwin we were able to compare *Rorippa islandica* (Northern Yellow-cress) with the *R. palustris* seen earlier, and admired plants of *Verbascum phlomoides* (Orange Mullein) and *Heracleum grossheimii* (a Giant Hogweed), before being restored by a magnificent tea provided by Penny Condry. Returning to base via Ynys Edwin bog we saw our newly elected County Flower, *Andromeda polifolia* (Bog Rosemary), enjoying a second flowering, and exhibiting the fleshy, enlarged and reddened shoots galled by the fungus *Exobasidium karstenii*.

ARTHUR CHATER

UPDATE TO MEMBERS LIST IN YEAR BOOK 2005

Sod's Law dictates that as soon as you think you've finalised something, events prove you wrong. So it was with the Members List in *BSEI Year Book 2005*! No sooner had the copy gone to the printers when notification of changes of addresses, new members, resignations and, unfortunately, deaths come flooding in; mainly, it must be said, as a result of the new Membership Secretary's unusual efficiency in getting subscription reminders posted to members early in December rather than late January. All corrections and additions up to and including Jan. 6th are listed.

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Changed details including addresses, titles, etc.

- 69778 1991 P Austin Mrs A A, 18 Glenvar Park, Blackrock, Co. Dublin, Ireland, H21.
 38538 1979 Crane Prof. Sir P R, Director, The Royal Botanic Gardens Kew, Richmond, Surrey, TW9 3AB, 17.
 93598 2003 Drewett Mr J, 3 Victoria Row, Eppleby, Richmond, N. Yorkshire, DL11 7BE, 65.
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 59306 1986 Edelstein, Mr J., 19 Macrae Court, Portsoy, Aberdeenshire AB45 2RE, 92.
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